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The Pleistocene Protagonist: Predicting Chinese, North American and global box office success through an evolutionary analysis of film protagonists

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The Pleistocene Protagonist:

Predicting Chinese, North American and global box office success
through an evolutionary analysis of film protagonists

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A thesis submitted in fulfilment of the requirements
for the degree of
Doctor of Philosophy

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ABSTRACT

The process of selecting which screenplays to “greenlight”, or fully finance for production, is one of the most important stages in film production since the cost of acquiring and developing a screenplay is negligible compared to the later costs of producing, marketing and distributing a film. Despite this, very little is known about the contribution that elements of a film’s narrative make towards a film’s box office performance. In this thesis I examine the widely-received idea that “primal” aspects of film protagonists, including their personality traits, motivations and emotions, contribute significantly towards a film’s universal appeal as measured by worldwide ticket sales. I also interrogate the proposition that certain protagonist qualities are universally liked by audiences.

Drawing on models of human behaviour advanced by evolutionary psychologists, I propose that an evolutionary framework will illuminate our understanding of film protagonists and their associated audience appeal. I report the development of a new instrument to assess differences in film protagonists’ emotions, motivations and character traits, and then use this questionnaire in five studies. Through analysis of 170 films exhibited in North America and China between 1995 and 2014, I find the questionnaire to be comprehensive. I also find that the psychological attributes of a film protagonist may be used to predict the territory in which a film is preferred, whether a film is likely to rank in the top ten at the North American box office and whether a high-budget film is more likely to be a global box office hit or flop.

These findings are consistent with evolutionary theories, which would suggest that screen characters’ traits, motivations and emotions are writers’ emulations of universal adaptations to evolutionary selection pressures, reshaped through aesthetic and cultural processes. I conclude that an evolutionary framework offers useful insights into which aspects of film protagonists may be universally liked. It also reveals cross-cultural variation in audiences’ preferences for films with protagonists with certain attributes. Finally, I argue that this knowledge may benefit the industrial greenlighting process and screenwriting pedagogy.

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Pelican, K.-A. 2016. 'Journey to the West' – A Chinese epic for Western eyes. *Sixthtone.com*. [Online]. 6th October 2016. Available at:
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In addition, some of the material in this thesis has been presented on various occasions, including at the following conferences:

Happily Ever After: Why we're hardwired to prefer films with optimistic endings. *Screenwriting between Artistic Freedom and Norms: 9th International Screenwriting Research Network (SRN) Conference*. University of Leeds. 8th - 10th September 2016.

Psych Up! Using psychological techniques to create compelling characters. *London Screenwriters' Conference 2016*. Regent's University, London. 2nd - 4th September 2016.

The Pleistocene protagonist: An evolutionary framework for the analysis of film protagonists. *Screenwriting, Text and Performance: 8th International Screenwriting Research Network (SRN) Conference*. University of London. 10th - 12th September 2015.

Getting under the skin and into the mind of your characters. *London Screenwriters' Conference 2014*. Regent's University, London. September 2014.

The Redemption Plot. *London Screenwriters' Conference 2013*. Regent's University, London. September 2013.

1 Introduction

In one of the most popular panel sessions at the 19th Shanghai International Film Festival (2016), entitled ‘Hollywood Creative Panel: Screenwriting for a Global Audience’, North American and Chinese film and television producers debated how writers could create screen content with the best chances of worldwide audience appeal (Screen Craft, 2016). Since China is predicted to take over from North America as the world’s largest film market in 2019 (Lin, 2016), and both the US and China are keen to capitalize on the possibilities of their films performing well across these sizeable markets as well as in other territories, the question of which attributes of fictional film narratives translate best across cultural divides and contribute towards financial success at the global box office has become an important issue within the North American and Chinese film industries in recent years. As a consequence of limited academic and industrial research into this field, the answers remain elusive.

For all three producers on the 19th Shanghai International Film Festival panel, the consensus was that “universally appealing” characters are more important than plot or the story concept in sustaining audiences’ interest, since audiences engage with film and television narratives through their characters. According to Zack Estrin, executive producer of *Stranger than Fiction* (2000) and showrunner of the transnationally-popular US-produced television show *Prison Break* (2005–2009), the best way of writing screen stories that connect with audiences across the globe is by creating “universal”, archetypal and iconic characters, who evoke “genuine emotion” and with whom audiences identify. “Regardless of cultures we all feel the same thing – love, jealousy, anger, hate, revenge...” asserts Estrin (Screen Craft, 2016).

In response to Estrin’s observation, US literary manager and producer Vince Gerardis, whose credits include *Game of Thrones* (2011–2017), adds that “primal” themes - including violence, survival, oppression and family - transcend culture, thus contributing towards a film or television show’s potential to appeal to a global audience. In the view of Chinese-American producer and distributor David U. Lee, whose filmography includes *Shanghai* (2010) and *Divergent* (2014), a film has the best chance of engaging viewers across the globe when its characters are believable and allow audiences to relate to them. As Lee reminds the session’s participants, the creation of universally appealing characters is just one factor of many that need to “align” in order for a film to achieve commercial or critical success. “You

can have the best story, but if the person who's telling it, who's the face on the screen, isn't somebody who people want to watch, that can torpedo the whole thing", adds Estrin.

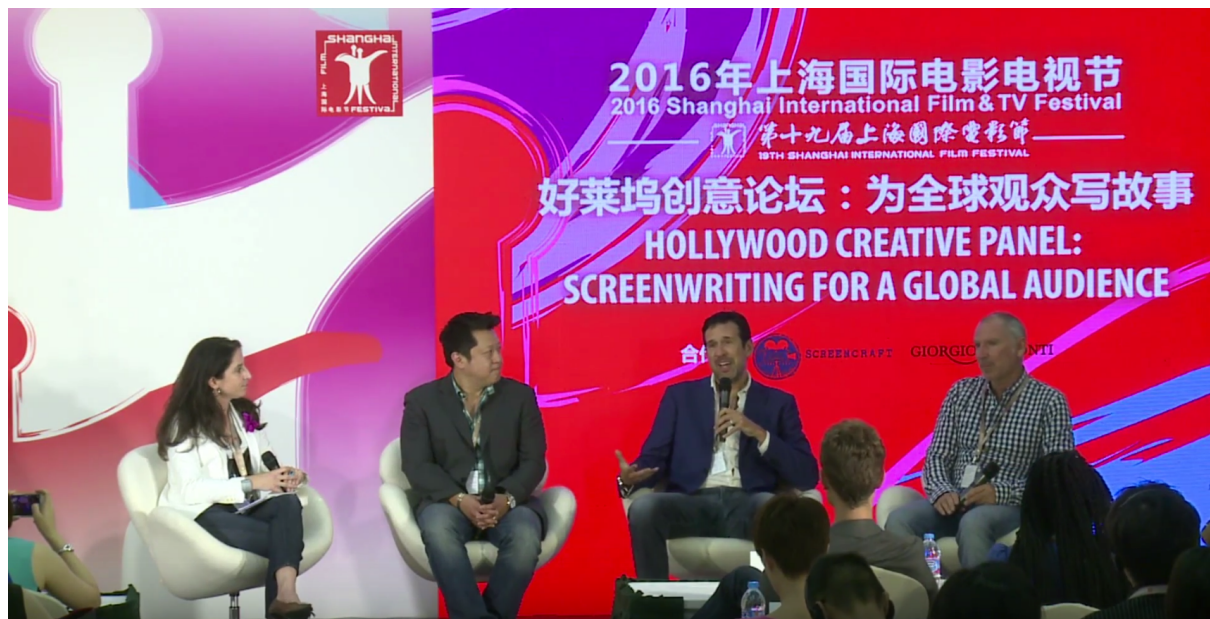


Figure 1: Moderator Emily Dell with panel members David U. Lee, Zack Estrin and Vince Gerardis (pictured from left to right) at the Screenwriting for a Global Audience session during the 19th Shanghai International Film Festival. Copyright 2016 Screen Craft LLC.

The question these Shanghai International Film Festival panellists were debating relates to one of the most pertinent financial issues for writers and producers across the world, attempting to make mainstream, mid- to high-budget, commercially successful films and television shows for the contemporary marketplace. Do evolved, or “primal”, psychological attributes of fictional film protagonists contribute towards the universal appeal of films featuring these protagonists, as measured by global box office ticket sales? Given that the US accrues 71% of its ticket sales at the international box office (MPAA, 2015b), a better understanding of the contribution of factors influencing a film’s reception in international territories has become even more important to US studio film producers than understanding their domestic market (Frater, 2013b; D’Alessandro, 2015). Greater knowledge of these factors also has the potential to add millions if not billions of dollars to global cinema ticket sales, which were most recently estimated at over US\$38 billion in 2016 (Lang, 2017). In comparison, in China, the world’s second largest film market, only 6% of ticket sales came from international markets in 2015. The majority of domestically-successful Chinese films have failed to receive international distribution, because in recent years Chinese films have attracted very little interest from non-Chinese audiences in the West (Wang & Liu, 2013).

However, this is likely set to change, as evidenced by the 48.1% growth in overseas sales revenues from Chinese-produced films in 2015 (Shackleton, 2016) and Chinese film studios' rising interest in making films for the international marketplace.

As the third largest film market in the world, the UK also has a vested interest in understanding how its higher budget films may garner more commercial success in international territories. "UK certified" films, featuring UK cast, crew, locations, facilities, post-production or source material, accounted for 25.1% of global box office ticket sales and were valued at US\$9.4 billion¹ in sales in 2015 (BFI, 2016). Although the vast majority of these films were wholly or partly financed and controlled by US studios, they still represent a major contribution to the British economy and a significant employer of UK casts and crews. US studio-backed, UK certified films accounted for 29% of box office receipts in North America and 15% of films in China in 2015. By contrast, lower budget, independent British films earned just 2.8% of global ticket sales in 2015 (BFI, 2016). Overall, the UK's benefits from the global trade in films have been valued highly by the creative sector. In a 2016 press release, accompanying a creative industries' report responding to the British public's vote in favour of Brexit, Amanda Nevill, Chief Executive of the British Film Institute, stressed the importance of holding onto Britain's trade links with Europe. In the press release she wrote: "Film is a global business, and the UK is a success story at its heart. We have this wonderful opportunity now to aspire to even greater heights of success, economically and creatively, if we can get the right framework for the future" (Lodderhose, 2016). Much of this framework will depend on the successful negotiation of international trade deals when Britain exits the European Union. I propose that a better understanding of the narrative factors that contribute towards a film's worldwide appeal will also be important to this approach, and to the success of mid- to high-budget UK-certified films in the global marketplace.

In addition to the economic contribution that foreign territory sales make to film and television studios, production companies, their staff and freelance crews across the world, the globalization of the film industry also adds financial value to downstream film markets, which sell products or services based on films' intellectual property, service industries supporting film workers, and film tourism. Within the UK, for example, locations depicted in

¹ All theatrical sales figures are provided in US\$, since the US is the world's largest film market, and my primary source of box office information is the US box office data site, Box Office Mojo.

popular films contributed £814 million to the UK economy in 2014, while locations depicted in popular television series contributed £210 million (Olsberg SPI, 2015). These include the UK-certified *Harry Potter* film series (2001–2011), *Downton Abbey* (2010–2015) and *Game of Thrones* (2011–2017).

Through promotion of the “UK plc” brand overseas, the film and television industry is estimated to add a value of £717 million to UK companies (Olsberg SPI, 2015). Film and television products also allow the export of cultural ideas across the world, and with this comes the possibility of “soft power”, or influencing other nations through the presentation of attractive and persuasive narratives (Nye, 1990). In a 2016 analysis of the leading soft powers of the world, the US ranked first, the UK second, and China twenty-eighth. Confirming the power of North American films in exporting cultural ideas, the report finds that “American cultural outputs are ubiquitous... America topping the film metric is a good case in point. Hollywood has introduced billions of people to America, helping to create a feeling of familiarity even for people who have never set foot on US soil” (McClory, 2016). While investigation of the political ramifications of the transmission of cultural ideas through films that successfully transcend national boundaries is beyond the scope of this thesis, it is nonetheless an important factor when considering the impact of films that are successful at the worldwide box office.

This alternative conception of how a film may be perceived as successful leads me to the broader discussion of how a film’s “success” should be measured. Within this research, I am primarily interested in a film’s financial performance, which is usually quantified through the gross value of the film’s theatrical ticket sales within the domestic territory in which the film was produced, or through the gross value of its global ticket sales across all territories. Although this value fails to account for revenues drawn from secondary and tertiary markets, including DVD sales, digital downloads, merchandising and so on (Sparviero, 2015), a film’s gross box office value is generally considered to be the most accurate measure of its popularity. In contrast, a film’s critical success quantifies its aesthetic and cultural merit as judged by film critics and film award ceremonies. These are different measures, although they are to some degree related – a film’s popularity at the worldwide box office does not ensure that the film receives the Academy Award for Best Picture, but a film receiving certain Academy Awards is likely to perform a little better at the North American domestic box office (Simonton, 2005b). Other measures of a film’s success include mean user ratings of a film on film websites, the number of pirated downloads of a film, views on Netflix and so on.

1.1 Mitigating risk in the film industry

Two further factors are relevant to discussions of the economic importance of mid- to high-budget films² in the global cinema market. First, film production is an expensive business. Second, it is also very high risk. Hollywood studio production budgets for G or PG rated action, science fiction or fantasy films frequently exceed US\$100 million, and the average cost of a film produced in the US in 2015 was US\$67 million (Film LA, 2016). On top of this, global marketing budgets are reported to average around US\$200 million per film (McClintock, 2014). Given these figures, it may be surprising to learn that 78% of films produced in the US fail to make any profit at all from their theatrical release (De Vany & Walls, 2004; Vogel, 2014). Although some of these costs are likely recouped in downstream markets, including the sales of digital downloads, DVDs and other merchandising (Sparviero, 2015), there is a strong economic argument to be made for additional research investigating the interplay of factors affecting a film's success in the global marketplace.

Researchers within the film industry and academia have been investigating variables contributing to box office ticket sales since the 1960s. However, the majority of this research has measured the performance of US-produced films at the annual North American domestic box office, which constitutes the US and Canadian film territory, rather than at the global box office, which includes all film territories and now accounts for the majority of ticket sales for US-produced films. Very few studies have considered the performance of Chinese-produced films. Furthermore, the majority of box office research has investigated factors relating to film production and distribution, for example the contribution that casting a “star” actor or releasing the film during the winter holiday period, makes towards a film's performance at the North American domestic box office. This focus on the contribution of factors relating to film production and distribution has meant that considerations relating to a film's development and pre-production, the period during which the screenplay is selected and then readied for production, have been neglected.

² I define mid-budget films as those produced for budgets between US\$40–90 million, and high-budget films as those produced for budgets over US\$90 million, since the average cost of producing a film in the US was US\$67 million in 2015 (Film LA, 2016).

One of the most important decisions in the whole film production process is deciding which screenplays to “greenlight”, or fully finance for production, since the cost of acquiring and developing a screenplay is negligible compared to later costs of production, post-production, marketing and distribution (Deniz & Hasbrouck, 2012). Moreover, the screenplay is considered by many authors of popular “screenwriting manuals” to be one of the most significant predictors in determining a film’s commercial, critical and popular success (e.g. Field, 2005, p. 255). The process of selecting which screenplays are first bought, then developed and subsequently greenlit is an arbitrary and uncertain process (Eliashberg, Hui & Zhang, 2007), based on a combination of readers’ personal intuition, knowledge of screenplay “craft rules”, and information about the kinds of films that have tended to be successful in the past. On some occasions projects may receive a greenlight because of established industry relationships with certain writers, directors or producers.

Given the importance of the greenlighting stage, it is somewhat surprising how little research has investigated the contributions of elements of the film’s narrative to domestic and worldwide ticket sales. The main reason for this gap in research is that films are highly dimensional products. Every film is unique, containing thousands of elements that vary between one film and the next – from the film’s narrative to its budget, cast, crew, technical pipeline, aesthetics, musical score, distribution network, budget, marketing budget, advertising campaign and so on. While quantitative variables like a film’s budget are easy to control for, certain qualitative variables of screenplay narratives are far harder to categorize and thus are more difficult to control for within experimental research. Every film is derived from a unique screenplay – or story outline, if the text is improvised – and these contain an array of distinct characters, a unique plot, genre, atmosphere, pace, settings, temporal construction and writer’s voice. Controlling for each of these qualitative variables so as to correlate particular narrative factors with the produced film’s financial performance is complex.

Moreover, each of these narrative and film production-related variables interacts with many others in highly complex ways. That is to say that for any given genre film, the narrative may require a particular type of lead character, a certain tone and narrative structure in order to be successful and meet with audience expectations. The concept for the film needs to be realized by a writer who is highly proficient in writing that genre. The screenplay then needs to be visualized and brought to life by a skilled director who understands the screenplay. That director needs to work with a casting director in order to cast the right actors to realise or even “elevate” their roles, bringing something new to these character studies that

makes the resulting film even better than had originally been imagined. These interactions between various elements of narrative and production-related variables are too numerous to list in full, but also include the relationships between the actors, the technical crew, and post-production variables including the edit, music score and sound effects, visual effects, composites and grade. As David U. Lee noted at the 19th Shanghai International Film Festival, all these factors need to work well together in order for a film to maximize its chances of audience appeal. Poor casting of an actor, or a poor performance from that actor, can cause a film with a “good” script, or one that has potential to contribute towards a film’s commercial success, to fail to engage audiences and sell fewer cinema tickets than its potential might suggest (Screen Craft, 2016).

Despite the potential complexity of the problem, I have chosen to investigate the gap in knowledge relating to the contribution of psychological protagonist attributes towards a film’s financial performance, since the “greenlighting problem” remains hugely important for the economics of film industries across the world, and particularly those producing films for international export. Within this research, I scrutinize the widely-received Hollywood industry belief that “primal” character attributes contribute towards a film’s domestic and worldwide appeal. The analysis is made easier by recently advanced ideas from evolutionary psychology and neuroscience, which ground my search for psychological character universals in well-developed theory and provide a framework for categorizing these character attributes. Since a full examination of the psychological attributes of film characters from across the world would be beyond the scope of this thesis, instead psychological research into cross-cultural differences in conceptions of “self” guide my decision to analyse characters in the films that are most popular in North America and China. Evidence of these cross-cultural differences in conceptions of “self”, and in how individuals perceive others, also motivate my decision to compare cross-cultural similarities and differences in the reception of psychological character attributes by viewers.

Findings from research into the contributions of factors relating to film production and distribution towards films’ ticket sales at the domestic and global markets facilitate the design of my experimental studies and interpretation of the results. Finally, analysis of my quantitative data is advanced through statistical regression techniques. These enable the contributions of variables towards box office “success” or failure to be measured, and are a useful technique to implement when analysing complex data sets with many independent variables.

1.2 Screenplay craft rules

The screenplay “craft rules” which help to guide studio readers’ decision-making processes about which screenplays to greenlight are described in a number of “screenwriting manuals”, or books on how to write screenplays, typically authored by former Hollywood development executives or screenplay consultants. Not only do these screenwriting manuals reflect the ideas widely received in the Hollywood film industry about how to structure a screenplay and craft appealing characters; several of the best-known manuals also figure prominently on reading lists at the major universities and film schools which educate and train many Hollywood writers and studio staff. Thus, a core group of these manuals, which include *Screenplay: The Foundations of Screenwriting* (Field, 2005), *Story: Substance, Structure, Style and the Principles of Screenwriting* (McKee, 1997), *The Writer’s Journey: Mythic Structure for Writers* (Vogler, 1998) and *Save the Cat: The Last Book on Screenwriting You’ll Ever Need* (Snyder, 2005), provide the foundations for understanding the constituents of a “successful” screen narrative for many working in the US film industry.

The craft rules specified within these manuals are based on a combination of traditional dramatic theory, knowledge of critically acclaimed and commercially popular film narratives, and personal intuition. Despite the highly prescriptive formula that many of these screenwriting manual authors espouse, their screenplay analyses lack systematic rigour and the links between their formulaic rules and a film’s critical or commercial success remain untested. Nevertheless, this does not mean that the entirety of these craft rules should be thrown out. Instead, what is needed is a thorough analysis of each of these craft rules in order to evaluate their individual validity and any interactions between them. This could be assessed by analysing the contribution that each of these conventions makes towards a produced film’s commercial or critical success. A full examination of the validity of the claims of each of these craft rules is beyond the remit of my thesis. Instead, I focus on screenplay craft rules relating to the psychological attributes of screen characters, which are frequently described as “universals” and requisite to a narrative’s universal appeal.

One of the most interesting claims of the Shanghai International Film Festival panellists, which is also widely received within screenwriting manuals and the Hollywood film industry, is the idea that at the heart of any film or television series with universal appeal is an engaging protagonist with primal traits. This idea is expanded upon by Blake Snyder, former Hollywood spec screenwriter and author of *Save The Cat!: The Last Book on Screenwriting*

You'll Ever Need (2005), one of the most influential books within Hollywood on how to write screenplays (Suderman, 2013). Snyder writes:

What is basic about a story, a character's goal, or a movie premise is its relation to our inner drives as human beings. Stories of survival, sex, hunger, and revenge connote immediate interest on our part. We will stop and look when these themes are presented to us. We can't help it. We *have* to look. It's primal. To you, the screenwriter, this means you ground every action and story in its primal-ness. When characters are not acting like human beings, when they are not being driven primally, odds are you are testing the patience of the audience. To ask "Is it primal?" is to ask "Is this relevant to a caveman?" The answer must be: Yes! (Snyder, 2005, pp. 189–190)

In other words, Snyder asserts that certain psychological attributes of fictional film characters allow these characters to appeal to individuals and audiences from across the world, regardless of their culture. If this is the case, then it follows that films in which protagonists are depicted as having primal traits would be more likely to perform well at the global box office.

Alternatively, this picture may be far too simplistic or even wrong. It may be that certain primal traits are globally preferred by audiences only when protagonists appear in certain types of films. For example, a film's genre and budget may mediate its audience's preferences for particular protagonist qualities. Another possibility is that there are no universally appealing character traits, and that a film's global appeal is solely due to other factors, which may include the plot, spectacular visual effects, the actors attached to the film or a sky-high marketing budget. If either of these latter options are correct, then this information would be very useful not only for writers, producers and financiers within the film industry, but also for film and screenwriting scholars, educators and students.

A second claim made by the majority of screenplay manuals, and acknowledged within Hollywood as an industrially-received wisdom, is that screenplays require a "three-act" structural form in order to attract the widest global audiences (McKee, 1999). If this is the case, then it might be expected that films with narratives whose main characters exhibit universal, psychological character traits and which are structured in three acts would stand a better chance of box office success, if all other factors were equal.

Considered together, these claims raise several important questions. Do the world's most popular film protagonists display examples of evolved psychological attributes? Are these psychological attributes examples of narrative universals? Does the frequency of display of these psychological character attributes contribute to a film's global box office

success? If universal psychological character traits exist, what are they, how have they arisen, and how are they best defined?

1.3 Defining the “universal” in “narrative universals”

Before proceeding with any discussion about whether universals in narrative exist, it is first important to define what is meant by the term “narrative universal”. A “universal” has been used by linguists in the context of a “statistical universal”, or any property or relation that occurs across unrelated languages more frequently than by chance alone (Hogan, 2003, Chapter 1). In contrast, an “absolute universal” is a property or relation that occurs across every culture. Thus, it may be that certain psychological attributes of fictional feature film characters are statistical universals, found in the majority of film narratives but not every film narrative. It is equally useful to note that some universals have a collective rather than an individual referent (Brown, 1991). For example, aggressive fictional film characters are likely to be found in films from every culture, but not every film character is aggressive. Other pan-human universals may be found in just one gender or at one particular life-stage. For example, films about or including themes relating to courtship or dating – such as *Avatar* (2009), *Titanic* (1997) and *Ted* (2012) – explore these ideas through the depiction of courting adults, not courting children. Another form of universal is the “conditional universal”, which always occurs given a requisite set of circumstances. By way of illustration, while not every film follows a “hero myth” structure (one of the story forms most prevalent in Hollywood films), it may be that all protagonists of hero myths share common psychological attributes.

1.4 The structuralist approach to narrative universals

In order to establish whether film narratives contain universal attributes relating to the psychological characteristics of film characters, be those statistical, absolute, or conditional universals, in Chapter 3: The Search for Narrative Universals I investigate film narrative forms through a structuralist approach. This paradigm seeks to understand elements of human culture through their relationship to a larger system or structure – in this case a proposed universal narrative framework. When applied to the identification of universals in fictional narratives, the structuralist approach has been popular with dramatists, linguists, literary theorists, anthropologists and mythologists, as well as authors of screenwriting manuals and the Hollywood film industry, albeit with different goals. Linguists, literary theorists,

anthropologists and mythologists have sought to understand why narratives from across the world, and throughout history, often share common structural forms, themes, genres, conceptual relationship or ways of viewing the world, in order to attempt to answer questions about why these forms exist, and how and when they have arisen. Alongside these questions, dramatists, literary critics, film scholars and film industry researchers have attempted to understand how the structuralist approach may be used to improve fictional texts, including screenplays, to promote the critical merit of the text or its possibilities of reaping greater financial rewards.

Scholars have outlined three reasons to account for how and why narrative universals have arisen. The first is through the process of trans-cultural transmission or diffusion, by which cultural items, including stories, are spread between individuals. As cultural areas expand, or groups or individuals relocate, narratives may spread from one region to another with small changes (e.g. Tehrani, 2013). Second, narrative universals may arise through the process of cultural reflection on the physical world, or relationships in the world (Brown, 2004), and serve the function of sharing knowledge about the world (Segal, 2003). For example, many stories reference the natural cycles of life – from birth to death, or the turn of the seasons. Third, narrative universals may be produced through common psychological structures in the mind (e.g. Lévi-Strauss, 1966; Campbell, 2008; Jung, 2012); in other words, humanity's universal psychology produces a particular way of thinking about the world, which guides, influences and also limits the way that writers depict this world, and fantasise about other worlds.

Critics of these approaches to narrative universals argue that since all cultural works are laden with historical, cultural and ideological interpretations, the world is “socially constructed” from jointly constructed knowledge (Barthes, 1972), and thus any commonalities between narratives across the world reflect moments when different cultures have created similar narrative solutions either by chance, or because they share similar historical and ideological circumstances, or more commonly because the ideas of one culture have dominated another. Applying these ideas to film and screenwriting studies, some scholars have argued that the three-act narrative structure, favoured by Hollywood, has dominated alternative ways of telling stories on film because of Hollywood's ownership of the major distribution pathways (e.g. Clayton, 2010).

Influenced by Barthes' post-structuralist framework, academic approaches within film and screenwriting studies have tended to focus on *particularist* explanations, which emphasize cultural and historical differences between film narratives and screenplay texts, rather than *comparative* structuralist explanations, taken up by the film industry, which embrace similarities between cultural works across geography and history. Instead, I argue that since particularist explanations view the human mind as a "blank slate", with virtually no biological limitations, such explanations fail to account for universal cognitive processes that have arisen as a result of human evolutionary history. The approach I advocate reconciles the comparative and particularist paradigms, thus uniting biological, psychological and cultural explanations.

Structuralist approaches to narrative universals are standard in Hollywood, and are thought to facilitate the process by which industry readers sift through thousands of potential ideas, screenplays, and other material that may be adapted into a film, in order to try and identify the stories with the most potential to make financially or critically successful films. These approaches are then used to determine how these stories are "developed" into commercially or critically successful narratives, in order to attempt to minimise financial risk when making decisions about which films to greenlight (Price, 2010, p. 134). Hollywood's two main structuralist approaches are the post-Aristotelian paradigm and the Mythological School of screenwriting. The post-Aristotelian paradigm argues that a three-act structural design and a goal-driven protagonist are essential for global audience appeal, since this "[c]lassical design is a mirror of the human mind" (McKee, 1999, p. 62). Exactly why this should be the case screenwriting manual author Robert McKee fails to specify, and there is no conclusive evidence to support his view that a three-act structure is a requisite of a popular film. I argue, instead, that the popularity of the three-act structure, both for audiences and within Hollywood, is better explained through a combination of historical and psychological factors, relating to the length of early film reels and the human attention span (Gulino, 2004, pp. 2–3). McKee's claim that a screenplay requires an active, goal-driven protagonist is a promising avenue to explore in my search for universals within film narratives, but his definition lacks clarity and raises many more questions than it answers. Are some protagonists' goals more engaging than others for audiences across the world? Is giving a protagonist a goal sufficient to create a universally appealing character? Alternatively, do other psychological factors, including personality and emotions, also play a part in engaging global audiences?

1.5 Psychological approaches to narrative universals

In order to find answers to these questions, I investigate psychological approaches to the search for universals in film narratives. Since writers base their fictional representations of characters on human behaviour, beliefs, dreams, goals, emotions, traits, experiences and thoughts, modulated by cultural and aesthetic choices, I propose that any universals in fictional characters must arise as a result of the common psychological structures of the human mind. People process information about the world in similar ways, producing common cognitions in humans across time and across cultures. For this reason, works of fiction ranging from the ancient *Epic of Gilgamesh* (ca. 1200BC), through Greek myths and folk tales to classic films including *Gone with the Wind* (1939) still have emotional resonance for readers and audiences today.

A broad variety of competing psychological frameworks have been applied in the study of narrative universals, including psychoanalytic, analytical and post-Jungian approaches, humanism, lifespan development and narrative psychology, cognitive narratology, media psychology and evolutionary psychology. The Mythological School of screenwriting, which views film structure as built on a universal mythological form, develops ideas from analytical psychology. The earliest psychoanalytic framework, which shaped the development of ideas about the relationship between human psychology, lifespan development and the importance of myth, proposed that universal aspects of myth, including “archetypal” or universally-occurring stock characters, reflect the workings of the human mind. Other psychoanalytic ideas that have been influential in the development of ideas in screenwriting manuals include the paradigm that the human life-course follows a fixed pattern of stages in its development.

Although many psychoanalytic theories have been influential in the development of contemporary psychological theory, these early psychoanalytic theories generally remain unsupported by empirical evidence. Despite this, psychoanalytic ideas about the functions of archetypal characters in film narratives are popular within a number of the best-received screenwriting manuals of the Mythological School. Christopher Vogler’s highly influential manual *The Writer’s Journey: Mythic Structure for Writers* (1998) is based upon the ideas of American mythologist Joseph Campbell (1949/2008), which in turn borrow from Jung and Freud’s writings. Following other “hero pattern” scholars, Campbell observes that a certain biographical structure is common to many myths and folktales from across the world, which typically feature a heroic protagonist who is prepared to sacrifice their “self” in order to save

their community. So influential have Campbell's writings been, that they have been seized upon by the Hollywood film industry, which now uses this story template as a development tool for many of its mainstream offerings. Given the ease with which Campbell's story template may be applied to film narratives, together with his grand claims for the "power" of this mythic narrative to connect with all humans, it is hardly surprising that it has become one of the most prevalent approaches to the development of films in contemporary Hollywood.

However, there are two significant problems with this approach. First, Campbell's ideas have been widely and fairly criticised by scholars for a variety of reasons, which I outline later. Second, there is no evidence to suggest that applying Campbell's template to screenplay development minimises the financial risk of the produced film. The contribution of the hero's journey story structure towards a produced film's global box office performance has yet to be quantified. Although Campbell's story template has been linked with many financial and critically successful films, it has been linked with just as many films which have failed to recoup their budgets at the worldwide box office. If current industrial formulations of Campbell's "hero's journey" have not been demonstrated to make any major contribution towards a film's potential for global box office success, should the mythic template be discarded in its entirety? I propose that evidence from cross-cultural research into human lifespan development and North American autobiographical life stories suggests not. Humans typically report beginning their lives motivated by selfish, agentic concerns, becoming more focused on generative, communal goals from the middle of their lives onwards (e.g. McAdams, 2013), reflecting the same general trend that is mapped out in the hero's journey. One possibility is that recognition of this typical human life-course development resonates with audiences and lends some appeal to audiences watching "hero's journey" films.

Alternative psychological approaches to narrative universals raise the idea that there may be a hierarchy of human "needs", in which some goals related to survival must be addressed before less urgent needs, including the requirement for "self-actualization" (Maslow, 1943). Further research is required before conclusions can be drawn about whether such a possible hierarchy may be related to audience engagement with a fictional narrative, as some researchers have suggested (Nettle, 2005). Other useful psychological approaches that further the understanding of why some fictional characters are liked more than others across the world draw on cognitive psychology, feelings of empathy and identification, and, related to these, the moral emotions. Viewing the mind as analogous to a machine, these cognitive

approaches to the study of universals in film narratives are useful in starting to identify *which* mental modules are likely involved in the creation of narrative universals, and *how* they might operate, but they fail to explain the essential questions of *why* such processes have arisen, and *what* their ultimate function is. These gaps in the cognitive explanations for why narrative universals exist highlight an essential failing of this framework.

I propose that only with a comprehensive, evolutionary framework can these questions about fictional narrative universals be answered. I also argue that through the application of this evolutionary framework towards the design and analysis of fictional characters, producers, screenwriters, and writers of other fictional works may be sure that they are crafting stories with greater possibilities of global audience appeal.

1.6 From evolutionary psychology to fictional film narratives

In order to outline this evolutionary framework, I return to the observation made by the Shanghai International Film Festival panellist Vince Gerardis that primal themes give a screenplay its best chances of being produced into a film that has global audience appeal. Gerardis argues that these evolutionary themes are more likely to transcend cultural divides because they are universally recognized. Developing these ideas, I propose that fictional feature films from across the world often involve universal themes or have protagonists with universal psychological character traits because screenwriters and other storytellers have been constrained by the same evolved biological and cognitive limitations, which have produced a particular way of perceiving, thinking about the world and emotionally engaging with it. This primal way of thinking is mediated by cultural learning, individual differences and aesthetic choices, but provides narratives with an underlying framework that allows audiences from across the world to engage and identify with fictional protagonists.

Through the application of ideas from evolutionary psychology, which considers the mind as a series of discrete mental adaptations that have evolved in order to solve adaptive problems, a new branch of literary criticism, known as “literary Darwinism”, has sought to answer some of the questions I have already raised. For example, why has storytelling arisen? Does it have an evolutionary function? How does an understanding of human evolutionary psychology provide scholars with deeper insights into universals within fictional stories? Although literary Darwinism has mostly confined itself to the study of literary fiction, its ideas are equally applicable to all forms of fictional storytelling, including filmmaking, television, radio plays, theatre and so on. Within literary Darwinism, scholars have rallied to

the call for consilience between sciences and the humanities from American biologist E.O. Wilson (1999), who argued that these disciplines should be united through evolutionary theory. Applying this consilient framework in order to better understand the origins of narrative universals in feature films, historical, cultural and aesthetic influences on the screenwriter's choices are viewed as being connected to biochemical and molecular determinants of behaviour through evolutionary explanations. Thus, consilience unites particularist explanations of fictional screen narratives, which emphasise cultural and historical differences, with comparative explanations, which seek to identify commonalities across these stories.

While tracing the development of ideas within evolutionary psychology and literary Darwinism, I pay particular attention to evolutionary theories of human personality traits, emotions and motivation, since characters' personalities, emotions and goals are generally considered to be central to engaging film narratives. Other universal aspects of fictional characters' psychological attributes may also contribute towards a film's global appeal, but these are beyond the scope of my study. These may include characters' "flaws" (Marks, 2009, p. 112) or "value systems" (Seger, 2003), both of which are prescribed as being important attributes of a protagonist's characterization by many of the popular Hollywood screenwriting manuals.

1.7 The process of characterization

The process of characterization in a feature film is complex, involving multiple interpretations of character by the creative personnel working on a film. These interpretations may be examined in relation to the three stages of characterization: conceptualization, performance of the character by the actor, and reception of the performance by the audience.

The conception of a character often starts with the screenwriter who originated the idea. Alternatively, if the screenplay is an adaptation from other source material, then conceptualization begins with the author of the book, novel, short story or other media from which it is adapted. On some occasions a film character is based on a real person, or amalgam of a few people's traits. These early sketches of the fictional character are then refined through drafts of the screenplay, and may be guided by critical notes given by studio development executives and/or the film's director(s). Through these refinements, adjustments are made to the ways in which the fictional character is described and "characterized", or

“brought to life” within the screenplay text. This textual process of characterization is revealed through the introduction to a character in the screenplay, which may include descriptions of their age, gender, actions, verbal or non-verbal reactions to other characters’ actions, dialogue, and interaction with props and locations (McKee, 1999). Further characterization arises through various aesthetic techniques the writer(s) uses in creating the tone and genre of the story, which include the writer’s voice, choice of scenes, choice of transitions between scenes, and pace.

Next, the film’s casting director interprets the writer(s)’ depiction of character, and finds the best actor who is available to take the role and who is affordable within the film’s casting budget. This process of fitting the best actor to a role is often described as instinctive, and is in part influenced by the “look” of an actor, their ability to “elevate” the role, their “chemistry” when working with other leading actors in the film, and whether or not a known star is desired (Gilbert, 2014; Mancuso, 2015). In other words, in addition to adding complexity to the writer’s conception of the character, visual cues from the actor’s physicality are also important. It is for this reason that I consider visual correlates of personality within my study.

In the next stage of characterization the actor interprets the role described in the screenplay, guided by the director and moderated by interactions with other actors. Thus, the personality traits, motivations and emotions of the fictional character continue to develop from the way they are depicted in the screenplay. Further evolution of the character may occur during post-production, when the director supervises the editor in choosing which camera shots to use in the edit, where scenes will begin, and where scenes will end. Since many films receive different edits for distribution in different countries, audiences across the world may receive slightly different portrayals of film characters. For example, viewers of *Titanic 3D* (1997/2012) in China may have perceived the protagonist, Rose, as more modest compared to North American audiences, because in this Chinese version of the film a scene in which Rose lies naked in order to be drawn by Jack was censored (Child, 2012).

Finally, the film is screened, allowing viewers to interpret the character’s personality traits, emotions and motivations from the actor’s performance, interactions with other characters, props, locations, mis-en-scène, lighting, camera-work, edits and so on. This process is moderated through factors including, but not limited to, the audience’s liking of the character (Zillmann & Cantor, 1977), the pre-film emotional state of the viewer, individual and cultural differences of the viewer (Lee, 2008; Tsay & Krakowiak, 2011), the size of the screen on

which the film is being watched (Grabe et al., 1999), and the group dynamic of their viewing circumstances. With the contributions of all these factors in mind, it is hardly surprising that audience members respond to films and film characters in a variety of ways. Nevertheless, despite these differences I propose that viewers from across the globe perceive film characters in broadly similar ways, through evolved cognitive structures that interpret visual and behavioural cues to personality traits, motivations and emotions.

In order to investigate whether evolutionary universals in psychological character attributes contribute towards the commercial success of the film in which they are featured, I first need to consider which depiction of character I will investigate. Will it be the character as conceived by the screenwriter, the character as depicted on the pages of the shooting script, the director's interpretation of the character, the actor's interpretation and performance of the character, or the character as received by individual members of the audience? In Section 1.11: Methodological Considerations I explain why I choose to analyse film characters as depicted on screen and as received by individual members of the audience. First, however, I explore whether evolutionary theory may account for cross-cultural differences in the kinds of characters portrayed in films across the world, and related to this, cultural preferences for characters displaying certain psychological attributes.

1.8 Psychological measures of cultural preferences

Although evolution has been misunderstood by some scholars as a deterministic process through which an organism's genes rigidly dictate its phenotype (defined as the composite of its observable characteristics and traits), in fact evolutionary theories stress that an organism's environment plays a major role in the way that it subsequently develops. This "developmental plasticity" is of vital importance in allowing an organism to thrive over a greater range of environments. In humans the process of social learning results in cultural variation, which may also be argued to be part of human nature (Sugiyama, 2003).

Relating this to the possibility that film audiences may express cultural preferences for certain protagonist qualities, it would be reasonable to expect that some evolved psychological attributes of film protagonists would be preferred by domestic film audiences in cultures which favour this characteristic, but may be liked less by cultures which do not favour the characteristic. For example, within China's more collectivist culture, the tendency to hold an interdependent view of "self" may be linked with Chinese audience preferences for

protagonists who are more motivated by communal rather than individualistic goals. Similarly, Chinese writers may tend to write protagonists who exhibit behaviours which are consistent with more interdependent views of “self”, and who appear to be motivated by more communal goals. With more interdependent views of “self”, Chinese writers may feel more pressure to conform to the norms and traditions of Chinese society.

In contrast, North American writers, who would typically have more independent views of “self”, may tend to write protagonists who exhibit behaviours which are consistent with such views, and who appear to be motivated by more individualistic goals. These North American writers may also feel more pressure to present protagonists who are highly agentic and unique in the way that they are characterized. Thus, in addition to illuminating narrative universals, an evolutionary framework of protagonists’ psychological characteristics would likely also provide useful insights into cross-cultural differences in the display and reception of evolved, psychological attributes.

In order to further investigate the possibility that cross-cultural differences in views of “self” result in variations in the frequency with which protagonist attributes are presented and received in different cultures, as one my original contributions to knowledge, I address three questions. First, utilizing an evolutionary framework, I ask whether there are cultural differences in the frequencies with which certain psychological attributes of protagonists are displayed in the films preferred by North American and Chinese audiences. Related to this, I examine whether some psychological protagonist qualities are preferred by North American audiences. Are audience perceptions of the display of certain psychological protagonist qualities associated with greater ticket sales at the North American domestic box office? Do North American and Chinese audiences perceive the attributes of film protagonists in similar ways, as measured by the frequency and intensity with which these attributes are perceived to be displayed? When addressing this question in my research, I use British viewers as a proxy for North American viewers, for the reasons I note in Section 1.11: Methodological Considerations.

1.9 Research questions and original contributions to knowledge

As I have already outlined, my primary research interest is in whether the display of attributes of fictional film protagonists, that are mimeses of human adaptive traits, emotions and motivations, contribute towards a film’s global appeal. A full exploration of the impact of protagonists’ psychological attributes on the reception of films would require an analysis

of audiences' perceptions of these attributes across every global culture, which would be beyond the scope of this thesis. Instead, I limit my research to the highest- and some of the lowest-ranking recently-released films in the North American and Chinese domestic box offices. In lieu of analyzing the perceptions of North American viewers, I analyse the perceptions of British viewers for the reasons I outline in Section 1.11: Methodological Considerations. My research questions are as follows:

1. Do the frequencies with which audiences perceive film protagonists to display evolved psychological attributes predict whether a film released between 2009 and 2014, and ranking in the top ten at the annual North American or Chinese box offices, will be preferred in North America or China?
2. Do the frequencies with which audiences perceive film protagonists to display evolved psychological attributes predict whether a film released between 2009 and 2014, and ranking in the top ten at the annual North American or Chinese box offices, is more likely to be produced by a US studio or a Chinese studio?
3. Do the frequencies with which audiences perceive film protagonists to display evolved psychological attributes predict whether a film, released in North America between 2009 and 2014, is more likely to be a box office "hit", ranking in the top ten at the annual North American box office, or a box office "flop", ranking between 91 and 100 at the annual North American box office?
4. Do the frequencies with which audiences perceive film protagonists to display evolved psychological attributes predict whether a film, produced for a budget of US\$110 million or over, and released worldwide between 2009 and 2014, is more likely to be a "blockbuster", recouping at least the value of its budget at the worldwide box office, or a "flopbuster", failing to return the value of its investment in global ticket sales?

5. Do the frequencies with which British and Chinese viewers rate the evolved psychological attributes displayed by the protagonists of the five highest-grossing US-produced films of all time and the five highest-grossing Chinese-produced films at the global box office predict whether the viewer is more likely to be British or Chinese?

I anticipate that my research will make useful and original contributions towards knowledge in three main fields: box office forecasting within the film industry; the practice of screenwriting; and the pedagogy of screenwriting and film. Within the film industry, additional knowledge of narrative factors that contribute towards a film's success in local and domestic markets has the potential to allow industry professionals to make better informed choices about which screenplays, selected during the greenlighting process, are likely to make financially viable films that will be enjoyed by audiences across the world. Thus, if certain psychological attributes of a film's protagonist are found to predict whether a film is more likely to be popular in North America or China, whether a film is more likely to rank higher or lower in the North American box office and whether a high-budget, US-produced film is more likely to be a global blockbuster or flopbuster, if validated by further research this information will be useful to film studios who wish to improve engagement with their films among North American and Chinese audiences. Since the UK film industry reaps the majority of its profits through the international releases of studio-backed UK-certified films, the British film industry also stands to gain from any knowledge about universally appealing attributes of film protagonists.

Conversely, any evidence suggesting that there are no psychological character attributes common to fictional characters in films that are popular in China and North America would also be useful for the aforementioned reasons. Screenwriting practitioners working on mid- to high-budget films will also benefit from this knowledge. Furthermore, the evolutionary framework for characters' personality traits, motivations and emotions, which forms the theoretical background to my research, may be useful to screenwriters and development executives when developing new characters. I also propose that this evolutionary framework of characters' personality traits, motivations and emotions will be equally useful in film and screenwriting pedagogy, since my approach attempts to resolve tensions between "academic" and "practitioner" perspectives on screenplay analysis which have developed as a result of the dominance of screenwriting manuals (Maras, 2011).

1.10 Research design

In order to resolve my research questions I designed five studies, which I outline below.³

STUDY 1

Using a binomial regression model, I evaluate whether my ratings of protagonists' traits, emotions and motivations may be used to predict whether a recently exhibited film, ranking in the top ten at the annual North American or Chinese box office, is preferred by audiences in North America or in China. In other words, I ask whether some psychological attributes of film protagonists are perceived by audiences to appear more frequently in the films selling the greatest number of tickets in China or in North America.

STUDY 2

Through analysis with a binomial regression model, I explore whether my ratings of protagonists' traits, emotions and motivations may be used to predict whether a film ranking in the top ten at the recent annual North American or Chinese domestic box office is more likely to have been produced by a US studio or a Chinese studio.

STUDY 3

Through analysis with a binomial regression model, I determine whether my ratings of protagonists' traits, emotions and motivations may be used to predict whether a film is more likely to rank in the top ten at the annual North American box office, or towards the bottom, ranking between 91 and 100. In other words, are some protagonist qualities associated with films that have the greatest domestic box office success in North America?

STUDY 4

I determine whether my ratings of protagonists' traits, emotions and motivations may be used to predict whether a recently exhibited film, produced for a budget of US\$110 million or over, is more likely to be a blockbuster which at least doubles the value of its investment in its takings at the worldwide box office, or a flopbuster, which fails to at least double the value of its production budget at the worldwide box office, using a binomial regression model.

³ These are described in full in Chapter 6: Methodology.

STUDY 5

Through a general, linear, mixed-effects binomial regression analysis, I determine whether the findings of Studies 1 to 4, which were based on my own ratings of protagonists' attributes, may be cautiously generalized to other British viewers, and through these, by proxy, to North American viewers. I also investigate whether the findings of Studies 1, 2 and 4 may be cautiously generalized to Chinese viewers. Alternatively, are my own ratings of protagonists' attributes the product of individual and cultural bias, and are there cross-cultural differences in audiences' perceptions of protagonists' psychological qualities?

1.11 Methodological considerations

In designing these five studies I made a number of methodological choices, which included: surveying the protagonists of feature films as opposed to television series; analysing fictional characters as portrayed on screen, rather than as described in the screenplay; analysing protagonists primarily from North American and Chinese films; selecting films released between 2009 and 2014 (with the exception of 2011); selecting films ranking in positions 1 to 10 and 91 to 100 at the annual domestic box offices in North America and China; assessing protagonists' psychological characteristics using a questionnaire; analysing the viewer ratings of British and culturally-Chinese British participants; and taking a quantitative approach to data analysis.

First, I chose to analyse protagonists in feature films rather than television series because the total running time of a feature film is typically much shorter than the total running time of a popular television series. A television series may run over several seasons, and for a complete analysis of the protagonist's attributes every episode would need to be watched, which would consume far more time than could be allocated to this research. In addition, Hollywood craft rules for creating film protagonists are more clearly defined and widely received than rules that relate to the creation of television protagonists, making the analysis of craft rules about writing film protagonists more straightforward. Also, domestic box office figures are widely available for recently released films in North America and China, but Chinese television viewing figures are harder to locate. Finally, the majority of recently-released popular Chinese films are available with English-language subtitles for viewing in the UK; this is not the case for the most popular Chinese television series.

There were two main reasons why I chose to analyse characters as portrayed on screen, rather than as described in screenplay texts. First, screenplays for the majority of popular contemporary Chinese-produced films are unavailable. Second, since I am interested in measuring factors contributing towards the popular appeal of universal psychological character attributes, the best approach to their analysis is through consideration of these attributes under the same conditions as they are received by audiences – in other words as viewed on screen.

My decision to compare the attributes of protagonists in the films that are most popular in North America and China was made for three reasons. First, China and the US (and Canada) are almost polar opposites in four out of six “cultural dimensions” theorized and measured by social psychologist Geert Hofstede (1984a; 2010), whose work in this field has been highly influential. According to Hofstede’s framework, the US and China differ greatly in measurements of their “power distance”, which measures the distribution of power within individuals of a culture; “individualism”, which measures the degree of interdependence between members of the society; “long term orientation”, which reflects how pragmatic a society is in relation to maintaining links with the past while dealing with present or future challenges; and “indulgence”, which quantifies the degree to which people control their desires. If film narratives reflected culture alone, the only similarities we would expect to find between Chinese and American protagonists in the films most domestically popular in these nations would relate to “masculinity”, which measures the degree to which members of the society value competitiveness, achievement and success, and “uncertainty avoidance”, which measures how comfortable individuals are with ambiguous or unknown situations (Hofstede, Hofstede & Minkov, 2010). Conversely, if Chinese and American films reflect human evolutionary universals, we would expect these to be revealed independently of these cultural dimensions, through characters’ verbal and non-verbal behaviour. Since Canada is very similar to the US for “power distance”, “uncertainty avoidance” and “indulgence”, slightly less “individualistic” and “masculine”, and a little more “long term oriented” (Hofstede, 1984a; 2010), I anticipate that overall the cultural reception of films by Canadian viewers is similar to the reception of films by US viewers.

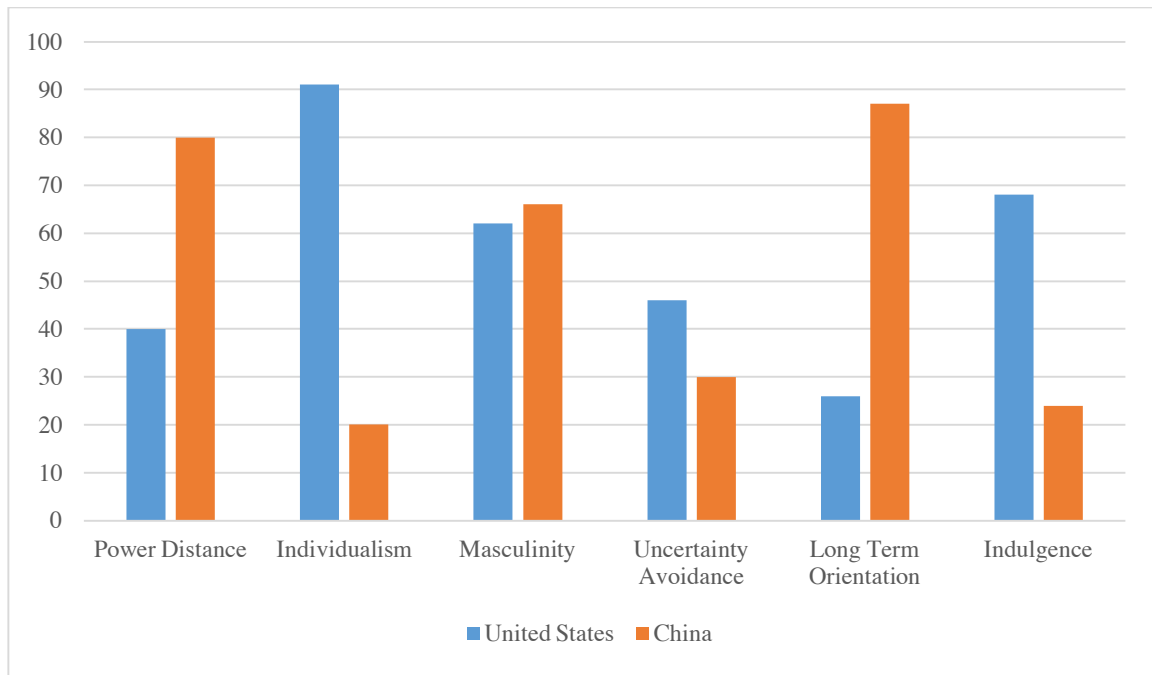


Figure 2: The cultural dimensions of the US compared to China, as measured by the Geert Hofstede 6-D Model (Hofstede, Hofstede & Minkov, 2010)

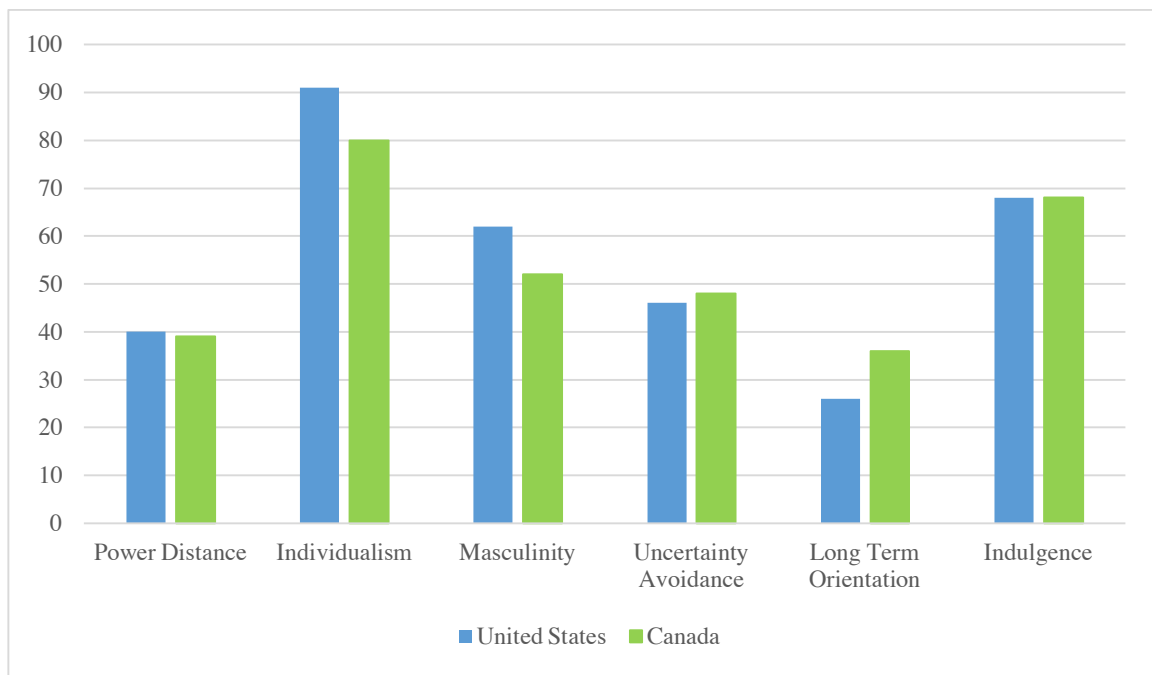


Figure 3: The cultural dimensions of the US compared to Canada, as measured by the Geert Hofstede 6-D Model (Hofstede, Hofstede & Minkov, 2010)

Critics of Hofstede's model of cultural dimensions have noted that it is primarily aimed at the study of business culture and thus may not be valid in application to the cultural arts, and that there are other factors of culture beyond these dimensions (e.g. Schwartz, 1994; House et al.,

2004). Measurements of these cultural values may be outdated since they result from analyses produced between 1967 and 1973, and the theory and measurement of these values may be biased since it was primarily based on the analysis of privileged males working within large organizations (Broadbridge & Moulettes, 2007). Also, China has been in cultural transition since the 1990s because of its rapid economic transformation (Steele & Lynch, 2013). However, within the field of cross-cultural psychology there is general academic consensus that the two most important cultural dimensions are individualism versus collectivism, and that traditional Chinese culture is still highly collectivist while contemporary US culture remains highly individualistic (Murphy-Berman & Berman, 2003; Zeng & Greenfield, 2015).

Second, the Chinese domestic film market is sufficiently well-developed and protected by a state-controlled foreign film import quota system to allow Chinese theatrical audiences to make real choices about which films they prefer to watch, and to counter the argument that North American dominance of the world's film distribution pipelines has led to mainstream non-American films increasingly catering for American cultural tastes. Chinese studios and production companies released at least 285 films in 2015 (EntGroup, 2017), but only imported 34 foreign films on a revenue-sharing basis and up to 30 more on a flat fee basis. Furthermore, the Chinese government actively promotes domestic films which are required to embrace Chinese cultural values.

Third, since the North American and Chinese film markets are the largest in the world, any findings suggesting that the most recent popular North American and Chinese films tend to have protagonists with certain attributes will be of use to writers, film producers, financiers and production companies across the world who wish to improve the engagement of their films with global audiences. Related to this, any findings that specify cultural differences in preferences for certain psychological attributes in films released in North America compared with China will also be valuable to writers or producers of films targeted at release in these nations. Since the UK film industry reaps the majority of its profits through the international releases of studio-backed UK-certified films, the British film industry also stands to gain from any knowledge about universally appealing attributes of film protagonists. Conversely, evidence suggesting that there are no psychological character attributes common to fictional characters in popular films in China and North America will also be useful for the aforementioned reasons.

Moving on to examine my next methodological consideration, I selected films released between 2009 and 2014 primarily because English subtitles are unavailable for the

most popular films at the Chinese domestic box office released prior to 2000. In addition, films released within this recent six-year period represent a limited slice of cultural history, during a period in which no great historical changes occurred. I excluded films released during 2011 from my analyses because of reports of fraud in Chinese box office reporting that year (Lee, 2011). My decision to analyse films ranking in the top ten at the North American and Chinese annual domestic box offices for the years of study was made because these were the most popular films as measured by theatrical sales, and therefore the most likely to include protagonists with attributes preferred by domestic audiences. As a means of comparing these attributes with those displayed by protagonists in films that were less popular in North America, I analysed protagonist qualities in films ranking between 91 and 100 at the North American domestic box office. Although annual box office figures are recorded in North America for nearly all films released in any year, typically over 700, many of the films in the lowest rankings receive very limited release, and are thus hard for the majority of audiences to view. Films ranking from 91 to 100 at the North American domestic box office tend to have had a wider pattern of release across many more cinema screens, and thus represent a set of films that have been available to view by most US audiences.

Since questionnaires are a long-established instrument for assessing personality traits and have also been used by psychologists to measure motivations and emotions for the purposes of statistical analysis, they were my choice for measuring protagonists' psychological attributes.

In Study 5 I chose to compare the reception of US and Chinese characters' psychological attributes by British and culturally-Chinese participants who live in the UK in lieu of North American and native Chinese participants. Ideally I would have recruited North American and native Chinese participants to analyse the domestic reception of North American and Chinese films. However, since the UK is very similar to the US on four out of the five Geert Hofstede cultural dimensions – as Figure 4 illustrates – it is reasonable to expect that British participants would perceive psychological character attributes in similar ways to native North Americans. Furthermore, the principle of linguistic relativity states that language influences thought and many cognitive processes in non-trivial ways (Koerner in Pütz & Verspoor, 2000), providing further support for my assumption that British viewers would receive the psychological attributes of film protagonists in similar ways to US and Canadian viewers.

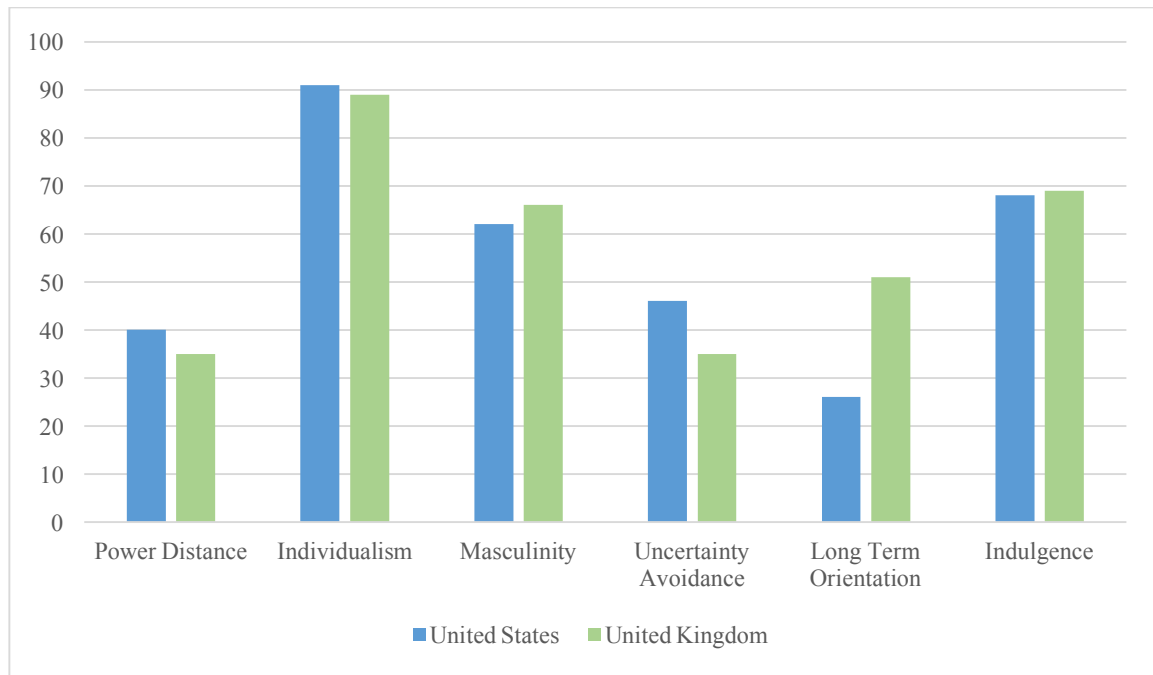


Figure 4: The cultural dimensions of the US compared to the UK, as measured by the Geert-Hofstede 6-D Model (Hofstede, Hofstede & Minkov, 2010).

While I attempted to recruit native Chinese participants resident in mainland China, this proved to be a very difficult and time-consuming process. Instead, I recruited culturally-Chinese participants who live in the UK, speak very little English and defined themselves as being more engaged in Chinese cultural activities than British. For these reasons, I considered these participants to be a good proxy for native Chinese participants.

Finally, my decision to take a quantitative approach to data analysis was so that I could systematically investigate observable, psychological protagonist variables through scientific methodology, experimental control and analysis using statistical regression techniques. This empirical approach is best suited to my research which attempts to first identify, then quantify the frequencies with which psychological protagonist attributes are displayed across cultures, and then construct statistical models that attempt to explain any observed cross-cultural differences in the perception of these attributes.

1.12 Chapter layout

Having set out the main arguments of my thesis, the layout of the remaining chapters is as follows. In Chapter 2 I outline the film production process and compare the film industries of the US and China. I then provide a commentary on the academic literature concerning the factors that contribute towards a film's financial performance as measured by box office

receipts, and highlight the gap in knowledge relating to the narrative factors that play a part in determining the value of a film's theatrical ticket sales. Once I have established this gap in knowledge, I set out to identify the best framework through which to analyse the narrative factors that are instrumental in a film's box office success. In Chapter 3 I argue that the structuralist paradigm is best suited to the analysis of a large volume of texts in order to identify similarities that might predict critical or financial performance (following Price, 2010, p. 134). Through this top-down approach to analysing fictional texts, screenplays are understood in terms of their relationship to a larger taxonomy of universal narrative structure, which attempts to organize data in the simplest effective way.

Since the most likely explanation for narrative universals is that they reflect universals in the way that humans perceive and interact with their world, I outline psychological approaches to narrative universals in Chapters 4 and 5. These bottom-up perspectives go beyond methodological paradigms and get closer to providing explanations for how human psychological attributes provide the basis for fictional stories, why certain structural patterns are so prevalent in narratives, and why they might have arisen. In Chapter 4 I trace the development of ideas from psychoanalysis, analytical psychology, humanistic psychology, narrative psychology, lifespan development psychology, media psychology and cognitive approaches to narrative universals. Then, in Chapter 5 I argue that evolutionary psychology offers the best account of why characters' personality traits, emotions and motivations are central to fictional film narratives and how these universals might contribute to a film's reception across the world, echoing some of the insights provided by screenwriters and producers in the Shanghai International Film Festival panel session.

In Chapter 6 I outline my research design and the methodology of my five empirical studies. I analyse the results of this empirical research in Chapter 7. Finally, in Chapter 8 I present the conclusions from my research and discuss their implications for global film industries, screenwriters, producers, financiers and also for screenwriting pedagogy. I also discuss why the research findings provide support for the utilisation of an evolutionary framework in measuring global and cultural preferences for certain psychological attributes of film protagonists. I note the limitations of my research and provide a number of suggestions for future work.

1.13 Concluding remarks

On a personal note, my research has several important implications for my own work as an independent screenplay consultant and screenwriting lecturer. When I first learned about screenwriting theory as a postgraduate student at the London International Film School and then later at the University of California, Los Angeles, I was taught Hollywood craft knowledge through a combination of reference to a core set of screenwriting manuals and my lecturers' direct experiences of having worked as writers, producers and screenwriting consultants within the Hollywood film industry. As a psychology graduate I was often concerned by the lack of rigorous, critical analysis of ideas relating to the psychology of film characters in many of the screenwriting manuals. Within these manuals, including *Screenplay: The Foundations of Screenwriting* (Field, 1979/2005), *Story: Substance, Structure, Style, and the Principles of Screenwriting* (McKee, 1997) and *The Writer's Journey: Mythic Structure for Writers* (Vogler, 1992/1998), the critical reflection that was present was often founded in pop psychology, and lacked rigour and theoretical underpinning. Many years later, working as a screenwriting lecturer, I found myself referring students back to the same classic screenwriting manuals, in part because they continue to reflect Hollywood screenwriting craft practice, but also because critical academic discourse about the contents of these manuals is still in its infancy, and there are few alternative books that attempt to take a more rigorous approach to discussions about the craft practice of screenwriting.

Teaching students modules on characterization in the years leading up to my PhD research, I was increasingly frustrated with my inability to answer students' questions that reflected those addressed by the panel members in the "Hollywood Creative Panel: Screenwriting for a Global Audience" at the Shanghai International Film Festival. How should writers set about writing characters to engage audiences across the world? What are universal motivations, and why are some motivations more appealing than others? Is there any truth in the idea that "primal motivations" are more appealing than others? Meanwhile, outside the classroom, my screenwriting consultancy clients have been increasingly interested in how they could improve their screenplays' chances of appealing to audiences across the world. In early 2013, when the Chinese cinema marketplace was in rapid expansion, I was approached by the Jilin Animation Institute, the largest animation training academy in China, to consult on some of their students' screenplays. Their intent was to give these screenplays

the greatest possible chances of global appeal. The collision of these factors lead to my pursuit of this PhD.

Since beginning my doctoral research in October 2013, the question of how to write screenplays with the greatest chances of engaging audiences across the world, and particularly those in the world's two largest cinema markets, North America and China, has become increasingly important. Barely a week goes by without Hollywood trade papers commenting on the reception of the latest US film in the Chinese marketplace. Last year in Belgium, ScriptBook, the second company in Europe to provide box office forecasting from a feature film screenplay in order to facilitate the greenlighting process, attracted €1 million in venture capital funding (Van Leemputten, 2016). Within academia, recent studies of the relationship between a film's narrative and its subsequent box office performance have employed interesting new methodologies that demonstrate that this area is rich in the potential for new research. Industry interest in the application of research-backed scientific evidence to support the creation of narratives, with more potential to appeal to worldwide audiences, appears to be on the increase. I see many applications for the use of insights from my doctoral research in my own work as a screenplay consultant, and am excited to see where research in this field leads.

2 The Business of Film

The film industry is a business where vast riches may be made and fortunes lost by studios in Hollywood and China. Unlike other industries, where products are tested in the marketplace through an iterative process of consumer feedback and development before mass production, each film is a unique product with infinite variations, so it cannot be tried and tested in quite the same way. These variations in film products can mean the difference between commercial success or failure, and with this, millions of dollars of profit or loss earned for the studio in any year (Simonoff & Sparrow, 2000). The result is that the film industry is one of the riskiest in the world (Walls, 2010). In an attempt to mitigate this risk, studios employ a number of strategies including making financial projections of films' box office takings based on their scripts, and investing in diverse "slates" of films that vary in budget and genre. Despite this, 78% of films produced in the US fail to make any profit from their theatrical release (De Vany & Walls, 2004; Vogel, 2014). Perhaps even more surprisingly, less than 10% of films accrue 80% of Hollywood's total, theatrical profit (De Vany & Walls, 2004). In other words, Hollywood's profits from theatrical sales come primarily as a result of the release of a very small proportion of their films.

Given how many films are commercial failures, there is a strong argument to be made in favour of additional research into the interplay of factors affecting a film's success. Measured by some researchers as box office receipts or profit, by others as film awards or nominations, critical ratings or even word of mouth "buzz", understanding the contribution of factors influencing a film's reception, both at home and in international territories, has become the holy grail to film producers across the world (Frater, 2013b; D'Allessandro, 2015). Over the last decade it has also been of increasing interest to academic researchers from fields as diverse as media economics, marketing, psychology and cultural studies. Notably missing from this list are screenwriting research and film studies, despite the fact that film narratives are thought to play a significant part in determining a film's commercial, critical and popular success (e.g. Field, 2005, p. 255). For this reason, my research focuses on the contribution of variables relating to a film's narrative to box office success.

The contribution of the film industry to the global economy is sizeable. In 2016, the value of the global box office has been estimated at US\$38 billion (Lang, 2017). North America held its place as the world's primary cinema market and film producer, taking US\$11.38 billion in

domestic ticket sales (Box Office Mojo, 2017c). Meanwhile, growth in China, currently the world's second largest film market, accelerated from 2001 to 2015, but slowed down in 2016 largely due to a reduction in subsidies offered on film tickets and the release of a series of critically-panned films. The previous period of rapid growth in the Chinese market had been facilitated by rising numbers of middle class consumers and a new interest in film as mass entertainment, together with a huge rise in cinema construction. In 2016 Chinese box office receipts rose by 3.7% to US\$6.6 billion (Wang, 2017), and a number of industry forecasters predict that by 2020 China will overtake North America and become the world's largest film market (Shackleton, 2016).

The international box office has become increasingly important to a film's total receipts since 2001, when North American ticket sales were approximately the same as the revenue from the international box office. By 2015, box office sales from territories excluding North America accounted for 71% of the global box office (MPAA, 2015b) and these "foreign" sales have become vital for the commercial success of high-budget US studio films. Film producers have therefore been trying to better understand how to make films that successfully cross national boundaries and have universal appeal. In the last few years US studios have attempted to increase their films' chances of international success, particularly in China, through the production and export of more action genre films, widely believed to have universal appeal, the use of the Chinese language, Chinese locations, Chinese stars, Chinese product placement, soft power propaganda, and by avoiding culturally insensitive material. For example, the US-Chinese co-production *Transformers: Age of Extinction* (2014) is a sci-fi action genre film that features high-profile Chinese actors, China-affirming roles, Chinese locations, and Chinese product placement. The film took the top place at the worldwide box office in its year of release, and reaped 77.8% of its takings at the international box office (Box Office Mojo, 2015a). 30.1% of its total ticket sales were in China and Hong Kong.

However, many film narratives will not accommodate Chinese elements so readily. For these films, studios are still in search of other factors that may play a part in a film's universal appeal. Despite the industry requirement to identify these factors, academic researchers have lagged behind in research in this area, and only a handful of studies have investigated factors affecting a film's success in China or at the worldwide box office. The majority of research in this field focuses instead on production-related factors that contribute towards a film's domestic box office performance within North America.

In addition to the rapid expansion of the Chinese film marketplace, changing business models have also had a radical impact on the film business over the last five years. Since the mid-1990s the role of theatrical sales in major US and Chinese studios' revenues has dwindled, while profits from secondary and ancillary markets may provide up to 80% of the gross revenue of a feature film (Epstein, 2012). Secondary markets include DVD rentals and sales, digital downloads, as well as sales or subscriptions to television networks and cable channels, while ancillary or tertiary markets include the further use of intellectual properties from films in books, music CDs and digital downloads, videogames, theme parks, fast food restaurants and several other types of merchandising items. Taking these additional markets into account, more than 70% of films distributed in 2007 by the six largest US media conglomerates are likely to have generated a positive return for their producers (Sparviero, 2015). As a consequence, some scholars argue that major studios in Hollywood and China have embraced a new business model, through which theatrical distribution "can be seen as a loss leader to create awareness of the property for downstream video, TV, and other rights" (Ulin, 2013).

Despite the recovery of a percentage of revenues through brand extension sales in secondary and ancillary markets, greater knowledge of the factors contributing towards a film's financial performance could contribute millions if not billions of dollars to the global box office. For this reason, this chapter focuses on robust, empirical academic research into factors affecting the commercial success of a film. These factors come into play throughout the five key stages of the contemporary film production pipeline, and are best considered in the chronological order in which they present themselves, since the funds required to develop, produce and then market a film require escalating sunk costs. Thus, while the initial stages of developing a film in the US incur costs typically ranging from US\$65,500 to US\$5 million in order to option a screenplay (WGA West, 2014), production budgets range between under US\$1 million and US\$378.5 million. On top of this, the average marketing cost of a film is estimated to be US\$40 million, which rises to around US\$200 million for Hollywood's high-profile action films (McClintock, 2014).

Because of these increasing sunk costs, decisions relating to "greenlighting" a film are the most critical, since after this point the costs of film production escalate exponentially. At the greenlighting stage the studio selects which scripts are to be financed and made into films. In Hollywood there are typically around 200 screenplays in development within a studio (Ross, 2011). Given the vast increases in spending that production, marketing and distribution entail, more accurate forecasting of box office sales from the script would be highly advantageous.

Before making any assumptions about the similarities between film production in the US and China, a number of questions are raised. Are business models and the industrial practice of film production similar in the US and China, and if not, in what ways do they differ? Within academic research, which factors have been found to contribute towards a film's box office performance? Do these factors present a complete picture of the interplay of variables responsible for a film's success? If not, how might a better understanding of narrative factors, that can be determined from the script, facilitate the best commercial and/or critical decisions during the greenlighting process? Before scrutinizing this research, I note that cinema ticket sales are just one of the tetrad of attributes contributing towards a film's success, which also include film awards and nominations, critical acclaim, and word of mouth "buzz". I conclude the chapter with a few conclusions and suggestions for useful directions that new research in this field might take.

2.1 Film production in the United States

The film production process is generally conceptualised as having five stages: development, pre-production, production, post-production and distribution (e.g. Steiff, 2005, pp. 26–28). Within the development stage, the idea for a film is created and then developed into a polished script ready for production. The film concept may originate prior to the development process with a "spec script", which has not been commissioned by a producer and is instead written speculatively by a writer who hopes to sell their original script. Alternatively, the concept may arise from a production executive within the studio and then be commissioned to an established screenwriter. For other film projects, the screen idea originates in existing material, for example a book or true-life story. This would necessitate a studio optioning the rights to develop the material. Next, the principal "talent" (actors and the director) are attached to the project, and financing is acquired. Once the film has been fully financed, it is given the green light to move into pre-production. During this pre-production stage, all the preparations for the shoot are made. The director produces the "shooting script", a final version of the script that often includes camera direction. The remaining cast and crew are hired, locations are sought, sets and costumes are designed and then realised, shots, stunts and visual effects sequences are planned, and shooting schedules and more detailed budgets are produced.

The production stage is when the film is shot, or recorded on camera. Sound, motion capture and camera tracking elements are recorded at the same time, where required. During post-production the elements of the film are stitched together in the editing process. The film is also graded, visual effects are added where required, the score is composed and the sound mixed. The film's title and credit sequences are created during this stage. When post-production is complete, major studios host audience test screenings and make any necessary changes to the film that are thought to increase its audience appeal. Prior to the film's release, the film's marketing strategy is prepared and launched. Finally, the finished film is distributed and screened in cinemas, on home video or streamed to its audiences. Distribution is accompanied by a publicity campaign, which may include trailers, print, television and internet advertisements, press events and screenings for critics, and merchandising and promotional tours by the film's talent.

The vast majority of films begin with a story concept based on a literary property, a new idea or a true event (Squire, 2004; Vogel, 2005). As already outlined, if the idea originated within a studio or production company, a writer or series of writers may be commissioned to develop the concept into a fully-fledged screenplay. Alternatively, if the idea originated with an established writer, the story concept may be pitched to an independent production company or studio. Less established writers develop their ideas into spec scripts, and the majority of spec scripts never progress any further than this. A precise tally for the number of unproduced scripts is impossible to come by, since many writers' spec scripts are never recorded. However, given that the Writers Guild of America Registry received over 70,000 pieces of material in 2015, including scripts, treatments, synopses, outlines and other written ideas, and that 791 fictional feature films were produced in the US that year for future release, at highest estimates 0.01% of spec scripts are produced annually in the US (MPAA, 2015b; WGA West, 2016). Literary agents generally act as the gatekeepers to studios and production companies, so writers whose work has not attracted an agent are highly unlikely to get their screenplays seen by the studios or independent production companies.

Deciding which scripts should be optioned and then developed into feature films is one of the most important decisions of the entire production process, in terms of the resulting film's commercial and critical success. This process is also labour-intensive. The most usual route by which this decision-making process occurs is that the writer's agent pitches a script to a studio executive, who may request to see it. Script readers, employed within film studios' or production companies' story departments, then evaluate the potential of every submitted

spec script. During this process, typically three or four readers write script reports which contain a top sheet summarizing the project's details, a brief synopsis of the story, and an assessment of the merits of the script's concept, structure and plot, characterization and dialogue, genre and market potential (Ross, 2011; Sparviero, 2015). Each reader also makes a recommendation about whether a script should be considered by the producers for further development. These evaluations are subjective reactions, generally guided by known industry craft rules and some knowledge of films that have been critically or financially successful in the past.

If a reader recommends the script, their coverage may be read by up to eight studio executives before reaching a decision-maker, typically the Vice President of Creative Affairs or even the President of the studio (Lang & Shaw, 2013). Few of these studio executives will read the full screenplay (Ross, 2011). If the final decision-maker is interested in taking the screenplay further an option agreement is signed, giving the studio or producer the right to purchase the complete screenplay within a specified time period in exchange for an advance payment to the writer. However, disagreements between readers and studio executives on which scripts should be optioned, and how they should be subsequently developed, are frequent. The result is that the development process is an arbitrary, uncertain and often problematic procedure (Eliashberg, Hui & Zhang, 2007), through which even some very well-known and highly successful films, including *Star Wars: Episode IV – A New Hope* (1977), *Raiders of the Lost Ark* (1981) and *Jurassic Park* (1993) have received multiple rejections at their script stage before later being optioned by a studio (Ross, 2011; Vogel, 2014).

Once scripts have been developed, the next stage of the process is deciding which scripts to greenlight for production. From the 200 scripts in development within major studios (Ross, 2011), every year a “slate” of around twenty to thirty films is selected for financing. The point of this slate is to diversify business across a studio's major and minor distribution labels, and to spread risk by investing in a range of genre films with a wide variety of production budgets (Sparviero, 2013). At this point a team of studio executives is brought in to discuss a film's financial projections in both local and international territories and across primary, secondary and ancillary markets. The box office potential of a script is assessed through “comps-based” analysis, in which the likely performance of the film is forecast from comparisons of the box office takings of five to ten similar produced films. Often these are of the same genre, they may feature the same star, have a similar release date or a similar number of opening screens. For example, the box office takings for action drama

White House Down (2013) were forecast by Sony Pictures through comparisons with the ticket sales for action film *G. I. Joe: Retaliation* (2013), science fiction comedy *Men in Black 3* (2013), action drama *The Karate Kid* (2010) and action thriller *Olympus Has Fallen* (2013), most of which were released a few months before *White House Down* (Wikileaks, 2015).

When the script has been further developed, or reworked and polished by the screenwriter(s), significant financing is required before a script can be greenlit and produced. Scripts that have already been “packaged”, with talent attached, are more likely to be produced. In these projects the importance of the script is reduced, which may be a contributory factor to box office failures (Ross, 2011). Now that international sales account for 71% of Hollywood studio revenues, considering how well a US-produced film will likely fare in the Chinese marketplace has become a crucial factor in greenlighting films outside the comedy genre. Jeff Shell, Chairman of Universal Filmed Entertainment, observed in an interview with the LA Times:

Some movies we greenlight based on US box office alone, if it's a pure comedy we think will only work in the US or a limited specialty movie; some movies we think might work in some markets but not others. And I think what you have to do as you're greenlighting movies, you have to take a real honest look at what markets that movie will be appealing in. China is the second-biggest market in the world, so that's critical in a lot of those conversations. (Makinen, 2014)

Once a screenplay has been given the green light and is fully financed, it moves into production and shooting begins. Just prior to shooting the director produces a new version of the screenplay, called the “shooting script”, which includes scene numbers, some camera direction and occasionally descriptions of title sequences. It is this version of the screenplay that is distributed to all cast and crew, and which acts as the “blueprint” for the film. Compared with the spec script, the shooting script is a rather more technical version of the script, containing fewer novelistic devices and flourishes. For example, while an early script for the US-produced science fiction film *Gravity* (2013) was 102 pages long, the shooting script was condensed to just 68 pages. Revisions to the screenplay may be made throughout the shooting process, and new, coloured screenplay pages distributed. Furthermore, directors often choose to go “off script”. This may be as a result of production issues, actors improvising lines, an unforeseen event or other reasons.

Pre-production begins with an “assembly edit”, where the editor cuts the scenes of a film together in the correct order. Working with the director, the editor then refines the edit, creating the director's desired vision of the narrative. This frequently means that the final

film changes from its descriptions in the shooting script. Scenes or even sequences may be reordered or lost in their entirety. Lines of dialogue may be cut, the ending of the film may be changed, or characters cut out. Occasionally reshoots may be required, either to improve existing scenes or to add new scenes. Usually major edits take place to improve the narrative of the film, but may also occasionally be required to reduce the runtime of the film, or to gain the studio's preferred censor rating. Meanwhile, the composer writes the musical score, post-production effects are added, the sound is mixed, and the title sequence and credits are added. The resulting film is then screened to test audiences, usually selected from a broad sample of the population, who are required to fill out a questionnaire rating various aspects of the film. The result of a test screening ranges from having no impact on the film, where the film is widely liked, through to postponing the release of the film or performing major reshoots designed to change the film's ending (Radford, 2008). Throughout this process, forecasts for the film's box office are revised on a regular basis, by updating the "comps" with sales figures across all territories (Wikileaks, 2015). These updated sales forecasts may impact the studio's marketing budget for the film.

Finally, the film goes into distribution. The distributors negotiate their desired release windows with the exhibitors and sign a contract for the minimum number of weeks that a film must be screened, and on how many screens. Given that there are 300 exhibitors in North America, nearly 40,000 cinema screens (National Association of Theatre Owners, 2015), and intense competition for these screens during summer and winter, the most popular release seasons, it is essential for exhibitors to access the most accurate forecasts of how well a film is likely to fare at the box office when planning their annual release schedules.

While film production in China follows the same production pipeline, the specifics of the process and the business models differ from those in the US in a number of ways that I outline in the next section.

2.2 The contemporary film production landscape in China

The contemporary Chinese film production industry may be characterised in eight key ways that differentiate it from the US production landscape. First, the Chinese film industry is in a period of rapid growth. During 2015 China built twenty-two new cinema screens a week, and cinema admissions rose by 51.1% over the previous year (Papish, 2015). Second, Chinese film production is controlled by several government-sponsored agencies, including the State

Administration of Press, Publication, Radio, Film and Television (SAPPRFT), the Censorship Bureau, and the China Film Group, which controls the import and distribution of foreign films as well as producing its own. The impact of this state control is a protected marketplace with an import quota permitting only thirty-four foreign films per year, of which the state takes a 25% share of the box office revenue. In addition to these thirty-four imported films, between twenty and thirty foreign films are annually imported on a flat-fee basis. Further government-controlled protectionism exists within the scheduling of theatrical releases, and the release date of every film is decided through negotiations between the Distribution and Exhibition Association, a department of SAPPRFT, distributors, exhibitors and sometimes the Film Bureau (Cain, 2012). In addition, three annual blackout windows on foreign films – during the Lunar New Year/spring festival period in February, China’s most celebrated holiday; June to July; and in December – ensure that audiences during these crucial periods are only able to access domestically-produced features. China also reserves the best release dates for its own films in order to reach at least a 50% mandated target market share of the nation’s box office revenue. Furthermore, most foreign films are given shorter runs and less opportunity to market and advertise compared to domestic Chinese movies. For example, the American-produced film *Avengers: Age of Ultron* (2015) was released in China on a Tuesday, a day less popular with domestic audiences (Cain, 2015a, 2015d). In comparison, *Jurassic World* (2015), a US/China Film Group co-production, appears to have benefited from preferential scheduling, having opened two days earlier in China than in the US, just prior to the mid-summer blackout period and shortly before the Dragon Boat Festival Holiday when Chinese cinemas usually see a rise in sales (Cain, 2015c).

A further impact of state-controlled regulation of the media industry is on censorship, where all films must be deemed suitable for a general audience of all ages. Film production companies are bound by law to ensure their screenplays conform to the state’s “Article 25” censorship legislation, which may mean up to twenty redrafts before a script is approved for production (Rongji, 2001). The promotion of communist values is actively encouraged within domestically produced films, and foreign film imports are censored so as to not offend these values (Canaves, 2015).

The third characteristic differentiating the Chinese from the US film industry is the new concept-through-distribution business model in operation in four of China’s largest film studios, namely Dalian Wanda and the internet giants Baidu, Alibaba and Tencent, which extends the reach of similar models employed by some of the largest Hollywood studios.

Either through acquisitions, growth or alliances, these four powerful Chinese companies are involved with every process in the film production lifecycle, from creating concepts through monetizing brand extension. Dalian Wanda owns the largest private sector cinema chain in China, is the largest worldwide online games distributor and is building theme parks and hotels as film brand extensions. Alibaba and Baidu are major shareholders in two of China's top three online video companies, while Alibaba and Tencent control ticketing systems. Between them, the four companies are involved in the entire commercial cycle of nearly every Chinese film released. Wanda is a financier, producer and exhibitor; Alibaba is a financier, producer, ticket vendor and promotional partner; and Baidu facilitates marketing and promotions as well as being an online video platform (Frater, 2015). Taking as an example the Chinese fantasy film *Zhuō Yāo Jì/Monster Hunt* (2015), the film was in part financed and marketed by Tencent, who also developed spinoff games. The film was distributed by Wanda Pictures, while Alibaba handled online ticket sales, produced online games and helped with the merchandising (Bergman, 2015). Some analysts predict a future where all Chinese film production companies will be owned by China's internet giants (Huifeng, 2015).

Fourth, China's major studios use big data in testing pilot ideas, tracking audience interest in films, judging film and TV awards and even making decisions about which talent to attach to a project. Tencent test audiences' reactions to new film characters or concepts by streaming fifteen-minute film pilots (Myers, 2015). The production company Le Vision Pictures tracks the opinions of 100 million Weibo followers for suggestions on who to attach as the director and stars of their forthcoming films (Frater, 2013a). Over the last few years box office forecasting companies have been springing up in China. One of these, Entdigital, claims 85% accuracy in predicting ticket sales by analysing opinions shared on Weibo, Renren and Douban. Most recently, a new film and TV awards ceremony in Beijing analysed 2.19 billion items from over 3,200 web portals, 100 forums, 450 newspapers, and over 30 video websites, as well as Sina Weibo and Tencent Weibo, in order to determine the winners of the Most Popular TV Drama, Film and Variety Show, the Best TV Producer, the Best Internet Drama and New Excellent Directors (Telecom Asia, 2016).

Fifth, the process of script development has yet to be formalised within Chinese production companies. Reportedly, most Chinese production companies do not yet have development departments. Instead, script notes are given by the commissioning producer (Myers, 2015). This is likely why a small number of script development, packaging and financing companies have sprung up over the last few years (e.g. The Unison Company

2015). Furthermore, the first Chinese-language screenwriting software packages and applications were released in 2015, including Chinese-language versions of ‘Final Draft’ and ‘Fade In’. Until recently the majority of Chinese scripts were written in Microsoft Word and their formatting varied from script to script (Stuart, 2015). Further changes in the way Chinese screenwriters write and develop their stories are inevitable now that a new generation of Chinese screenwriters are being trained within Chinese universities that have partnered with North American universities. For example, Shanghai Tech University partnered with University of Southern California School of Dramatic Arts in January 2016 to launch a three-month training programme in Shanghai, where Chinese writers receive script mentoring from experienced Hollywood writers (Xu, 2015). Meanwhile, the first literary talent agencies representing screenwriters have recently opened. The lack of agents representing screenwriters is likely in part down to the low fees film writers have been paid. Many work as assistants to the thirty senior writers who generally receive film credits in China. They are also underpaid relative to actors and directors (Canaves, 2015).

Sixth, the historical prevalence of widespread video piracy has resulted in the depletion of secondary and ancillary video markets. A study commissioned by the North American Motion Pictures Association estimated that DVD piracy in China was costing a 90% loss in projected revenue potentials to Hollywood’s MPA member studios in 2004, compared with a 20% loss in the US in the same year (MPA, 2005). In 2013 the Chinese government introduced standards copyright protection for the first time, which together with an anti-internet piracy campaign has had a huge impact on video piracy (Cohen & Yao, 2015; Hui & Fleury, 2015). Given that in 2013 ancillary markets were estimated to contribute only around 10% of China’s film industry revenues and compared with the US, where ancillaries may represent 75% of a film’s total revenue (Alderson, 2014), there is clearly vast scope for further growth in China’s secondary and ancillary markets.

The seventh characteristic differentiating the Chinese from the North American film industry is the exponential growth in the production of feature-length films for online viewing. In 2016 over 2500 feature films were published on the seven major on-demand streaming platforms (Xiang, 2017). Chinese consumers are increasingly willing to subscribe to advertising-free premium video streaming services as well as regularly attending cinemas (Alderson, 2014). Furthermore, in the Chinese marketplace online video currently presents an area with “no quota system, fewer bureaucratic hassles (i.e., less pesky censorship) and far fewer logistical headaches (no need for a middleman in the form of a state-run distributor like China Film Group)” (Coonan, 2013).

The eighth characteristic differentiating the Chinese from the North American film industry is the proportion of sales made from films they export. While American films rely heavily on global sales, Chinese blockbusters are often culturally particularistic and frequently fail to gain theatrical release overseas. However, this is likely to be set to change. In 2015 the overseas sales revenue of Chinese-produced films grew by 48.13% to US\$415m (Shackleton, 2016). This is attributable to several factors. First, Chinese-American co-productions are on the increase, and the number of global blockbusters with a Chinese studio attached is also on the rise. Second, Chinese studios have recently been buying stakes in American production companies. For example, in January 2016 the Dalian Wanda Group purchased a majority stake in the US production company Legendary Entertainment after having acquired AMC Entertainment, America's second largest cinema chain, in 2012 (Brzeski & Kit, 2016). Third, some industry analysts have perceived that the narratives of mainstream Chinese films are transforming and as a result are becoming more appealing to Western audiences. This is in part due to more genre offerings, including action, romantic comedy, science fiction and horror, and a new skew towards younger, more suburban and more female audiences, together with contemporary themes and a faster pace. Furthermore, test screenings have recently been introduced in China and major releases are re-edited in response to audience feedback (Frater, 2013b). "There's a growing commercial value and slickness to the Chinese films", observes Rance Pow, head of Asia's film industry consulting firm Artisan Gateway (Ebiri, 2015). Part of this rise in quality is due to China's increased production budgets, state of the art post-production and visual effects (Cunningham, 2015).

2.3 Academic research into box office forecasting

From the mid-1960s onwards, analysts, studios and investors have been investigating the factors which influence a film's box office performance (Pangarker & Smit, 2013). The first academic research to investigate factors contributing towards films' financial performance was produced by the American economist Barry Litman (1983). Using a multiple regression model to analyse 125 films produced between 1972 and 1978, Litman found that high production budgets, a Christmas release, higher critical ratings and science fiction and horror film genres predicted higher theatrical rentals. Being nominated for one of the top three categories of the Academy Awards was worth US\$7.34 million of additional rentals, while winning one of these awards was worth an additional US\$16.3 million. Films distributed by majors earned more than those distributed by independents, but MPAA ratings were not

related to a film's rental appeal. Litman's ground-breaking study gave birth to a wealth of research into the factors influencing a film's success, whether measured by box office receipts, profit, critical ratings, film awards and nominations or word of mouth "buzz". Additional measures of success include sales and rentals in secondary markets, including numbers of DVD rentals and sales, digital downloads, and views for television and cable shows. Measures of success in tertiary markets include sales of books related to a film's intellectual property, film soundtracks, videogames, theme park admissions, and sales at fast food restaurants related to brand extensions of the film. Piracy via digital downloads is also another means of measuring a film's popularity. These additional measures are beyond the scope of my study, which attempts to quantify the contribution of audiences' perceptions of protagonist qualities to a film's commercial success, as measured by theatrical ticket sales.

In the sections to follow, I break down the literature according to its relevance to the stages of the film production process. First, I outline factors that may be determined during development and pre-production. During this stage, two crucial questions are raised. How can a studio best determine which concepts or screenplays should be optioned from factors relating to the script? And how can a studio decide which screenplays should be financed from factors relating to the script? Given that the average cost of a film produced in the US was US\$67 million in 2015 (Film LA, 2016), and budgets range from less than US\$1 million to upwards of US\$350 million, any knowledge gained about narrative and content-related factors influencing a film's success may potentially save millions of dollars in production fees down the line, ensuring that only the most commercial or highest quality films are made. Research to date has investigated factors including: the writer of the screenplay (Simonton, 2002, 2004b, 2005b; Goetzmann, Ravid and Sverdlow, 2013; Hunter, Smith & Singh, 2016); the price paid for the screenplay (Goetzmann, Ravid & Sverdlow, 2013); the screenplay's genre (Neelamegham & Chintagunta, 1999; Terry, Butler & De'Armond, 2005; Zhang, Luo & Yang, 2009; Deniz & Hasbrouck, 2012); whether the screenplay is original or an adaptation of an existing work (Simonton, 2005a; Liu, 2015); whether the film is a remake, reboot or sequel (Terry, Butler & De'Armond, 2004, 2005; Simonton, 2005b; Chatterjee & Basuroy, 2006; Boatwright, Basuroy & Kamakura, 2007); the film's classification rating, a factor that originates with the screenplay narrative but is ultimately determined by censors viewing the edited film (Sawhney & Eliashberg, 1996; De Vany & Walls, 2002; Terry, Butler & De'Armond, 2005); the length of the film (Wallace, Seigerman & Holbrook, 1993; Holbrook, 1999; Simonton, 2005b); its storyline (Eliashberg, Hui & Zhang, 2007, 2014);

textual analysis of the screenplay (Hunter, Smith & Singh, 2016); and the screenplay's characters (Beckwith, 2007, 2009; Eliashberg, Hui & Zhang, 2007).

Having covered pre-production factors determining a film's success, I move on to examine factors related to production. These include the film's production budget (Hennig-Thurau, Houston & Walsh, 2007; Walls, 2010; Lash & Zhao, 2015), the talent attached to the film (Albert, 1998; Simonton, 2002, 2004b; Roh & Kim, 2012) and the nation of production (D'Astous, Colbert & Nobert, 2007; Zhang, Luo & Yang, 2009). Finally, I investigate factors relating to the film's distribution, including: its season of theatrical release (Litman, 1983; Sochay, 1994; Terry, Butler & De'Armond, 2005; Zhang, Luo & Yang, 2009); whether the film is distributed by a major distributor (Litman, 1983; Chang & Ki, 2005); the number of screens on which the film is released (Simonton, 2005b; Zhang, Luo & Yang, 2009); the advertising expenditure (Prag & Casavant, 1994); competition in the marketplace (Sochay, 1994; Litman & Ahn, 1998); and the nation of reception (Lee, 2006a, 2008).

Before I begin, it is important to note developments in the methodology that researchers have used to establish these factors in film financial forecasting. The most popular approach to date has been the use of statistical regression algorithms. Multivariate linear regression, which I use to analyse the quantitative data in this research, has been particularly popular among researchers because it attempts to explain the contribution of each variable to the forecast (Litman, 1983; Eliashberg & Shugan, 1997; Ravid, 1999; Simonoff & Sparrow, 2000; Nam, Manchanda & Chintagunta, 2010). For this reason, it is primarily useful for establishing the presence and contribution of new variables, rather than capturing interactions between variables. Nonlinear relationships between predictor variables and box office forecasts have been more accurately captured using nonlinear regression models and time series-based algorithms (Dellarocas, Awad & Zhang, 2004; Wang et al., 2010; Lee, Kim & Cha, 2012), but since they only use historical sales records there is limited improvement in forecast accuracy, as these are based on the assumption that future events will continue to follow historical patterns (Zhang, Luo & Yang, 2009). In recent years, with advances in machine learning and virtually unlimited computational power, opportunities to analyse big data sets have been growing. These include interrogating user-ratings in the film databases IMDb and Douban, and textual analysis of the thousands of shooting scripts now online. Analyses of large film industry data sets have lent themselves to a variety of new forecasting models over the last ten years. These have included, but are not limited to, Bayesian networks

(Neelamegham & Chintagunta, 1999; Gazley, Clark & Sinha, 2011), neural networks (Sharda & Delen, 2006; Zhang, Luo & Yang, 2009), CART decision trees together with natural language processing (Eliashberg, Hui & Zhang, 2007) and random decision forests (Guo, Zhang & Hou, 2015). The advantages of these new models and the use of much larger data sets is greater accuracy and reliability of forecasts, as well as the identification of interactions between predictor variables. To take one example, CART decisions models of screenplay narrative structures have been used to determine that action genre films require their main character to behave in a logical fashion for a greater chance at box office success, while non-action genre films require an ending that is not surprising in order to stand a greater chance of box office success, thus demonstrating that interactions between genre and narrative consequences have an impact on films' box office performance (Eliashberg, Hui & Zhang, 2007). In addition to methodological advances in box office forecasting over the last ten years, a handful of studies over this period have turned their interests from predicting North American domestic box office to the Chinese domestic box office (Lee, 2006b; Wang et al., 2010; Wen and Yang, 2011; Liu, Mazumdar & Li, 2014).

While the methodologies of box office forecasting and their application to territories outside the US have advanced over the last decade, the culture of secrecy pervading studios' reporting of their financial affairs has continued to be a problem for researchers. In the reportedly widespread practice of "creative accounting", potential profit revenues are skimmed off at the distribution phase (Cones, 1997), which means that analyses of the percentage of films that make a profit are fraught with methodological problems. For example, Warner Bros. reported a US\$167 million loss for *Harry Potter and the Order of the Phoenix* (2007), despite the film grossing US\$939.9 million at the global box office. Industry insiders speculate that this is due to the Hollywood studio practice of setting up external corporations for each film production, then inflating their expenditures in order to reduce or negate reported profits from which external contractors' profit-sharing agreements would have a claim (Thompson, 2011). The result is that while most studios report their production budgets and box office sales, they rarely announce their costs for prints and advertising. More infrequent still is the accurate reporting of a film's profits either in the primary, secondary or ancillary markets. For this reason, most academic studies have focused on box office sales rather than profit as their measure of a film's commercial performance.

Box office data collection for the Chinese film industry has historically been further complicated by issues of box office fraud. This has included illegal use of ticketing software that utilises double systems to report reduced box office sales for tax avoidance, as well as manual cheating, where a cinema ticket seller issues a ticket for one film but then manually changes the ticket to allow the buyer to view another film (Beaumont-Thomas, 2014). In addition, there have also been examples of some Chinese theatres refusing to report their sales figures to the distributor (Frater, 2014). For example, when the Chinese state propaganda film *Jian dang wei ye/Beginning of the Great Revival* (2011) was released it proved very unpopular with audiences, despite its high production budgets and cast of 150 stars. To secure a cultural return on the film's production budget and avoid embarrassment, Gao Jun, the head of the Beijing New Film Association, a state cinema management company, declared that no big foreign movies would be allowed into China until the film had made 800 million yuan (US\$121 million) at the box office, then an all-time record for a Chinese production. To guarantee this level of sales, 100,000 tickets were bought and distributed to party members, negative reviews were censored from the internet, and photographic evidence demonstrates that ticket vendors manually edited their tickets to allow customers to buy tickets for *Jian dang wei ye/Beginning of the Great Revival* but actually watch another film instead (Yang, 2011; Xi, 2014). For this reason, I excluded films from 2011 from my research. China has subsequently taken a series of steps in response to widespread ticket fraud allegations across the industry, first by introducing new, digital cinema ticketing machines, then by blacklisting cinema chains and individuals attempting fraud, and most recently, in January 2016, by introducing new measures to authenticate cinema tickets and encourage the reporting of any attempts at box office fraud (Beaumont-Thomas, 2014; Frater, 2014; Xinhua News, 2016). At the time of writing the impact of these further measures remains to be seen.

2.4 Development and pre-production factors

Although the content and development of the screenplay have been widely considered as playing an important part in a film's potential box office success (Monaco, 1977; Blacker, 1986; Hauge, 1991; Silver-Lasky, 2003; Field, 2005, 2009; Simonton, 2009), the majority of research into narrative factors has focused on gross aspects of the narrative, including the screenplay's genre, whether or not the screenplay is an adaptation, remake, reboot or sequel, the film's classification rating and runtime. In the last decade a handful of studies have

started to use natural-language processing techniques, textual and content analysis in order to investigate the contribution of elements of a screenplay's plot, content and character development to a film's commercial success.

As pre-production forecasting models are developed, the question of whether a film is being developed as art or as business is likely to become an important consideration. When developing screenplays for art or "prestige project" films, different narrative elements are likely to be important compared with films produced purely for commercial success (Simonton, 2009). Art-house films are usually dramas, adapted works, made by auteurs (writer-directors), with a restricted rating. By comparison, films produced for commercial reasons are more likely to include sequels and be rated PG or PG-13 (Simonton, 2005b).

In order to scrutinise the contribution of development and pre-production factors relating to a film's commercial or critical success, in the sections that follow I outline the literature as it relates to: the writer; the price paid for the screenplay; the genre of the film; whether the screenplay is original or an adaptation of a book, real-life story or other material; whether the screenplay is a remake of a film that has already been produced, a reboot or a sequel within an existing franchise; the film's ratings; runtime; storyline; main characters; and linguistic factors.

2.4.1 Writer

Given that the majority of films begin with a script, and that a film's character and narrative play a vital role in the audience's enjoyment of any film, it is unsurprising that the quality of a film's script is a more important predictor of which films will win the Academy Best Picture award than the talent of the director (Simonton, 2002, 2004b). In an analysis of 1436 English-language films released between 1968 and 2002, psychologist Dean Keith Simonton found that films are more likely to receive critical acclaim in film guides when the director is also credited as a writer of the script. However, writer-directors tend to make films which open on fewer screens and perform less well at the box office (Simonton, 2005b). Another important variable is the writer's reputation. The screenwriter's experience and past success has a positive effect on the price paid for the screenplay, which in turn has a positive effect on North American domestic box office receipts (Goetzmann, Ravid & Sverdllove, 2013; Hunter, Smith & Singh, 2016). Since very few screenwriters are household names, this is

most likely to be attributable to the quality of screenplay as well as the production budgets that their films attract.

2.4.2 Price paid for the screenplay

Research demonstrates that “high concept”, short and simple screenplay pitches sell better, suggesting that these kinds of pitches are more likely to result in films which return larger sales at the North American domestic box office. In other words, “prices paid serve as a signal for the perceived quality of the subsequent project” (Goetzmann, Ravid & Sverdlow, 2013, p. 297).

2.4.3 Genre

Within the industry, a film’s genre is considered to be one of its most important factors in predicting box office success, and therefore genre is one of the primary determining factors used by studios when selecting comparable films for film financial forecasting (Eliashberg, Hui & Zhang, 2014). Genre is considered to guarantee shared meanings and enjoyment for the audience, as well as offsetting the considerable economic risk of film production through standardising its products (Neale, 2000). Interestingly, the earliest study on genre found that action-adventure films produced a negative correlation with North American domestic box office performance while films containing violence and eroticism had a positive correlation (Anast, 1967). By contrast, recent studies indicate that the action genre correlates positively with both North American domestic box office performance (Terry, Butler & De’Armond, 2005; Deniz & Hasbrouck, 2012) and international ticket sales (Terry, Cooley & Zachary, 2010). Results of models aiming to find the most popular genre vary widely. In one study of global theatrical ticket sales the thriller genre was found to be the most popular, while the romance genre was the least popular (Neelamegham & Chintagunta, 1999). Investigating the annual North American domestic box office in 2010, the order of genre popularity was found to be adventure and animation films, followed by fantasy, family, action and then science fiction. Drama was found to have a negative correlation with box office receipts, demonstrating a consumer bias against this genre (Deniz & Hasbrouck, 2012). While one study has shown that the children’s genre is positively correlated with non-US international box office success (Terry, Cooley & Zachary, 2010), analysis of the North American domestic market found the inverse, possibly because the market for children’s movies is oversaturated and has room for just a few major hits (Terry, Butler & De’Armond, 2005). In

comparison, only a few studies have investigated the impact of genre on the Chinese box office. The most popular genre in contemporary Chinese cinema is the action movie, followed by drama, science fiction, comedy, thriller, cartoon, “hazard”, love, war, horror and family, in that order (Zhang, Luo & Yang, 2009).

When return on investment (calculated as Revenue / Budget) is considered as an outcome rather than box office sales, one recent study found that the only significant predictors of box office success in the North American marketplace are the horror and remake genres. Horror movies are usually successful in generating high returns on investment because their production budgets tend to be low (Terry, King & Walker, 2010) and an expensive star has not been a requisite for this genre’s popularity (Deniz & Hasbrouck, 2012). Specific results indicate that slasher movies are the most popular horror sub-genre, adding approximately US\$15 to US\$20 million at the North American domestic box office, while the zombie sub-genre is the least popular, drawing US\$21 million less than other horror genres at the North American domestic box office (Terry, King & Walker, 2010).

2.4.4 Adaptations of books

51% of the top 2,000 grossing films released in North America between 1994 and 2013 were adaptations of existing material, the most common source of which was literary fiction (Follows, 2014a). While this industry trend for adapting existing material is a widely used strategy to mitigate risk through appealing to a proven audience and leveraging brand equity, its contribution towards box office performance has received little academic attention (Joshi & Mao, 2012). However, in one study of a sample of 700 films released between 1973 and 2007, adaptations performed better at the box office on their opening weekend than original films. This performance was moderated by the book “equity”, book-movie similarity, and the time between the book’s peak equity and the film’s release. After the opening weekend, many of these book-related variables ceased to have an impact. In terms of narrative content, the closer an adapted film is to the original book, the greater the film’s chance of success at the box office. However, the closer the adaptation, the less probable a sequel is to perform well, likely because of market satiation with the concept (Joshi & Mao, 2012).

2.4.5 Adaptations of true stories

Films based on adaptations of real life events took 8% of the total box office of the top 2000 grossing films released in North America between 1994 and 2013 (Follows, 2014a). These

adaptations may include historical events, notorious episodes and biopics – a subset of films that tell the life story, or part of the life-story, of a well-known figure. Well-written adaptations based on edgy thrillers are currently in great demand with US studios (Pelican, 2017). Taking this category of films as a whole, adaptations of true stories tend to perform less well at the North American box office in their opening weekend, but are more likely to receive awards and nominations for Best Picture as well as critical acclaim (Simonton, 2005a). Among all forms of adaptations, stories based on real-life events tend to receive the highest critic and user ratings (Follows, 2014b).

2.4.6 Sequels and franchises

While one study has estimated that almost 10% of contemporary movie releases are sequels (Chang & Ki, 2005), this number is on the rise. In 2016, thirty-eight sequels were released in North America (Movie Insider, 2017), and three out of the top-five grossing films worldwide were sequels (Box Office Mojo, 2017a). Through building on the existing branding of their parent film, appealing to the same fan-base and in some instances making use of assets acquired by the original production company or studio, sequels have a positive correlation with North American box office success (Terry, Butler & De'Armond, 2004, 2005; Simonton, 2005b; Chatterjee & Basuroy, 2006; Boatwright, Basuroy & Kamakura, 2007), international box office success (Terry, King & Walker, 2010) and sales in secondary markets (Terry & De'Armond, 2008). While sequels tend to perform better than their contemporaneous non-sequels, they do not match the box office revenues of the parent films. The sooner they are released after their parent films, and the more intervening sequels, the more likely their success (Boatwright, Basuroy & Kamakura, 2007). The Hollywood producer Linda Obst reports: “the more the international audience is familiar with a title, the more they look forward to seeing it again. In Hollywood, familiarity breeds success, not contempt” (Garrahan, 2014). However, from a critical point of view sequels are far less successful. They are less likely to win the Academy Award for Best Picture or any other dramatic award, and they are generally unpopular with critics (Simonton, 2005b).

2.4.7 Remakes

Remakes of existing films are another strategy frequently used by Hollywood studios in order to win back the film's original audiences. A total of 7% of the top 100 grossing films released in North America between 1994 and 2013 were remakes (Follows, 2014a). These have

included a small proportion of US remakes of successful Asian films, particularly supernatural and horror films, including *The Eye* (2008), a remake of Hong Kong-Singaporean horror *Gin Gwai/The Eye* (2002). Like sequels, remakes build on the branding of the original film, though they rarely use the same screenplay as the original (Sherry, 2016). In North America remakes tend to draw slightly higher numbers at the box office, especially in the first weekend (Simonton, 2005b). However, remakes tend to perform less well than the original films in North America, are often critically panned, and tend to receive fewer dramatic awards and nominations (Chang & Ki, 2005; Simonton, 2005b). No comparable research has been performed in China.

2.4.8 Reboots

In recent years the “reboot”, or process of restarting an existing media franchise by returning to its origin point, has become increasingly popular (Tryon, 2013). For example, the US-produced superhero film *The Amazing Spider-Man* (2012) tells the origin story of how the protagonist Peter Parker got his powers. While reboots are less common in China, they are often popular at the box office. *Ging chaat goo si/Police Story: Lockdown* (2013), a reboot of the Jackie Chan *Police Story* (1985) series, was one of China’s top-ten grossing domestic films in its year of release. Generally the reboot involves some textual novelty in the adaptation of the original material on which the concept is based, and often makes use of three-dimensional (3D) cinema in order to generate new audience interest (Tryon, 2013). One study of reboots released in North America between 2005 and 2010 found that they generate less revenue at the domestic box office than the original movies (Spitz & Kurt, 2011). However, reboots tend to be less risky propositions in terms of their box office performance, and are thus viewed as a good studio strategy for investment in higher budget films.

2.4.9 Film ratings

Film ratings assess a film’s suitability for audiences, generally through the consideration of violence, nudity, sexual content, language and substance abuse, among other themes. Ratings usually contain age recommendations, which may be advisory or written in law. In the US, obtaining a Motion Picture Association of America (MPAA) rating for a film is voluntary, not a legal requirement. Films may be screened without a rating, although certain distributors will only screen films that have acquired ratings. The ratings system was established by the MPAA in 1968. Since 1990, these ratings have been (MPAA, 2015a):

G: General audiences – all ages admitted.

PG: Parental guidance suggested – some material may not be suitable for children.

PG-13: Parents strongly cautioned – some material may be inappropriate for children under 13.

R: Restricted – contains some adult material.

NC-17: No children under 17 admitted [1990–1996]/no one 17 and under admitted [1996–present]

By contrast, China does not currently have a film classification system, although a plan to introduce one is under consideration (Coonan, 2015). At present China's Film Bureau, part of SAPPRFT, only releases films deemed suitable for screening to all age groups. This means that many foreign films face cuts before they can be released in China. The following contents are prohibited from being shown in Chinese films, under Article 5 of the Regulations of the Administration of Movies:

That which defies the basic principles determined by the Constitution;
That which endangers the unity of the nation, sovereignty or territorial integrity;
That which divulges secrets of the State, endangers national security or damages the honour or beliefs of the State;
That which incites national hatred or discrimination, undermines the solidarity of the nations, or infringes upon national customs or habits;
That which propagates evil cults or superstition;
That which disturbs the public order or destroys public stability;
That which propagates obscenity, gambling, violence or instigates crimes;
That which insults or slanders others, or infringes upon the lawful rights and interests of others;
That which endangers public ethics or cultural traditions;
Other content prohibited by the laws, regulations or provisions of the State.
(Rongji 2001)

Despite Litman's (1983) finding that a film's MPAA rating has no impact on its success in secondary markets, subsequent studies have found that R-rated films perform worse at the North American domestic box office than films without a restricted rating (Sawhney & Eliashberg, 1996), by a negative coefficient larger than US\$12 million dollars (Terry, Butler & De'Armond, 2005). An analysis of the profit distributions of 2015 films released in North America between 1985 and 1996 concluded that Hollywood makes too many R-rated films and would do better shifting production money into G, PG and even PG-13 movies (De Vany

& Walls, 2002). Despite this, R-rated films are more likely to receive dramatic award nominations or awards, and critical acclaim. For these reasons, R-rated films continue to be the “prestige projects” of certain producers and directors (Simonton, 2009).

In order to appeal to the widest audiences possible, most film studios edit their films’ content to avoid a restricted rating, generally aiming for the preferred PG or PG-13 MPAA classifications which exclude fewer audience members (Terry, Butler & De’Armond, 2005). In support of this strategy, one study provides evidence that G and PG ratings have a positive impact on a film’s financial success (Ravid, 1999). Two older studies determined no significant relationship between ratings and success (Austin, 1984; Austin & Gordon, 1987), and while a 2011 study confirmed a significant negative relationship between restrictive ratings and opening weekend box-office performance, it found no significant effect with respect to cumulative box-office performance (Leenders & Eliashberg, 2011).

2.4.10 Runtime

A film’s runtime is generally linked to, but not the same as, the length of the shooting script. While screenplays are formatted so that producers may estimate that a film will run for one minute per page of the shooting script, this is just an approximation. For example, the UK-produced historical epic *Lawrence of Arabia* (1962) was originally released as a 222-minute version, despite having a 125-page shooting script. Under David Lean’s direction, numerous sequences were extended during filming, and often included long, slow shots. More recently, the UK-produced science fiction thriller *Monsters* (2010) was based on a treatment just a few pages long. No script was written, and the actors improvised all their lines (Cine-Vue, 2010). The resulting film was 94 minutes long.

Having a longer runtime has been positively correlated with box office success, critical ratings and wins and nominations across every category of the Academy Awards (Wallace, Seigerman & Holbrook, 1993; Holbrook, 1999; Simonton, 2005b). Furthermore, films that win the Hollywood-based Golden Raspberry award for Worst Picture, Worst Director and Worst Screenplay are more likely to be shorter (Simonton, 2009). As Dean Simonton suggests, it may be that “it takes a certain amount of time to realize the creative potential available in the medium. This complete realization cannot happen in an 80-minute film” (2009, p. 410). Additionally, many films shorter than 90 minutes are independent films, with lower budgets, less well known cast and crew, and are often in the drama genre, securing

limited release by a minor distributor. These factors are also likely to contribute towards the lower box office figures generally achieved by shorter films.

2.4.11 Storyline

Many producers, directors, critics and studio managers have argued that story plays a vital role in the audience's enjoyment and engagement with a film, and thus its popularity. Jim Berk, former CEO of the Hollywood production company Participant Media, has said: "...it all starts with a good story. It's how you establish an emotional connection. For us, the story is primary. Without this we will not move forward with a project, no matter how important the issue" (Bishop & Green, 2013). However, only a handful of academic studies have paid attention to this area. The major difficulties with this field of research are twofold. First, the criteria for a popular or critically-acclaimed narrative are not fully understood. While the majority of successful films are produced from screenplays which conform to industrially-received craft rules, there are a number of examples of critically and commercially successful films whose narratives do not follow those laid out by the screenwriting guides – particularly outside the US. For example, the recent Chinese satirical comedy *Si ren ding zhi/Personal Tailor* (2013) is episodic rather than structured in three clear acts, has multiple protagonists, no clear through-line, and an open ending. Despite being an example of a "miniplot" as described by the Hollywood story analyst Robert McKee (1999), which he argues is less appealing to audiences than films with classical three act structures, *Personal Tailor* was China's third highest grossing film domestically in 2013.

There are also many examples of films, produced within the US as well as elsewhere, with narratives that follow established craft rules but which fail to achieve either critical or commercial success. For example, the US-produced sci-fi action film *Total Recall* (2012) follows the most well-established screenwriting craft rules relating to structure and character goals but failed commercially as well as critically, achieving only a 30% rating on the aggregated critics site Rotten Tomatoes.

A further problem for forecasters is that textual data is highly dimensional. Given that the average American or English screenwriter meaningfully selects around 22,000 words from the total English lexicon of over one million words (The Global Language Monitor, 2015), these words may be combined in different orders to produce billions of permutations. In order to reduce this dimensionality, Eliashberg, Hui and Zhang (2007) used "bag-of-word" natural language processing techniques to extract the number and frequency of words used in

pre-existing spoilers of screenplay storylines for 281 films released in North America between 2001 and 2004. Through this approach they detected the themes, scenes and emotions within each spoiler. In addition to this textual analysis, Eliashberg et al. also asked three human judges to classify each film's genre and answer twenty-two questions about the film's storyline as summarised in the spoiler, based on plot-specific knowledge deemed important by four screenwriting manuals. Then, using a bootstrap aggregated classification and regression tree methodology, this information was used to predict each film's return on investment. The resulting CART model found that the most important predictive variable of action movies with good returns on investment was that the main character behaved in a logical fashion. As Figure 5 illustrates, other important predictive factors were that the narrative has a clear premise, a multidimensional hero, and spoilers containing some passive sentences. For non-action genre movies, returns on investment were higher for films made from screenplays whose spoilers contained passive sentences and avoided flashbacks. The researchers noted that "factors in a script interact with each other in a highly nonlinear way so that an attempt to quantify the 'marginal contribution' of a factor is doomed to failure" (Eliashberg, Hui & Zhang, 2007). When predicting returns on investment for individual films as well as slates of films, the authors found their CART model performed significantly better than existing models, and suggest that the use of screenwriting domain knowledge, natural language processing and computer-learning techniques would be economically advantageous if used by the studios when selecting films likely to be a commercial success for their slates.

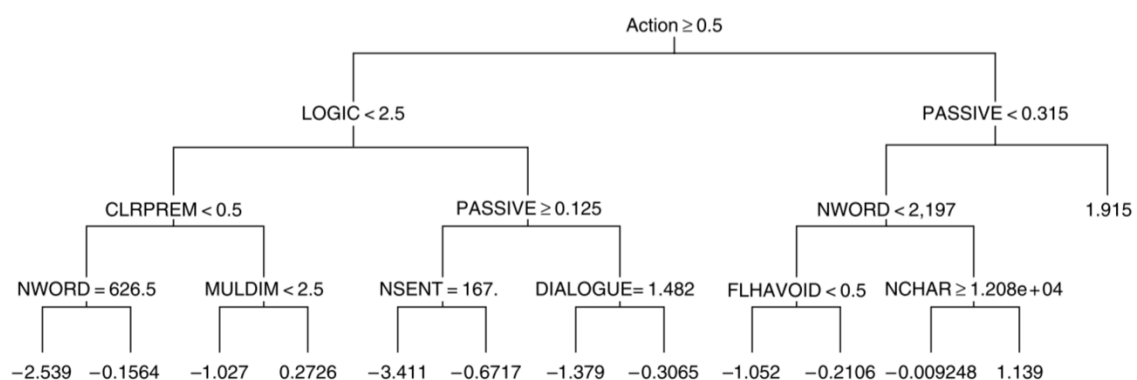


Figure 5: CART model fitted with 200 training observations. Fitted values are predicted values $\log(\text{ROI}+1)$ (Eliashberg et al., 2007). Copyright 2007 Eliashberg et al.

A more recent study by Eliashberg, Hui and Zhang (Eliashberg, Hui & Zhang, 2014), analysing full screenplays, found that early exposition communicating the film's theme and

the presence of a “strong nemesis” were the primary narrative indicators contributing towards a film’s box office success.

2.4.12 Textual aspects of the screenplay

In addition to considering a screenplay’s storyline, content and characters, a handful of studies have started to investigate linguistic properties of the screenplay as a text. For example, Hunter, Smith and Singh (2016) attempted to predict the opening weekend box office for 170 US-produced English-language feature films released between 2010 and 2011, using network text analysis, which they describe as “a method of rendering a text as a map or network of interconnected concepts”. Controlling for the drama genre, the film’s MPAA rating, whether or not the screenplay was original, the screenwriter’s record, and the film’s year of release, the authors found that the size of the number of unique etymological roots in the main component of the text network of a film’s shooting script predicted the opening weekend box office receipts for each film with a high degree of significance. The authors suggest that the larger text networks found in shooting scripts used to produce the most commercially successful films may indicate the writers’ superior cognitive complexity. However, this research needs to be confirmed and extended before any firm conclusions are drawn, since the sample is relatively small, weighted towards higher-budget films and confined to films released over a two-year period.

2.4.13 Characters

Together with plot, many authors of screenwriting manuals argue that characters are at the heart of every film (McKee, 1999; Iglesias, 2001). However, very few studies have attempted to investigate the relationship between various attributes of film characters and a film’s box office performance. One study compared protagonist’s end-of-film “Rokeach values”⁴ in critically acclaimed films versus global blockbusters (Beckwith, 2007, 2009). Protagonists in films that had won the Academy Award for Best Picture tended to begin their narrative journeys valuing accomplishment, a comfortable life and self-respect, and came to the end of their journeys valuing inner harmony, family security and self-respect. By comparison,

⁴ These Rokeach values (1968) are a set of personal values, or guiding influences that include “true friendship”, “mature love” and “self-respect”, developed by social psychologist Milton Rokeach.

protagonists from films that were global blockbusters began their narrative journeys valuing accomplishment, an exciting life and freedom, but came to end their journeys valuing family security, accomplishment and true friendship. The Best Picture protagonists tended to be ambitious, capable and responsible at the beginning of their films, and ended by becoming more helpful and honest, while the global blockbuster protagonists started out being driven by ambition, being capable and courageous, and transformed to become more helpful by the ends of their journeys. Comparison of the top six values across the three film samples indicated a core of six behaviour values that were consistent across the commercially and critically successful samples, and some small variations across a second set of peripheral goal values.

While this study is a valuable first exploration into this field and suggests that protagonists' values cannot be used to differentiate the most commercially successful films from those of Academy Award winning films, since the protagonists of both demonstrate shifts in their values from agentic self-concern to societal concerns and altruism, there were three problems with this study. First, the Rokeach Value Survey, on which questions part of this study were based, is a product of North American ethnocentric thought and does not include Confucian group-oriented values such as filial piety, harmony and unity with others, co-operation, and loyalty, important to many East Asian societies (Lee, 1991). Second, only two raters were used in this study, both of whom were North American, opening up the possibility of subjective and culturally specific ratings. This is particularly problematic when making generalisations about protagonist values in films that have been successful among a worldwide audience. For example, how can we be sure that Chinese audiences, watching Rose in *Titanic* (1997), would rate one of her most important terminal values as mature love, as the author has concluded, and not the Confucian values of harmony and unity, if offered the choice? Finally, Beckwith concludes his study by suggesting that protagonists reflect the value-sets that are esteemed most highly by the cultures in which the films were produced, and the typical arc of North American film characters indicates movement up Maslow's hierarchy of needs (Maslow, 1943). As I explore further in Chapter 4, Maslow's hierarchy is also the product of North American ethnocentric thought, so while this may be an appropriate lens through which to examine US values, it is problematic when trying to understand protagonists' values received by audiences from across the world.

In their study analysing screenplay spoilers using CART-decision tree models, Eliashberg, Hui and Zhang (Eliashberg, Hui & Zhang, 2007) included six questions relating to a film's

main characters. These asked whether the protagonist is multidimensional, sympathetic, exhibits clear motivation, character growth and is logical, and whether the story has a strong nemesis. As noted previously, of these items having a strong nemesis was found to be the most important predictor of a film's box office.

When investigating the impact of gender on a film's revenues, one recent study found that "an independent female presence" was linked to lower box office takings in 974 films released in North America between 2000 and 2009. However, this effect appears to be primarily attributable to the fact that films with an independent female presence tend to have significantly smaller production budgets and therefore make less money, rather than because of any public lack of interest in films featuring independent women in their lead roles (Lindner, Lindquist & Arnold, 2015). Taking one recent example, Disney's female-centred family animation film *Frozen* (2013) made US\$1.28 billion at the worldwide box office, and is the world's ninth highest grossing film of all time. It also received the Academy Award for the Best Animated Film and an 89% aggregated critic rating on Rotten Tomatoes.

2.5 Production and post-production factors

Researchers have identified three production-related factors that contribute towards a film's success. These are the production budget, the talent attached to the film (actors, the director and the composer) and the nation of production. In addition, attributes of factors influencing a film's success during development and preproduction may change during production and post-production. For instance, as mentioned earlier, a film's runtime is rarely the exact page-count specified by the script, but is influenced by the director's, actors' and camera operators' interpretations of the script during the film-shoot, unexpected events, and changes to the narrative that happen during the edit as a response to audience test screenings and the desire to achieve a certain censor rating. Similarly, a film's narrative may also change during production and post-production in response to these variables.

2.5.1 Production budgets

Litman's finding that a higher production budget predicted greater revenue generated through video rentals was replicated by Terry et al. (2005) in their study of 505 films released between 2001 and 2003. The results of their regression analysis suggest that the primary determinants of box office earnings are critic reviews, award nominations, sequels, MPAA

rating, budget, and release exposure (the number of cinemas at which a film opens). They note that big budget movies with “A list” movie stars, high production values, special effects and large advertising budgets are clearly advantageous in drawing crowds at the box office. Whether or not these crowd-pleasers have a long-term effect on raising box office figures is less clear, however, and a 2007 study found that while film production budgets relate to a high opening weekend box office, they do not appear to influence the later success of a film (Hennig-Thurau, Houston & Walsh, 2007). Also important to note is that while these earlier studies examined box office performance, they failed to examine the more important factor of a film’s profitability. Although the results of Walls (2010) replicated prevalent wisdoms about higher film production budgets predicting higher rates of return at the annual North American box office, this may not be the case when secondary markets are taken into account, since lower budget films (with production budgets under US\$15 million) are more dependent on revenues from DVD sales, rentals and digital downloads (Huang, Markovitch & Strijnev, 2013). Furthermore, in a study comparing box office returns to returns on investment (defined as $(\text{Revenue} - \text{Budget})/\text{Budget}$) for 2506 films released in North America between 1999 and 2010, the correlation coefficient between revenues and returns on investment was found to be a mere 0.077, indicating that high box office returns do not necessarily generate high returns on investment (Lash & Zhao, 2015). The relationship between a film’s budget and ticket sales or return on investment in China has yet to be investigated.

2.5.2 Star power

Research examining another received wisdom that casting stars in a film raises its chances of commercial success has also demonstrated that the higher box office receipts generally earned by films with “A list” actors (Albert, 1998) do not always mean greater returns on investment, because of increased production costs attached to hiring the world’s most popular actors (Roh & Kim, 2012). Refining this argument, only certain stars are correlated with a film’s box office success. In a sample of 2015 films released in North America between 1984 and 1986, only nineteen stars were linked with a film’s box office success (De Vany & Walls, 1999). Today, only a handful of “superstars” are likely to secure box office success, and casting is more used by studios to successfully package a film and secure a high production budget rather than as any guarantee of a film’s profitability (Hennig-Thurau, Houston and Walsh, 2007). In the US, these superstars are currently thought to include

Jennifer Lawrence, Robert Downey Jr., Leonard DiCaprio, Bradley Cooper, Dwayne Johnson and Tom Cruise (Vulture.com, 2015). While it is true that very successful films have been made without casting known actors in lead roles, it is unlikely that this will become a trend in the near future, because of studios' reliance on "star power" when leveraging finance.

In China, film stars continue to have a positive effect on a film's box office. One study attempting to predict the domestic Chinese box office of 241 films released in China between 2005 and 2006 found a very good fit when including stars, weighted by their popularity, as a predictive factor (Zhang, Luo & Yang, 2009). China's top-paid film stars include Stephen Chow, Tony Leung, Chow Yun-fat, Huang Bo, Wu Xiubo and Nicholas Tse (Cain, 2015b). With the recent wave of Chinese-American co-productions, films billing both American and Chinese stars are on the rise. For example, the Chinese-American co-production *The Great Wall* (2016), directed by Zhang Yimou, stars Andy Lau and Matt Damon among its ensemble cast. At the time of writing the film has yet to open in the US, but drew the fourth largest box office opening in China in 2016.

2.5.3 Director

A number of Hollywood directors are known well enough by the public to have their names featured prominently during the marketing of their films. High-profile Hollywood directors include Steven Spielberg, George Lucas, JJ Abrams, Quentin Tarantino, James Cameron, Martin Scorsese, Peter Jackson and Michael Bay. Well-known Chinese directors include Zhang Yimou, Wong Kar-wai, Jia Zhanke, Chen Kaige, Feng Xiaogang, Tsui Hark, John Woo and Jackie Chan. One early study of the impact of American directors' previous work on the ticket sales of their current project found that a director's prior box office success predicted a positive impact on their current film's box office takings. However, a greater number of directorial credits predicted lower box office performance for their current film (Simonet, 1977), possibly because of the different career trajectories directors take when moving through the low budget film circuit, compared with directing higher budget films. In Zhang et al.'s (2009) neural network analysis of 241 Chinese-produced films released between 2005 and 2006, well-known directors were positively correlated with films' success at the Chinese domestic box office.

2.5.4 Composer

The relationship between a film's composer and the film's commercial or critical success is more complex. Music awards and nominations are weakly related to Best Picture awards, and sometimes negatively related to critics' reception of the film (Simonton, 2002, 2004a, 2004b). Musical quality appears to be unrelated to a film's financial performance in North America (Simonton, 2005a). No similar research has been performed in China.

2.5.5 Nation of production

At the Chinese domestic box office, US-produced films, and particularly event films, were found to be more successful than domestically-produced films released between 2005 and 2006 (Zhang, Luo & Yang, 2009). This may be in part because a film's country of production moderates audiences' expectations of the quality of genre films produced there. One study found that US students had the highest expectations for action and police films produced in the US; the best comedies were associated with Canada; auteur films were associated with Spain; and martial arts films were associated with Japan (D'Astous, Colbert & Nobert, 2007).

2.6 Distribution and reception

Research in this area has focused on the relationship between nine factors relating to a film's distribution and reception, and the film's box office performance. These factors are: critical ratings (Litman, 1983; Litman & Kohl, 1989; Sawhney & Eliashberg, 1996); awards (Litman & Kohl, 1989; Litman & Ahn, 1998; Terry, Butler & De'Armond, 2004, 2005); word of mouth "buzz" (Busch, 2015; McNary, 2015); the film's date or season of theatrical release (Litman, 1983; Sochay, 1994; Terry, Butler & De'Armond, 2005; Zhang, Luo & Yang, 2009); the market power of the distributor (Litman, 1983; Litman & Kohl, 1989; Chang & Ki, 2005); the number of screens the film plays on (Litman & Kohl, 1989; Litman & Ahn, 1998; De Vany & Walls, 1999; Zhang, Luo & Yang, 2009); advertising expenditure (Prag & Casavant, 1994); the market competition at the time of release (Sochay, 1994; Litman & Ahn, 1998); and the nation of reception (Lee, 2006a, 2008).

2.6.1 Critical ratings

As a 2005 court case against Sony Pictures demonstrated, the industrially received wisdom has been that positive critic ratings are vital to a film's commercial success, so much so that

Sony Picture Entertainment's marketing employees used fake critic reviews to advertise their films *Vertical Limit* (2000), *Hollowman* (2000), *The Animal* (2001) and *A Knight's Tale* (2001), all of which had received poor reviews. The result was that Sony agreed to refund \$5 to every dissatisfied customer who saw one of these four films, in an out of court settlement (Omar Rezec v Sony Pictures Entertainment, 2004). In fact, the relationship between a film's commercial success and critical evaluations is complex. In order to understand this better it is important to note that critic reviews are concentrated within two distinct time periods of a film's release cycle (Simonton, 2009). For studio-produced films, the first set of reviews arrives at the beginning of a film's theatrical release, and may be based on theatrical previews. By contrast, independent films may receive their first critical reviews at film festivals, prior to gaining a distribution deal. Post-release reviews often coincide with the film's release in secondary markets, by which time the film will have likely completed its theatrical run, and therefore critics will be aware of the film's box office performance and any awards it may have won. Both within and between these sets of reviews there tends to be strong consensus (Boor, 1990; Holbrook, 1999; Simonton, 2004a), though it is important to note that research has focused on North American critics. American film critics' ratings also demonstrate positive correlation with American film consumer views (Boor, 1990; Holbrook, 1999). Thus, within the North American market, there appears to be consensus between critics' evaluations of films and the public's.

The majority of researchers have found a positive relationship between a film's critical reception and its box office success (Litman, 1983; Litman & Kohl, 1989; Sawhney & Eliashberg, 1996). In terms of specific results, Terry, Butler and De'Armond (2004) found that critic approval of 40% or higher is essential for most films to achieve North American domestic box office success, and a 10% increase in critic approval was found to draw an additional US\$7 million at the North American box office at the time of the study (Terry, Butler & De'Armond, 2005). However, indicative of the complexity of this relationship is the fact that other research has found no relationship between a film's critical reception and its box office success (Reinstein & Snyder, 2000; Delmestri, Montanari & Usai, 2005), some have found a negative association (Simonton, 2005a), while others have found the two factors to be related whatever the valence of the critical review (Ignacio, Víctor & José, 2012). Some evidence suggests that just a few of the most popular critics, including Siskel and Ebert, have an impact on box office success (Reinstein & Snyder, 2000). Whether or not the film is considered to be a very good or very poor film also appears to moderate its box office success. In a sample of 1,687 movies released between 1956 and 1988, Wallace, Seigerman

and Holbrook (1993) found that a poorly-rated film lost money for every positive review it received, while a highly-rated film increased its box office takings with every positive review. In other words, poorly-rated films appeared to perform better at the box office when considered to be as “trashy as possible”.

Very few studies have extended research to include the impact of critic ratings on the specific foreign markets and the global box office. One recent analysis of 289 North American films released internationally between 2009 and 2010 found that positive Metacritic ratings did not predict global box office revenues (Pangarker & Smit, 2013). This may in part be because the critics aggregated by the Metacritic site are all North American, and thus their evaluations of films will inevitably reflect their own cultural lens. By contrast, focusing specifically on the Chinese market, authors Wen and Chang (2011) suggest that cinemagoers’ critical ratings are not a significant determinant of box office success in China. While the results of this first study of its kind are interesting, firm conclusions cannot be drawn due to the small sample size, non-probabilistic sampling of films, and a lack of transparency about the data sources.

2.6.2 Awards

Litman’s original (1983) study found that being nominated for one of the top three categories of Academy Award contributed significantly to an increase in video rentals, an effect that was more than doubled when an Academy Award was won. Several other studies extending Litman’s work have found a positive relationship between Academy Award nominations or wins and box office receipts (Litman & Kohl, 1989; Litman & Ahn, 1998; Terry, Butler & De’Armond, 2004, 2005), but there has been much variability around which awards were included and how these have been empirically evaluated (Simonton, 2009). Some Academy Awards appear to be worth more than others in terms of the film’s related box office takings. Through a least squares regression analysis of 1006 English-language, live-action, feature-length narrative films released between 2000 and 2006, Simonton (2009) found that only dramatic and technical awards are predictive of box office sales. Interestingly, the award for Best Picture was not linked with box office success. Extending these US-based analyses, a further study found that an Academy Award win in any category adds an additional US\$9 million to the international (non-US) box office (Terry, Cooley & Zachary, 2010). Building on Litman’s (1983) investigation into factors impacting a film’s success in the secondary video rental market, Terry et al. (2008) found that an Academy Award nomination in any

category was worth over US\$1 million in video rental revenue. When considering these studies, it is important to note that definitions of the Academy Awards categories have been widely recognised as being subject to studio manipulation for at least the last decade, particularly in relation to defining actors in a “Supporting Role”, often a less competitive category that stands nominees a better chance of winning (Gray, 2015).

The relationship between awards and nominations for the Golden Rooster, China’s equivalent of the Academy Awards, and a film’s box office performance has yet to be studied. However, a study examining the influence of the Academy Awards in Hong Kong, Taiwan, South Korea, Japan, Singapore, Malaysia, Thailand, Indonesia and the Philippines found that Academy Award wins in the technical clusters were related to positive box office performance while dramatic Academy Award wins were related to negative box office receipts, suggesting that films high on spectacle receive less cultural discount in East Asia and travel better (Lee, 2009). An alternative interpretation is that films that were technically applauded may have tended to be high budget action genre films, distributed by major studios and released on favourable dates, factors which are all known to contribute towards a film’s commercial success. They may have also tended to feature heroic protagonists facing life and death situations, a factor which I explore in my quantitative research.

2.6.3 Word of mouth “buzz”

In addition to professional judgments about a film’s merits, measured by critical response and award ceremonies, consumer opinions transmitted by “word of mouth” have for some time been considered as important to a film’s commercial success through amplifying marketing campaigns and increasing audience awareness of films that are either currently on release or forthcoming. Word of mouth “buzz” includes direct conversations as well as chatter on the internet, whether in the form of online film reviews, discussions on forums, or any other mentions of a film on social media including Facebook, Twitter and Weibo, among others. In both the US and China, studios commission box office tracking consultancies to survey and measure audience attitudes to films in the weeks prior to and just after their release. One of the largest tracking companies in the US, the National Research Group, analyses information drawn from over a million phone and online surveys across the thirteen largest film markets in the world as well as film screenings, focus groups, exit surveys, ad/trailer testing and metrics measuring “the volume of multiple social media channels and web sites that

moviegoers visit” (Busch, 2015; McNary, 2015). Other tracking agencies have focused on developing their own software to analyse internet buzz. For example, the US-based Boxoffice magazine’s tracking technology claims to analyse 70,000 sources of online comments in order to predict box office sales (Hayden, 2010).

Two academic studies suggest that the volume, and not the valence, of moviegoers’ internet reviews appears to have a significant impact on box office revenues (Liu, 2006; Duan, Gu & Whinston, 2008). However, early word of mouth buzz about a film may be linked with lower box office receipts if audiences do not enjoy the film (Karniouchina, 2011). The effects of word of mouth reviews appear to be mediated by cross-cultural effects. One study found a U-shaped relationship between a country’s level of collectivism-individualism and that country’s nationals’ susceptibility to social influence. Social influence, via word of mouth reviews, is strongest for members of countries that are either highly collectivist or individualist. Conversely, social influence is weakest for members of a country with moderate levels of individualism (for example Spain) (Broekhuizen, Delre & Torres, 2011). Regardless of the volume of word of mouth reviews a film has generated, expert critical opinions still appear to be important to film audiences (Basuroy, Ravid & Hall, 2014). Finally, there tends to be consensus between the ratings of novice filmgoers ratings and those of “expert” critics, although the ratings of filmgoers who watch the most films correlate most highly with the ratings of professional critics (Plucker et al., 2009).

2.6.4 Date or season of theatrical release

While Litman’s (1983) study found that US box office performance was positively correlated with a film’s Christmas season release, subsequent research has found that summer release also predicts box office success in North America (Sochay, 1994). Another study suggests that the most successful season of release shifts from year to year between the Christmas holiday season and summer as film distributors schedule their major releases to avoid proximity with competing films (Sochay, 1994). Other research suggests that releasing films on a national American holiday is not a significant predictor of domestic box office success (Terry, Butler & De’Armond, 2005).

In China, theatrical scheduling is complicated by state protectionism barring the screening of foreign films during the three annual periods already outlined. July has been correlated with the release of films drawing the highest box office, closely followed by August, October, September and May (Zhang, Luo & Yang, 2009). A Friday release is

associated with the highest box office success, followed by Saturday, Thursday, and Wednesday. For example, Chinese-produced action fantasy film *Zhuō Yāo Jì/Monster Hunt* (2015) secured a Saturday release in July 2015 during the annual foreign film blackout period, and is the highest grossing Chinese movie of all time, grossing US\$385.29 million worldwide. In recent years festivals and holidays have become particularly popular times in China to visit the cinema. Of these, the American Thanksgiving weekend correlates with the highest ticket sales, presumably because of US releases at this time, closely followed by the Lunar Spring Festival, Teachers' Day and National Day (Zhang, Luo & Yang, 2009).

2.6.5 Market power of distributor

While many independent filmmakers perceive the sealing of a deal with a major US distributor (Warner Bros, Walt Disney, Sony Pictures, 20th Century Fox, Paramount Pictures, Universal, Lionsgate, Newline, Dreamworks SKG, Miramax, MGM, Fox Searchlight, Weinstein Co, Summit Entertainment, Focus Features, Sony Pictures Classics) as a hallmark of their film's success, older studies have found that having a major distributor either has no effect, or even sometimes an adverse effect on domestic ticket sales in North America (Litman, 1983; Litman & Kohl, 1989). More recent research found that films with a major distributor generally played longer in cinemas in the US (Chang & Ki, 2005). No such research has been conducted in China, where the major distributors include China Film Group Corporation, Wanda Media, Beijing Enlight Pictures, Huaxia Film Distribution, Huayi Brothers and Alibaba Pictures.

2.6.6 Number of screens

One of the identified business strategies of major distributors in the US is to have their films "open wide", in other words to open in 600 or more theatrical screens simultaneously. The aim of this is to create a large media event during the film's opening weekend and generate lots of word-of-mouth "buzz", thus advertising not only the film but also products in its downstream markets (Sparviero, 2013). Wide-release films tend to take the highest US domestic grosses in their first weekend of release (De Vany & Walls, 1999) and accrue higher ticket sales overall in North America by the end of their run (Litman & Kohl, 1989; Litman & Ahn, 1998; Simonton, 2005b). However, North American critics generally prefer films which have had more limited release, typically art-house films (Simonton, 2005b).

In China, the more cinema screens a film is released on, the higher box office takings tend to be (Zhang et al., 2009). Comparisons of American and Chinese research on the financial impact of number of screens of release need to take into account the very different definitions of wide-release in these nations. While wide release in the US has been defined as the screening of a film at 600 or more cinemas, and a saturated release - which is typical for top ten films - as the screening of a film at 3000 or more cinemas (Box Office Mojo, 2017b), in a saturated release in China films may be exhibited on over 26000 screens (Frater, 2016).

2.6.7 Advertising expenditure

Given that global marketing budgets for high-budget Hollywood films are reported to average around US\$200 million per film (McClintock, 2014), pressures on studios to return a profit at the international box office have become very high. Despite the commonly received wisdom that the greater the marketing and advertising spend on any film the greater its box office success, only one study, now over twenty years old, has examined and confirmed this relationship for US-produced films (Prag & Casavant, 1994). This research also suggests that the primary predictors of a high marketing spend are the production budget and casting of film stars. Given that distributors tend to be highly secretive about their advertising spends, further large-scale academic research in this area is unlikely without a new culture of openness. Even less is known about the impact of advertising spend on a film's commercial success in China, where state protectionism further safeguards the success of local films by limiting foreign studio advertising on the internet, in outdoor venues, and film trailers screened in cinemas (Cain, 2012).

2.6.8 Market competition

Following the record box office failures of three Hollywood event films during the summer of 2013 (*Pacific Rim* (2013), *White House Down* (2013) and *The Lone Ranger* (2013)), industry trade papers branded the season "The Summer of Flops" and declared it the most crowded summer schedule for the release of high budget action films that there has ever been (Allen, 2013; Carroll, 2013). "Awards season", or the period between November and February when US studios release films that are most likely to be candidates for Academy or Golden Globe Awards, is often similarly crowded (Bart, 2015). The industrially received wisdom that overcrowding the marketplace with too many similar films has an adverse

impact on the box office is backed up by a number of empirical studies (Sochay, 1994; Litman & Ahn, 1998).

2.6.9 Nation of reception

The local reception of films produced in foreign marketplaces has been examined using theories of “cultural discount”, an idea developed through research into trade economics, where a media product suffers a loss in value when it moves across cultural boundaries (Hoskins & Mirus, 1988). While a full examination of the ideas around cultural discount is beyond the scope of this thesis, and no research to date has focused specifically on the Chinese reception of imported films, one study examining the top 100 US box office films produced annually between 2002 and 2006 found general consistencies between the ways that Hong Kong, Taiwan, South Korea, Japan, Singapore, Malaysia and Thailand received these films, while some countries had more idiosyncratic ways of receiving the films. Romance, adventure and action genre films demonstrated the most positive relationships with box office receipts, and therefore arguably the least cultural discount, while comedies showed a negative relationship with box office sales and the most cultural discount (Lee, 2008). This study builds on an earlier analysis by the same author, which demonstrated that the Hong Kong box office receipts of US blockbusters may be predicted by their US box office. This suggests that blockbusters are subjected to a lesser degree of localized reception in Hong Kong (Lee, 2006b).

2.7 Directions for future research

Future research into box office forecasting may take several directions. First, research will likely continue to identify new variables that influence films’ box office and/or critical success. In the last few years, more attention has been paid to narrative factors that contribute towards ticket sales or the critical appreciation of films. Further studies are required to confirm those that have already been published and to identify new variables, particularly relating to content and characterisation. Second, research is needed to better understand interactions between the core predictive variables of success that have already been identified. For example, how does the genre of a film mediate the impact of the season of release on its box office? Third, new computer-based methodologies will allow the analyses of big data sets, from IMDb, Douban, online screenplays or others, allowing far more robust conclusions to be drawn. Fourth, the rise of the Chinese film industry and the importance of

global markets will lead researchers to expand their current inward-looking focus from the US market to foreign markets and global sales. Fifth, collaboration between researchers and film studios across the world will be vital in order to examine the relationship between various pre-production, production and distribution-related variables and film profits, instead of box office receipts. Sixth, new research should also investigate the relationship between these variables and secondary and ancillary market revenues, including merchandising, theme parks, digital downloads, DVDs, music CDs, spinoff games, TV and web series as well other areas yet to be developed.

3 The Search for Narrative Universals

Part 1: Structuralist Approaches

From both critical and financial perspectives, deciding which screenplay to greenlight is one of the most important stages in the film production whole process. Given that the screenplay is thought to be an important determinant of the commercial and critical success of the final, produced film, any additional knowledge about narrative factors which contribute towards this success would be immensely helpful to the film industry. As screenwriting scholar Steven Price has noted, the Hollywood film industry has always been “a story-gathering organisation”. The structuralist paradigm has been the obvious choice when analysing a large volume of texts for similarities, or even universals that might contribute towards predictions of a film’s critical or financial performance (Price, 2010, p. 134). Through this structuralist approach, elements of human culture are understood in terms of their relationship to a larger system or structure, which may be a model of universal narrative structure, a genre, or a system of patterns which attempts to organize data in the simplest effective way. Applying the structuralist paradigm to screenwriting, authors of some widely-received screenwriting manuals have proposed that film narratives follow universal structural forms, and feature protagonists with universal, psychological character attributes. They have also argued that these universal structural forms and psychological character attributes are necessary for a film to have popular appeal (e.g. McKee, 1999, p.62).

In this chapter I will begin to investigate whether classic screenplay structure and the psychological attributes of screen characters are examples of narrative universals. If so, what forms do these take and how are they best defined? Is there any evidence that the “hero pattern”, a certain biographical pattern established in Greek myths and some folk stories, is a narrative universal? Why do many fictional texts include representations of the human relationship with the natural – or unnatural – world? Could this be a further narrative universal? Should fictional works be considered as cultural, geographical and historical works, in which only their local contexts of creation and reception are relevant to their analyses? Alternatively, might cultural, geographical and historical explanations of fictional narratives, which seek to emphasise cultural particulars, be reconciled with evolutionary or psychological explanations, which foreground narrative universals?

In their search for narrative universals, scholars of literature and linguistics have covered the full gamut of literary devices, from the patterning and relationships of linguistic structures, symbolism, assonance and foreshadowing, through to narrative form, interrelationships, themes, characters, genre and plot (Hogan, 2003, Chapter 1). In this and the two subsequent chapters I focus on research illuminating universals relating to a narrative's structure and characters, since these are hypothesized by the authors of screenwriting manuals as having an impact on a film's global appeal. For the reasons I outlined in the introduction, I consider *absolute* universals, as well as *statistical* and *conditional* narrative universals. For example, it may be that while not every story is a hero myth, every protagonist of a hero myth, or even the great majority of protagonists, shares certain common psychological attributes. These hero protagonist attributes would be statistical, conditional universals but still of interest to my research because such universals are generally the product of underlying, absolute psychological universals. While proponents of structural approaches have tended to cite "human nature" as the fundamental cause of universals found in narrative patterning, the primary concern of this top-down approach is to identify forms and patterns, rather than explore their causes or propose an adequate framework to explain why these have arisen.

In the remainder of this chapter I take a chronological approach to reviewing the most influential structuralist ideas relating to the identification of forms and patterns of narrative, as well as character attributes. To cover every scholar of structuralism would be beyond the scope of this thesis, and therefore I selectively review the work most relevant to screenplay structure and characterisation, which are thought to be determinants of a film's universal appeal.

The first of these scholars to theorise about the structural universals of "poetry", or drama, was the Greek philosopher and scientist Aristotle. Aristotle (335BC/1982) described poetry as taking a universal form, and having a beginning, a middle and end. While the precise intention of his meaning has been contested, his works remain highly influential within contemporary screenwriting studies and practice (e.g. McKee, 1999, p.5) and today's most prevalent three-act structure is widely understood to be influenced by his teachings. In the late nineteenth century the anthropologists Edward Tylor (1871) and Johann Georg von Hahn (1876) independently set to work comparing myths from around the world. Through their research, they established that the hero protagonists of a number of well-known myths followed the same basic biographical pattern, which has become known as the "hero pattern".

Their research was extended first by Otto Rank (1914), then by Russian formalist Vladimir Propp (1928), and later by Lord Raglan (1936). Almost two decades later, anthropologist Claude Lévi-Strauss (1955) contributed to the advent of the new paradigm of structuralism. The structuralist movement of the 1950s looked for interrelationships between themes, for example the conflicting, dualistic themes of nature proposed by Lévi-Strauss. Northrop Frye (1957) took a rather different approach to the study of comparative literature and mythology, arguing that these works represent schemas of human perception of the natural world. Implicit in these approaches was the idea that narratives are governed by underlying universals of human nature.

As a reaction to the ahistoricism of these ideas, Roland Barthes (1972) formulated a new paradigm which advocated that all cultural works are laden with historical, cultural and ideological interpretations. This new, post-structuralist paradigm was part of an entirely new way of thinking in the social sciences. The move towards social constructionism, and the idea that the world is “socially constructed” from jointly constructed understanding which forms the basis of our shared reality, paved the way for a new paradigm which later became known as the Standard Social Science Model (Barkow, Cosmides & Tooby, 1995). This suggests that the mind is a general-purpose cognitive device shaped almost entirely by culture. Influenced by this new school of thought, comparative literary criticism, film and screenwriting studies have tended to focus on *particularist* explanations, which emphasize cultural and historical differences between literary works, as opposed to the *comparative*, structuralist explanations, which embrace similarities between cultural works, that had preceded them.

Meanwhile the film industry has continued to take a structuralist stance, looking for similar patterns of plot and characterization within film narratives in order to try and construe the most successful formula for a film’s commercial success. From the mid-1970s on, post-Aristotelian approaches to screenwriting structure gave rise to numerous screenwriting manuals, the best-known authors of which include Syd Field (1979), Robert McKee (1997), Frank Daniel, Linda Seger (1994) and Blake Snyder (2005). These manuals advocate the importance of plot, and a three-act structure which contains turning points at the most significant stages of the protagonist’s narrative biography.

Rather than considering the forms espoused by these popular screenwriting guides as a whole, I unravel and critique their elements in order to better understand whether there are any absolute, statistical or conditional universal narrative truths within the most common Hollywood structure. Finally, I draw conclusions from my literature review and make

suggestions for further research. I argue that top-down, structuralist approaches to works of fiction have been immensely useful in identifying several elements of fictional narratives that may qualify as universal. These include a three-part story structure, binary thematic relationships, genre, causality, consistent realities, closed endings, linear time and a goal-driven protagonist. I propose that these universals may be best explained through human evolutionary psychology, which unites approaches that seek to understand the particular ways in which fictional works are products of culture, history and geography with universal explanations of human behaviour.

3.1 Aristotle and the structure of poetry

Writing in the fourth century BC, the Greek philosopher and scientist Aristotle was the first known scholar to propose and discuss narrative universals. A student of Plato, Aristotle wrote extensively on the natural sciences, metaphysics, logic, ethics, aesthetics, rhetoric, politics, government, music and drama, guided by his ideas about “realism”. Following Plato’s ideas about realism, in which he conceived universals as mental conceptions that differ from physical forms, Aristotle claimed that all scientific knowledge is universal and that universals are real entities, but their existence is dependent on the particulars that exemplify them. In other words, when we see something that we understand as “being human”, this is because we have seen many other humans, and learned to mentally extract our common humanity from among the wide variation in properties that we see in our species. Thus, according to Aristotle, being human is a universal, identical in each of its instances, even though some humans are tall, others are short and so on.

However, in Aristotle’s view the property of being human does not exist as an entity beyond observable humans. In his book *Poetics* (335BC/1982) Aristotle extends his analysis of universals to “poetic” structure and particularly to “tragedy”, which he defines as being an imitation of action that is serious and uses pity and fear in order to “purge” the emotions (1982, p. 50). Some literary scholars have proposed that a second book of the *Poetics*, on comedy, has been lost (Hutton in Aristotle, 1982, pp. 26–27). Therefore, any analysis of Aristotle’s writing on narrative universals must be confined to the general statements that he makes about all forms of “poetry”, and not just his analysis of the constituents of tragedy, since it is unknown in which ways he considered these to differ from those of comedy. Starting with the basic principles, it is first important to understand what Aristotle meant by “poetry”, translated from the ancient Greek ποιέω (poieo), which means “*I create*”, so

Aristotle's writings on poetry differentiate it as a narrative form from history, or the factual reporting of actual events.

Aristotle makes no requirement for poetry to be written in verse (1982, Chapter I). Instead he proposes that poetry is based on the imitation of man's behaviour and dialogue, which he suggests is an instinctive and pleasurable process unique to mankind. This imitation is created through the use of "rhythm, language or 'harmony' either singly or combined" (1982, p. 45). He observes that melody and rhythm are also instinctive to our human nature. Later in *Poetics* Aristotle makes an interesting claim that appears to be the first expression of the idea that writers should strive to create universals rather than particulars within fictional narratives. He writes:

Poetry, therefore, is a more philosophical and a higher thing than history, in that poetry tends rather to express the universal, history rather the particular fact. A universal is: The sort of thing that (in the circumstances) a certain kind of person will say or do either probably or necessarily, which is in fact the universal that poetry aims for (with the addition of names for the persons); a particular, on the other hand is: What Alcibiades did or had done to him. (Aristotle, 1982, p. 54)

When arguing that narratives often imitate universal behaviours through the use of specific scenarios, characters or actions, Aristotle was referring to statistical universals. However, he fails to specify what these universal behaviours constitute. What are the sorts of things that people tend to say or do that Aristotle is referring to? Are all human motivations and actions examples of narrative universals?

In addition to proposing that narratives reflect universal properties of our human nature, many authors have noted that Aristotle was the first to define a narrative as having a "beginning, a middle, and an end" (Hunter, 2004, p. 20):

A beginning is that which does not come necessarily after something else, but after which it is natural for another thing to exist or come to be. An end, on the contrary, is that which naturally comes after something else, either as its necessary sequel or as its usual (and hence probable) sequel, but itself has nothing after it. A middle is that which both comes after something else and has another thing following it. (Aristotle, 1982, p. 52)

Since this is Aristotle's definition of a "well-constructed" tragedy, we cannot presume that he would also define a comedy in the same way. Despite this, at the very least Aristotle suggests that having a beginning, middle and end is a *conditional* if not absolute universal of narrative

forms. For whom the beginning, middle and end of a narrative are experienced, Aristotle fails to specify. Does he mean that these parts are experienced chronologically by the reader of the narrative, or by the subject of the narrative? Applying Aristotle's arguments to a film example, the narrative of the crime thriller *Reservoir Dogs* (1992) appears to break Aristotle's rule when viewed from the audience's perspective. Rather than starting at the beginning, moving on to the middle and finishing at the end, *Reservoir Dogs* unfolds instead as a "scrambled-time structure", in which the chronology of episodes occurring within the narrative is reordered. However, when this scrambled-time structure is rearranged from the protagonists' perspective, the film's narrative can be considered as having a three-act structure, with a beginning, a middle and an end (Murphy, 2007).

Aristotle refines his definition of the parts of a tragedy to name these elements the Prologue, Episode and Exode. These, he argues, are common to all plays, with some plays also including the Parode and Stasimon, which make up the Choric song (1982, Chapter XII). Once again, since Aristotle only makes claims for these parts to be common to all plays, we cannot assume that he would view these as narrative universals. Thus, while these three parts of a play may have formed the historical origins of the three-act structure prevalent in the screenplays of the most popular films across the world today, their origins in Greek theatre may have come about through the practical finding that the providing of two act breaks allowed actors to rest and optimized their performances in plays, rather than because a three-act structure is a narrative universal for any psychological reasons.

There is also a distinct difference between the notion of a beginning, middle and end in a short story compared with the same notion in a novel, play or screenplay. With their longer forms, novels, plays and screenplays contain a series of turning points, or peripety (reversals) as Aristotle named them. These generally define the ends of longer episodes, "acts" or "sequences" of action into which we are accustomed to dividing long-form fiction. However, very short stories do not necessarily contain any turning points, so in order to conceive these as having a three-part structure, or a beginning, a middle and an end, relies on a different set of criteria to define where these constituent parts start and finish, as compared with long-form fiction.

Thus, describing a narrative as having a three-act structure is entirely different from it simply having a beginning, a middle and an end. That we experience things in the world as having a beginning, a middle and an end is probably a result of a cognitive constraint that has shaped our language. For example, if we view a desk, our visual edge detectors process

where the desk starts and ends, and pronounce the area between these points to be “desk”. Similarly, if we open a book or view a film, our sensory processes are immediately aware of when the narrative starts and when it ends. Beginnings and endings also define every natural process. However, when we refer to beginnings, middles and endings in screenplays, we tend to equate them to the historical convention that has resulted in a three-act structure, with two significant turning points demarking the act breaks.

Aristotle also makes reference to the six elements of a tragedy. These, he argues, are Plot, Character, Diction, Thought, Spectacle and Song. Of these, Aristotle argues that Plot is the most important, as “poetry” is an imitation of man’s actions and not his qualities. Character is the next most important factor in determining a narrative’s quality, since it reveals “moral purpose” and “intentions” (Aristotle, 1982, Chapter VI). However, once again, since Aristotle claims that these are the constituent elements of tragedies, and we cannot know whether he would have extended these claims to comedies, it cannot be concluded that Aristotle believed these elements to be the constituents of all fictional narratives.

3.2 Establishing the hero pattern – Tylor and von Hahn

After Aristotle’s structural approach to dramatic works, further scholarly examinations of narrative form did not appear until the late nineteenth century with the advent of “comparative mythology”, which sought to find similarities between myths from around the world. In 1871 the English anthropologist Edward Tylor argued in his seminal book *Primitive Culture* that many myths follow a uniform plot or pattern. According to this pattern, the heroic protagonist is exposed at birth, is saved by other humans or animals, and then grows up to be a national hero. In identifying this pattern, Tylor was the first in a historical line of researchers to break narratives down into sequences of episodes, identify the function of each episode, and then compare these across texts. This “diachronic” analysis sequences the major dramatic moments in the storyline in chronological order. While Tylor established the existence of a pattern in the structure of hero stories, he made no attempts to understand or explain it. His view of myth is typical of the understanding of myth in the nineteenth century, when the dominant view was that the function of myth was to provide knowledge of the physical world (Segal, 2003).

This viewpoint was shared by the Austrian philologist Johann Georg von Hahn (1876), who analysed fourteen Aryan hero tales in his book *Arische Aussetzungs-und-*

Rückkehr-Formel (The Aryan Expulsion and Return Formula). He concluded they followed the same sixteen-step biographical scheme. In these early hero pattern formulas the heroism was nearly always confined to male protagonists (Segal, 2004). Religious studies scholar William Doty has noted that “the predominant heroic stories of an era can in many ways be seen to present a cultural model of ideal human development” (2000, p.17). In other words, how narratives present their heroes, whether as entirely male, “active or passive, conquering or receptive” (2000, p.64), is at least in some part a reflection of the idealised self at the time of writing. Similarly, how the narrative’s hero is received is in part a reflection of the idealised self at the time of narrative analysis.

3.3 Developing the hero pattern – Rank, Propp and Raglan

Broadening the research to include a wider variety of Eurasian historical and biblical figures – among them Moses, Oedipus, Gilgamesh and Jesus – the Austrian psychoanalyst and writer Otto Rank analysed fifteen biographical myths when developing his hero pattern. In *The Myth of the Birth of the Hero* (1914) he describes the pattern thus:

The hero is the child of most distinguished parents, usually the son of a king. His origin is preceded by difficulties, such as continence, or prolonged barrenness, or secret intercourse of the parents due to external prohibition or obstacles. During or before the pregnancy, there is a prophecy, in the form of a dream or oracle, cautioning against his birth, and usually threatening danger to the father (or his representative). As a rule, he is surrendered to the water, in a box. He is then saved by animals, or by lowly people (shepherds), and is suckled by a female animal or by an humble woman. After he has grown up, he finds his distinguished parents, in a highly versatile fashion. He takes his revenge on his father, on the one hand, and is acknowledged, on the other. Finally he achieves rank and honours. (1914, Chapter III)

For Rank, the meaning of myth was symbolic (Segal in Dundes, 1990, p. xxvi), and the origin of the hero pattern was psychological. After consulting with his long-standing colleague Sigmund Freud on the “psychoneuroses” of the hero figure, he purports that the heroic protagonist’s Oedipal wish to have his mother to himself finds ultimate expression in his own virgin birth (1914, p. 67). Because Rank’s work was confined to the study of hero myths, he makes no claims for the universality of this pattern.

Vladimir Propp was the next researcher to study similarities between the narrative forms of hero/heroine stories. In his seminal work *The Morphology of the Folktale* (1928/1968), Propp

breaks down the typical biography of the protagonist in Russian fairy tales into thirty-one stages, each having a unique function. These are:

1. One of the members of a family absents himself from home.
2. An interdiction is addressed to the hero.
3. The interdiction is violated.
4. The villain makes an attempt at reconnaissance.
5. The villain receives information about his victim.
6. The villain attempts to deceive his victim in order to take possession of him or her or of his belongings.
7. The victim submits to deception and thereby unwittingly helps his enemy.
8. The villain causes harm or injury to a member of a family.
9. Misfortune or lack is made known; the hero is approached with a request or command; he is allowed to go or he is dispatched.
10. The seeker agrees to or decides upon counteraction.
11. The hero leaves home.
12. The hero is tested, interrogated, attacked, etc., which prepares the way for his receiving either a magical agent or helper.
13. The hero reacts to the actions of the future donor.
14. The hero acquires the use of a magical agent.
15. The hero is transferred, delivered, or led to the whereabouts of an object of search.
16. The hero and the villain join in direct combat.
17. The hero is branded.
18. The villain is defeated.
19. The initial misfortune or lack is liquidated.
20. The hero returns.
21. The hero is pursued.
22. Rescue of the hero from pursuit.
23. The hero, unrecognized, arrives home or in another country.
24. A false hero presents unfounded claims.
25. A difficult task is proposed to the hero.
26. The task is resolved.
27. The hero is recognized.
28. The false hero or villain is exposed.
29. The hero is given a new appearance.
30. The villain is punished.
31. The hero is married and ascends the throne.

(Propp, 1928/1968, pp.13–46)

As folklorist Alan Dundes notes, because Propp's analysis was confined to fairytales the pattern ends with marriage, and thus doesn't follow the full birth through death narrative that complete hero stories have subsequently been found to follow (1990, pp. 186–187).

Similarly, because of this limitation in Propp's study, and because the fairytales he analysed were all Russian, claims for the universality of this pattern across all cultural and historical narratives cannot be made. Despite this, screenwriting manual author Christopher Vogler

devotes two entire chapters to Propp's work in *Memo from the Story Department: Secrets of Structure and Character* (Vogler & McKenna, 2011, Chapters 13, 14). Vogler notes that like fairytales, some film narratives also stop short of the full hero pattern, ending in the reward that comes about through slaying the dragon and marrying the princess and "giving the audience a moral viewpoint on what happened" (Vogler, 2011). For example, in the US-produced animated comedy film *Shrek* (2001), after killing the narrative's antagonist, the eponymous hero is rewarded for his actions by his marriage to Princess Fiona. This act of "marriage as a reward" has also been applied to heroines in contemporary films, including Rapunzel in Disney's animation *Tangled* (2010), adapted from the Brothers Grimm fairytale.

Although some scholars have inferred that marriage, or at least institutionalized pair-bonding, is a human universal with a deep evolutionary history, others, including evolutionary psychologist Geoffrey Miller (2001), have argued instead that during the Paleolithic era early humans formed pairs for just a few years around early child-rearing, before partners separated and moved on. If this is the case, fairytale notions about life stories culminating in marriage reflect cultural and historical ideas about the importance of "life-long" marriage, "earned" as a result of heroic behaviour, rather than universal or evolutionary truths. In the contemporary environment of the West, ideas about marriage as reward and ultimate goal are outdated, and recent popular films reflect this change in historical and cultural values. For example, in the US-produced animated family adventure film *Brave* (2012), Princess Merida rejects the idea of marriage in order to follow her own path. Similarly, in *Frozen* (2013), Princess Anna is rewarded for saving her kingdom and sister through love – her courtship with Kristoff is of secondary importance. Thus, rather than describing a universal story structure, Propp's *Morphology of the Folktale* is best considered as charting a specific story pattern that was prevalent in Russia fairytales, as a result of being shaped by cultural and historical factors. This form of fairytale shared common lineage with other fairytales told in the West. Therefore, while the overall structure and specific plot points of the story cannot be claimed to be universal, beneath these are evidence of universal psychological motivations, which include the adaptive motivation to pair-bond as well as desires to defeat enemies and punish wrong-doers.

Nearly a decade after Propp's seminal publication Fitzroy Richard Somerset, better known as Lord Raglan, published the paper *The Hero of Tradition*, which later became the basis of his book *The Hero* (1936). Analysing the biographies of twenty-one heroes, including the ancient

Greek and Roman mythic heroes, heroes of the Norse sagas, Robin Hood and King Arthur, Raglan independently arrived at a scheme containing twenty-two incidents. These are:

1. Hero's mother is a royal virgin;
2. His father is a king;
3. And, often a near relative of his mother, but
4. The circumstances of his conception are unusual, and
5. He is reputed to be the son of a god.
6. At birth an attempt is made to kill him, usually by his maternal grandfather, but
7. He is spirited away, and
8. Reared by foster-parents in a far country.
9. We are told nothing of his childhood, but
10. On reaching manhood he returns or goes to his future kingdom
11. After a victory over the king, giant, dragon, or wild beast,
12. He marries a princess, often the daughter of his predecessor, and,
13. Becomes king.
14. For a time he reigns uneventfully, and
15. Prescribes laws, but,
16. Later he loses favour with the gods, and/or subjects, and
17. Is driven from the throne and city, after which he
18. Meets with mysterious death,
19. Often at the top of a hill.
20. His children, if any, do not succeed him.
21. His body is not buried, but nevertheless,
22. He has one or more holy sepulchres. (Raglan, 1937, pp. 178–179)

Raglan was a proponent of the Myth and Ritual School, which argues that in religious societies myth is always tied to ritual. As a myth-and-ritualist, Raglan argued that the hero pattern has its roots in a religion, probably originating in Southeast Asia around 6000 years ago, that centred around the cult of a divine king who was periodically killed. The story of the divine king propagated as a myth via cultural diffusion when the religion spread, and the king's death was retained as a symbolic device (Raglan, 1957).

Given that Raglan's study was limited to hero stories, and predominantly those from ancient Greek myths, claims for the universality of this narrative pattern cannot be made. However, as Dundes observes, the fact that Raglan's work was entirely independent and that he was unaware of the earlier studies by von Hahn or Rank supports the reliability of his account. Dundes argues that because von Hahn, Rank and Raglan were able to extrapolate closely related biographical hero sequences from a similar data set, it is reasonable to conclude that a hero biography pattern for (Indo-)European (and Semitic) heroes is empirically demonstrable (Dundes, 1990, p. 187). This hero pattern may be limited to (Indo-)

European (and Semitic) narratives, since in the first statistical analysis of Raglan's hero pattern anthropologist Victor Cook found that the pattern was not truly cross-cultural as it did not conform to American Indian, African or Oceanic hero stories. Furthermore, the hero traits seemed to have been chosen rather arbitrarily, with only one trait, the victory of the king, occurring in all twenty-two of Raglan's biographies (Cook in Dundes, 1990, pp. 189–190). An additional counterpoint, provided by Dundes, is that myths function within a cultural context, and without this context they cannot be fully understood. So, for example, when analysing whether the biography of Jesus fits Raglan's pattern, Dundes notes that while it misses a victory over a king, dragon or wild beast and a marriage with a princess, these may not have been realistic possibilities within the cultural norms and family structures of the time (1990, p. 215).

3.4 The advent of Structuralism – Lévi-Strauss

Influenced by the writings of structural linguist Ferdinand de Saussure, French anthropologist and ethnologist Lévi-Strauss was one of the first scholars to introduce the “structuralist” paradigm into the humanities. He argues that humans share universal psychological characteristics, identical in both the “savage” and “civilized” mind (1966). According to Lévi-Strauss, it is for this reason that myths from across the world are remarkably similar:

On the one hand it would seem that in the course of a myth anything is likely to happen. [...] But on the other hand, this apparent arbitrariness is belied by the astounding similarity between myths collected in widely different regions. Therefore the problem: If the content of myth is contingent [i.e. arbitrary], how are we to explain the fact that myths throughout the world are so similar? (Lévi-Strauss, 2008, p. 208)

Lévi-Strauss explains this by arguing that myth must be a product of universal workings of the human mind, and related to this, the universal ways in which we organize our daily lives (1955). Following his belief that the human mind has a dualistic structure, he postulates that its creations, including myths in particular, must also have a binary structure. In other words, Lévi-Strauss appeals simultaneously to top-down and bottom-up perspectives on mythological analysis, with his knowledge of psychology from that time. In his view, one of the main functions of myth is to mediate conflicting or dualistic pairs relating to human nature and life, for example the concepts of life and death, or hunter and hunted, allowing these pairings to be classified and their meaning deciphered (Morford & Lenardon, 1999,

Chapter 1). The typical structure of myths comes from the mediation of these binary pairs – or to quote Lévi-Strauss: “mythical thought always works from the awareness of oppositions towards their progressive mediation” (1955, Section 7.1.0). Lévi-Strauss contends that through this mediation, myths allow cultures to resolve the everyday tensions of life and human culture and accept its realities. Therefore, the meaning of myth is seen to be “coded” in the entirety of its structure, or the interrelationships of its parts, rather than in individual elements or their order in the plot. Elsewhere in his writings, Lévi-Strauss contends that mythological analysis never really comes to an end. “Themes can be split up *ad infinitum*” (Lévi-Strauss, 1964, p. 5), and different analyses of myth will result in the same underlying structural law.

Lévi-Strauss’ ideas about mythology have been critiqued on two related fronts. First, as philosopher and political theorist Philip Pettit has noted, if a particular myth fails to lend itself to any particular analysis and is therefore branded as problematic, it is equally reasonable to conclude that there is something suspect about the methodology (1977, p. 90). Following on from this, Jacques Derrida and other post-structuralists have argued that texts may be interpreted in infinitely subtle and complex ways, with multiple meanings, and thus they cannot be reduced to the simplistic and reductive binary interrelationships proposed by Lévi-Strauss (Gasché, 1987). In response to Pettit, I would argue that he is missing the point – Lévi-Strauss is interested in the *underlying* psychological universals on which myths are built, and not the surface structures. To address the second criticism, I propose that it is perfectly possible for myths and other narratives to reflect different modes of psychological thought. In other words, if it was found that all myths lend themselves equally to interpretation by reductive binary interrelationships, as well as by approaches that support more dimensional, complex and subtle analyses, this supports an argument for mental modules that enable multiple modes of cognitive analysis. When reading a text, or making sense of a film’s narrative, some mental modules may be attuned to the analysis of binary interrelationships within the narrative, while others may simultaneously work at more complex levels of analysis, providing multiple interpretations. In support of this idea, psychological research provides evidence for a number of modes of mental processing, since the brain attends to and manages information in a variety of ways (Gilbert, 1998). One such mode is dichotomous, “all-or-nothing” thinking (Burns, 1999), which may be an example of the more primitive “fast-track” mode of processing information, whereby information is rapidly appraised for threat in order to evoke “fight or flight” responses. Thus, if Lévi-Strauss is right in concluding that myths tend to feature *at least some* dualistic relationships, it would

suggest that these thematic elements within myths have arisen from and appeal to our experiential “fast-track” mode of information analysis, while other elements of myth, and other narratives, are processed in slower, more analytical ways.

Applying these ideas to the analysis of film narratives, some genre films, including action adventures, frequently draw on binary relationships in the world, for example good and evil, day and night, life and death. It is possible that these binary relationships within action adventure films reflect and appeal to our most primitive system of information processing, allowing rapid appraisals that suit the fast pace of these genre films. It is important to remember, however, that films very likely require a plethora of mental systems to make sense of them, and while there will be moments that alert our minds to make rapid threat appraisals, there will also be a variety of other processes that are called upon, including slower, conscious, rational analysis. These slower modes of information analysis are likely to be even more important in less commercially popular films, particularly in the drama genre, which tend to explore themes with more cognitive complexity. Without further research, however, no firm conclusions can be drawn about whether binary relationships are narrative universals across all forms of stories including films, and whether these might reflect our experiential information processing system. Moreover, any future research into this area needs to consider narratives in all forms, from across the world. Lévi-Strauss’ analysis focused primarily on the myths of native North Americans, which are likely to be culturally particularistic.

3.5 A “unified” theory of literary criticism – Frye

The Canadian literary critic and theorist Herman Northrop Frye was best known for his “unified” theory of literary criticism, which he developed in *Anatomy of Criticism: Four Essays* (Frye, 1957/2000), one of the most influential works of literary theory published in the twentieth century. In this monograph, Frye argues that many of the great classics tended to follow primitive mythological formulas which he suggests are inherited, transmitted and diversified by every human society (*Words with Power*, p.xiii). According to Frye, mythology and literature are closely related and follow rules of convention, symbols and genre (Hart, p.23). Frye describes these conventions as archetypes (*Spiritus Mundi*, p.118), and suggests that in literature these exist as an order of words, which provide a conceptual framework for literary criticism, embedded in the “realm of the imagination”. Frye believed that the study of recurring structural patterns had a transformative power that could provide

access to a vision of a higher human state, which he called the Longinian sublime in reference to *On the Sublime* (Kellner, 2005), the Greek work of literary criticism dated to the first century AD, which explains how authors may achieve “sublime” writing.

How archetypes came to exist was of no interest to Frye; he was more interested in their function and effects. For this reason, he had no interest in psychoanalytic views of mythological archetypes. Instead, Frye posed a new schematic of archetypal theory, based on man’s perception of the natural world and its cycles of life. In his paradigm he classifies narratives into comedic and tragic “mythos” or genres, and then into a wheel of further subcategories which he labels spring, summer, autumn and winter. Spring is aligned with comedy; summer with romance; autumn with tragedy; and winter with satire (Frye, 2000, p.163). Within these mythos, Frye suggests several common forms that the narratives may take. While there are some broad structural similarities across Frye’s proposed mythos – for example, Summer and Autumn narratives move from complete innocence towards experience – there are no specific universals that Frye attempts to apply across all mythos.

Relating these ideas to studies of autobiographical narratives, psychologist Dan McAdams (1993, pp. 50–53) has observed that people draw on one four types of genre – comedy, tragedy, romance or irony – when relaying their own life stories, and it is interesting to note the correspondence of these styles of storytelling with Frye’s mythos. However, why some individuals choose to tell their life stories as optimistic comedies, or ironies, and why others choose the more serious tones of the romance or the pessimistic expression of the tragedy is less clearly understood. Similarly, questions remain about how these genres have arisen and what purpose they serve. One possibility is that individuals’ life stories reflect the most predominant narrative forms in their contemporary culture (McAdams, 1996; McLean, Pasupathi & Pals, 2007). A second possibility is that the genres of individuals’ autobiographical stories are shaped by a combination of individual variation in their evolved neuropsychology, life experience and the context in which the story is relayed. The third and most likely possibility is that autobiographical stories are fashioned as responses to all these elements.

In his own accounts, Frye fails to consider the impact of culture in shaping society’s narratives, as well as other individual and aesthetic mediations beyond the universal and cultural. Despite this, Frye’s argument that fictional narratives reflect the human relationship with the natural world was an important development in structuralist thinking. It is this relationship – with the natural environment of human’s evolutionary adaptiveness – that I

propose has shaped the psychological attributes of screen characters today. In Chapter 5 I suggest that fictional film narratives reflect the human relationship with the natural world through writers' mimeses of human interactions between evolved, adaptive responses and our contemporary environment, which are then refined through the process of aesthetic mediation.

3.6 The rise of social constructionism – Barthes

The ideas of French literary theorist Roland Gérard Barthes were particularly influential in the development of schools of theory including structuralism, semiotics, and later post-structuralism. Barthes' greatest contributions to these fields were his notions about the importance of culture in creating local, contextual meanings for myths, which he saw as a political activity embedded with historical ideology at the base of cultural representations. According to Barthes in his essay *The Great Family of Man* (1972), there is no universal human nature other than the facts of birth, life and death. Thus, according to Barthes, anything that is ever written about these facts of universal human nature is laden with historical, cultural and ideological interpretation. As I will investigate further in Chapter 5, the main objection to Barthes' paradigm of social constructionism is its complete denial of the role that universal, human biological constraints have played in shaping language and narrative forms, both in literature and on film. Thus, while Barthes' contributions to literary criticism and the social sciences have been undeniably important in alerting scholars to the influences of culture, history and ideology, new "consilient" approaches to screen and literary narratives argue that human behaviour has evolutionary, biological foundations, which are expressed through an interaction with the environment. Since these explanations are co-dependent and intertwined, explanations of narrative universals require an understanding of human evolutionary psychology as well as the cultural contexts in which the film or text was created – and later received.

3.7 The Standard Social Science Model

Evolutionary psychologists John Tooby and Leda Cosmides (1995) named the dominant paradigm of the social sciences in the twentieth century the Standard Social Science Model. Proponents of this model, who include Roland Barthes as well as several contemporary film theorists and screenwriting scholars, believe that the mind is a "blank slate", or almost

entirely shaped by culture. For example, screenwriting academic Sue Clayton has written that the common Hollywood formula of film narratives containing “characters who are self-willing, self-aware, able to affect and change their world in an uncomplicated linear continuum of cause-and-effect” is confined to the West and other cultures that “are economically secure enough to resist the pull of this ‘formula’” (Clayton, 2010, p.178). Clayton then cites several examples of films produced by cultures outside the West that appear to resist “the Hollywood formula”. Implicit in her argument is the idea that screenplays are built entirely on cultural convention, and that exceptions to the Hollywood formula demonstrate that it cannot be universal. For social constructionists like Clayton, notions of universalism are often denounced as tools of oppression (Hogan, 2003). However, in attempting to argue her case, Clayton fails to consider the possibility that *elements* of Hollywood’s narrative template may be *conditional* or *statistical* universals, rather than absolute universals. As I will propose in Chapter 5 and investigate further within my empirical research, several underlying protagonist motivations in the most prevalent film narrative models in the West may be best explained as mimeses of evolved, pan-human motivations, mediated by cultural and aesthetic reshaping. While it is clear that not every story or film narrative follows the hero pattern, any underlying psychological universals that are common to life journey narratives are good candidates for conditional universals. Through my research I will attempt to answer what these psychological attributes might be.

Film scholar David Bordwell (in Boyd et al., 2010, Chapter 23) also argues against the prevalent stance taken by contemporary film theorists who assume that cinema is entirely founded on cultural conventions. He proposes instead that it is more likely that cultural similarities in film conventions across the world and throughout film history are evidence of our underlying universal biology. Bordwell explains: “a great deal of what is conveyed in a movie is conveyed naturally – through those perceptual-cognitive-affective universals that are part of our biological inheritance” (2010, p.284). While the Standard Social Science Model is often pitted in direct opposition to evolutionary explanations, in fact, as evolutionary biologist David Sloan Wilson has demonstrated, the two positions can be reconciled through Evolutionary Social Constructivism, which I will outline in Chapter 5.

3.8 Post-Aristotelian approaches to screenplay structure

Although contemporary film and screenwriting scholars have tended to embrace the social constructivist paradigm and emphasise the cultural and historical particulars of any individual film narratives, as already noted, Hollywood has generally taken a comparative, structuralist approach to screenplay analysis in order to try and determine the essential elements of a commercially-successful narrative so as to attempt to minimise financial risk when making decisions about which new films to greenlight (Price, 2010, p.134). The post-Aristotelian school of screenplay structure argues that all film narratives can be broken down into a three-act or classical structure with two key turning points. Proponents include Nash and Oakey (*The Screenwriter's Handbook: What to write, how to write it, where to sell it*, 1978) Syd Field (*Screenwriting*, 1979), Robert McKee (*Story: Substance, Structure, Style, and the Principles of Screenwriting*, 1997), Frank Daniel, Paul Gulino (*Screenwriting: The Sequence Approach*, 2004), Linda Seger (*Making a Good Script Great*, 1994), Richard Walter (*Screenwriting: The Art, Craft, and Business of Film and Television Writing*, 1988) and Linda Cowgill (*The Art of Plotting: Add Emotion, Suspense, and Depth to your Screenplay*, 2010).

A three-part structure, constituting a “cause, crisis and climactic effect”, was first advised in one of the earliest scenario manuals, written by J. Arthur Nelson in 1913 (*The Photoplay: How to Write, How to Sell*) and targeted at would-be writers during the time of Scenario Fever when the first Hollywood studios welcomed submissions of speculative photoplay scripts (Bordwell, 2006; Maras, 2009). At least some of the early advice on writing for the screen is derived from Aristotle's *Poetics* as well as knowledge of writing for the theatre. For example, Howard T. Dimick advises aspiring screenwriters that plot should be progress towards a climax, and events should be drawn together in an Aristotelian unity of effect (1922, p. 49). There is, however, little evidence to suggest photoplay-writing manuals were being used by professional scenarists (Bailey, 2014). The first evidence of a Hollywood studio screenwriter consciously using three-act structure comes with the recent discovery of F. Scott Fitzgerald's timetable outline for his unfinished Hollywood screenplay *Infidelity* (1938) (Bordwell, 2014). In this outline, Fitzgerald labels sequences I through IV “FIRST ACT 45 pages”, sequences V through VIII “SECOND ACT 50 pages”, and the remainder of sequence VIII “THIRD ACT 25 pages”. Bordwell notes that while the use of a three-act structure is evident in this early screenplay, the timings do not conform to those later prescribed by Hollywood story analyst Syd Field. Fitzgerald may have also been unique in

his use of the dramatic template written about by authors of photoplay-writing manuals at the time. Further evidence is required to ascertain whether Hollywood's early screenwriters generally used the three-act structure championed by most screenwriting manuals today.

When a number of leading dramatists became screenwriters in the 1970s, cross-pollination from the theatre brought renewed interest in Aristotle's (335 BC) formulation of a tragedy as having a beginning, middle and end, or Prologue, Episode and Exode, separated by two chorals, the Parados and Stasimon (Aristotle, 1982, pp. 52, 56–57). Lajos Egri's book *The Art of Dramatic Writing* (1946), originally published as *How to Write a Play* (1942), was equally important to the playwrights-turned-screenwriters of the 1970s. While Egri argues that character drives plot, and thus should be considered first, he concurs with Aristotle's three-part structure. Egri names the three acts "thesis, antithesis and synthesis", and argues that all of these elements are required to pose and then solve the dramatic premise. The first dramatic step poses a dramatic proposition, the second brings about contradiction to this proposition, and the third resolves the contradiction through reworking and synthesis with the original proposition (Egri, 2003).

Nash and Oakey were the first to suggest timings for the lengths of the three prescribed acts in their *The Screenwriters Handbook* (1978). The first act, they proposed, should make up a quarter of the film, the second should constitute half the film, and the final act should make up the remaining quarter of the film. Writer-producer and story analyst turned University of Southern California screenwriting lecturer Syd Field used the same timings for act lengths in his seminal work *Screenplay: The Foundations of Screenwriting: A Step-by-Step Guide from Concept to Finished Script*, first published in 1979. In this highly influential book that has sold over one million copies and been translated into forty-two languages, Field proposes that structure is essential for holding a story together, and that for any screenplay to work it must follow his paradigm (2005, p. 15). In other words, he asserts that the elements of his paradigm have universal appeal.

According to Field, Act I sets up story, characters, situation and the dramatic premise in the first thirty minutes of the film. Next comes the Act II "confrontation", where the protagonist encounters a series of obstacles that prevent him from achieving his 'dramatic need', the goal of the main character within the screenplay. This runs from approximately thirty to ninety minutes in the film. Act III is the "resolution", a unit of dramatic action that provides a solution to the dramatic premise established in the first act. The three acts are

demarcated by “plot points” at the ends of Acts I and II. These, Field suggests, may be an incident, episode or significant event that “‘hooks’ into the action and spins it around into another direction...” (2005, pp. 10–13). Field later added the “midpoint” as another dramatic turning point that occurs in the middle of the screenplay, and pinch points 1 and 2.

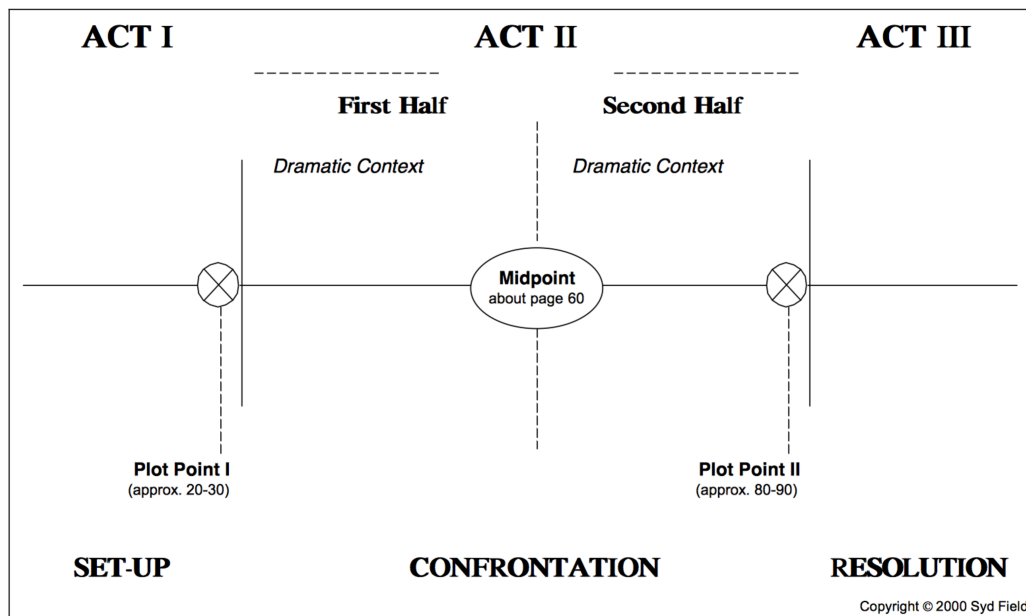


Figure 6: Syd Field's paradigm (2000). Copyright 2000 Field.

While it is impossible to attribute any concrete figures to the numbers of commissioned writers who have consciously or unconsciously used Syd Field's articulation of the three-act structure, Field counts Laura Esquivel (*Like Water for Chocolate*, 1992), Anna Hamilton Phelan (*Girl, Interrupted*, 1999) and James Cameron (*Avatar*, 2009) among his former students (Field, 2005, p. 4). Similarly, Judd Apatow (*The 40-Year-Old-Virgin*, 2005) has written that he rereads Field's seminal text whenever he writes a new script (Woo, 2013). Numerous other writers likely absorb classical structure watching films during their formative years (Thompson, 1999), or may absorb elements of classical structure through listening to stories, reading books or absorbing other fictional texts, whether or not they claim to consciously work within the paradigm. For example, Callie Khouri (*Thelma and Louise*, 1991) has written that she pays no attention to three-act structure, and yet Field analyses *Thelma and Louise* as one of the perfect examples of his paradigm in his book *Four Screenplays* (1994, Part: *Thelma and Louise*). Khouri writes:

You need an organic feeling to the script, whether it's the most surreal thing in the world or the most realistic thing in the world. It has to have its own life, and I don't think you can impose that on it with outside formulas. (Khouri in Froug, 1996, p. 102)

A wave of screenwriting manuals followed the publication of *Screenplay: The Foundations of Screenwriting*, with the majority adopting slight variations on Field's post-Aristotelian approach. These include *Screenwriting: The Art, Craft and Business of Film and Television Writing* (1988), written by Richard Walter, Chairman of the University of California, Los Angeles's postgraduate screenwriting programme, and script consultant Linda Seger's *Making a Good Script Great* (1987). In her book's revised revision, published in 1994, Seger uses the same three-act approach, but describes the second act as "development" rather than confrontation (Seger, 1994, p. 20). The publication of Robert McKee's highly influential *Story: Substance, Structure Style and the Principles of Screenwriting* followed in 1997. Translated into forty-two languages and developed into a three-day "Story" seminar that tours the world from Helsinki to Hyderabad, McKee claims over 100,000 students of his work since 1984. While McKee poses classical structure, which he names the "Archplot", as just one variant in his triangle of possible screenplay structures (see Figure 7), he places it at the top of his triangular model of structure and asserts that the inciting incident – which launches the main action of the story – together with progressive complications, crisis, climax and resolution of three-act driven narratives are requisite for audience satisfaction (McKee, 1999).

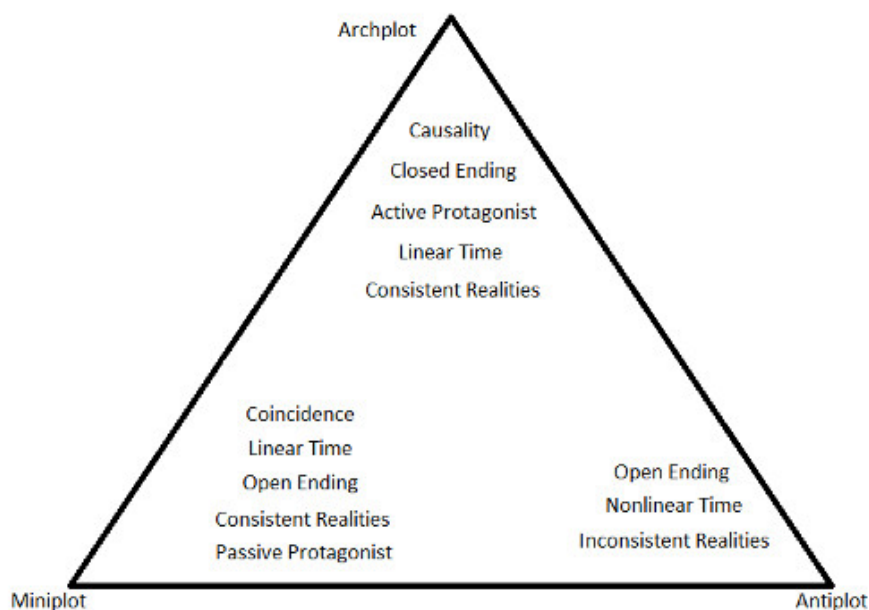


Figure 7: Robert McKee's triangular model of screenplay structural forms (1999, p. 45). Copyright 1999 McKee.

McKee proposes that audiences shrink as “story design moves away from the Archplot toward the far reaches of Miniplot, Antiplot, and Nonplot”. McKee asserts that this is because “[c]lassical design is a mirror of the human mind” (1999, p. 62). In other words, McKee argues that classical design has universal appeal because it contains elements reflecting universal psychological attributes. Elsewhere, McKee writes that “[s]tory is about eternal, universal forms, not formulas” (p.3). For McKee, these universal forms take the shape of the elements of classical design – three-act structure, causality, closed endings, active protagonists, linear time and consistent realities – which he proposes have been used for thousands of years across the globe (1999, p. 62). This may well be the case, but it cannot be argued that three-act design, causality, closed endings, active protagonists, linear time and consistent realities are all statistical narrative universals without empirical evidence to demonstrate that these forms occur in stories from different cultures more frequently than by chance alone. Whether these elements of three-act design are related to universal appeal is a separate question, which also requires empirical research before any conclusions may be drawn.

3.8.1 Three-act design as a narrative universal?

One further issue with McKee’s contention that the Archplot is the most popular story form is that he fails to define the minimum criteria for an Archplot structure. Does a story simply need to have a beginning, middle and end to be classified as an Archplot, or does it also need an inciting incident, a crisis and a climax as well as linearity, causality and an active protagonist who transforms? I suggest that one explanation for the popularity of many films with three-act structure is that they include several basic elements of storytelling that have arisen as a product of evolved human cognitive structures. However, this is not to say that all the elements of three-act structure are narrative universals or requisite for a film’s global appeal. Instead, a number of elements of three-act structure have probably arisen through historical, cultural practice and now that audiences are familiar with these attributes, they may have come to expect that most mainstream films will share a very similar form.

In order to understand whether films with an Archplot structure are preferred by global audiences, a series of elaborate experiments would need to be set up whereby the Antiplot structure’s attributes would need to be unpicked and examined one at a time, while controlling for the myriad of other factors contributing to a film’s box office performance. As noted in the previous chapter, having a three-act structure appears to be neither sufficient nor

requisite for a film's commercial success. However, empirical evidence is required to confirm whether having a three-act structure contributes significantly towards a film's chances of financial success. As also noted previously, some research supports the idea that films with active protagonists who transform are linked with a higher degree of commercial success and in some cases also critical success (Beckwith, 2007; Beckwith, 2009; Eliashberg et al., 2007).

Several notable scholars have called into question whether the typical film, or screenplay, even consists of three acts. In her analysis of ninety post-1910 Hollywood films, and ten in detail, for her book *Storytelling in the New Hollywood*, Kristin Thompson argues that while classical structure is still found in the majority of contemporary Hollywood films, it should be defined in terms of not three but four distinct acts, since the midpoint is as structurally important as the Act I and II turning points (Thompson, 1999, p. 41). Commenting on Thompson's four-act analysis of his film *Groundhog Day* (1993), co-writer Harold Ramis responds:

Certainly, the fact that most movies are about two hours long will determine to a large extent the length of the set-up, the placement of the crisis, the climax, and the denouement, but rather than look at films in terms of "acts," I prefer to think in terms of "actions," as if the narrative line were a string of pearls, dramatically linked, each taking the audience forward to the next point. (Ramis in Thompson 2014)

Ramis explains that he works "more intuitively than structurally. As Ms. Thompson suggests, I suspect that most of us have simply absorbed the classical film structure during our formative years as members of the audience" (Thompson, 2014). In support of Thompson's proposition that Hollywood films typically fall into four, not three acts, when analysing shot lengths psychologists Cutting et al. found evidence of three act breaks at the quarter points of 150 "Hollywood-style" films produced between 1935 and 2005 (Cutting, Brunick & DeLong, 2011). While Thompson and Cutting et al. analysed produced feature films, it is highly probable that their research extends to the screenplay, as there are no known examples in the literature of films produced from screenplays with a different number of acts to the final film.

By contrast, British television producer and former Head of BBC Drama John Yorke suggests that films and television episodes are best understood as five-act structures (2013). However, closer inspection of his taxonomy demonstrates that this is another variation of three-act structure, in which the second act is broken down into three smaller acts with the

second act leading up to the mid-point, the third being an extended midpoint, and the fourth falling between the mid-point and Field's second turning point. However, since Thompson, Cutting et al. and Yorke have predominantly focused on the structure of Western feature films (and television episodes in the case of Yorke), it cannot be concluded that the three-act structure – or variations upon it – is a cross-cultural universal.

A combination of historical and psychological reasons provide the best explanation for these act lengths (Gulino, 2004, pp. 2–3). Early film reels from the 1910s were ten to fifteen minutes long, and some screenwriting manuals of the time, including E.W. Sargent's *The Technique of the Photoplay* (1913, p.121), suggested that writers should structure their narrative to accommodate waiting audiences as the projectionist changed reels (Brewster, 1991, p. 39). Furthermore, since some films were shown as instalments over a few weeks, each reel needed to work as a self-contained sequence. By the late 1920s the introduction of second projectors into most cinemas allowed reel changes to become seamless, but nevertheless screenplays continued to be organized into lettered sequences (A, B, C, D etc.) until the 1950s. Drawing on University of Southern California lectures on screenwriting practice by Frank Daniel, screenwriting manual author Paul Gulino suggests that an eight-sequence structure, tied to the major turning points of the classical structure, still persists today because fifteen-minute sequence lengths appeal to the human attention span (2004, pp. 3–4).

Although screenwriting researcher and psychoanalyst Melvyn Heyes argues that Gulino's definition of a sequence is "difficult to discern" and proposes instead a nineteen-sequence model, based on empirical analysis of 133 screenplays, he concurs that the appeal of a sequence approach is that "filmmakers gravitate to telling their story at an intuitive pace and format that allows audiences to process story events, as well as generate vicarious, empathic and autonomous emotional experiences, at the appealingly optimal rate". Heyes concedes it is unlikely that filmmakers knowingly create stories with his nineteen-sequence structure, instead replicating narrative structures that have worked, partly by instinct and partly through unconscious conformity to historical prototypes at "an appealing optimal rate" (Heyes, 2012). Firm conclusions can't be drawn from Heyes' study, however, because of his lack of representative sampling. Furthermore, only 51% of the screenplays Heyes analysed conform to his model.

Further research by psychologists James Cutting et al. (2011) demonstrates that shot-lengths have become shorter in English-language films released between 1935 and 2010. In other words, contemporary films have a quicker pace than those made seventy-five years ago. Overall, however, films have been getting longer since 1906, when they averaged around 65 minutes in length, until the 1960s when they averaged just over 90 minutes in length. Since the mid-1960s, the global trend has been that films have been getting a little shorter each year, and the worldwide average film length was in 2014 around 85 minutes (Olson, 2014). Conversely, the world's most popular films, as rated by IMDb users, have been getting longer since 1906, exceeding 120 minutes in 2014. Meanwhile, there is a Western trend towards writing shorter "spec" screenplays. Writing in 1979, Syd Field recommended that the spec screenplay should be 120 minutes long, which he suggested reflected the "normal" Hollywood film of the time (p. 9–10). Twenty-six years later, Blake Snyder noted that the spec screenplay should be 110 minutes long (2005, p.71). More recently, several producers at the 2015 London Screenwriters' Festival asserted that spec feature film screenplays should be under 100 minutes. Given the trend for faster-paced and longer popular films, it would seem likely that commercially-successful contemporary films contain a good deal more than the eight sequences prescribed by Gulino. Whether or not his fifteen-minute sequence rule is still the most appropriate for contemporary audiences and is reflective of neurobiological limits on attention span (Gulino, 2004, pp.3–4), or whether this sequence length has also decreased in contemporary films, can only be ascertained through further research.

3.8.2 Causality

In support of McKee's proposition that causality is a narrative universal, the most widely accepted definitions of narrative include the requirement for causally-related statements (Cohn, 2000). When considering how film narratives may be best understood through this causal framework, narrative scholar Brian Richardson (2000) suggests that a better definition of a narrative would be "a representation of a causally related series of events" so as to address causal inferences within nonverbal narratives. Within film narratives, events are rarely depicted as though in continuous time. Instead, film narratives tend to present a series of selected events, or actions within scenes, which are edited together. These selected scenes and sequences are generally presented in chronological order, and from these the viewer infers causal relationships between events that happened earlier in the narrative and later outcomes. A scan of films, throughout history and from across the world, suggests that

causality is a highly prevalent attribute of the most popular screen narratives, just as McKee argues. If this is true, why is this the case?

One possibility is that these causal relationships in films mirror the ways in which humans understand the world. American psychologist Jerome Bruner argues that humans understand the world in two different ways. In the paradigmatic mode, which dominates the world of science, the world is understood in terms of logic, empirical truths and reason. By contrast, in the narrative mode the world is understood through the stuff of stories, namely wants, needs and goals (Bruner in McAdams, 1997, p. 29). Narrative psychologists observe that human events are often resistant to paradigmatic understanding, so people tend to make sense of their lives as stories, which string series of events together in a meaningful cause-and-effect chain (e.g. McAdams & McLean, 2013). This mental process is similar to the way that events are edited together in meaningful, cause-and-effect chains in most films.

A few films have narratives which are pieced together with non-causal logic. These include the “dream logic” of David Lynch’s surreal drama *Mulholland Drive* (2001), in which characters’ identities change, time becomes fluid and events take on multiple meanings, as well as Harmony Korine’s drama *Gummo* (1997), which uses free association to make connections between thematic motifs presented as separate episodes (Murphy, 2007, Chapter 10,11). These alternative non-causal structures may be explained by the individual differences in the way some people view their lives. Philosopher Galen Strawson argues that some people are “deeply non-Narrative” and do not experience their lives as a continuity of experience from past to future (2004).

3.8.3 Consistent realities

McKee describes consistent realities as “fictional settings that establish modes of interaction between characters and their world that are kept consistently throughout the telling to create meaning” (1997, p.53). Consistent realities govern human life, and since evolutionary psychologists have argued that one of the purposes of fictional narratives is to allow individuals to gain better understandings of their own and others’ motivations through the experience of different scenarios (e.g. Dissanayake, 1996), the more realistic these scenarios are, the more useful and therefore arguably the more popular these narratives are likely to be. Since real life is governed by consistent realities, it follows that narratives in which protagonists obey the laws of consistent realities would be the most useful from an evolutionary perspective, and the most popular. Furthermore, if humans are practiced at

telling consistent and coherent stories about their own lives, as narrative psychologist Dan McAdams proposes, it would seem likely that our fictional narratives will mirror the skills learned in the telling of everyday stories. As Dan McAdams writes:

Narrative identities are stories we live by. We make them and remake them, we tell them and revise them not so much to arrive at an accurate record of the past as to create a coherent self that moves us forward in life with energy and purpose. (McAdams, 2013, pp.81–82)

Other psychologists have found that life narratives demonstrate global coherence, which is thought to consist of temporal, referential, spatial, causal and thematic coherence (Habermas & Bluck, 2000). Similarly, research demonstrates that in fiction, coherence in the interactions between elements of the story is more important than “truths” (Oatley, 1999). This is best explained when understanding the majority of fiction as a simulation of real life, in order to hypothesize about the outcomes of possible, or less often impossible events (Green et al., 2003, p.41). As with all simulations, coherence is vital. It is reasonable to conclude, therefore, that coherence is a requisite of popular film narratives.

3.8.4 Closed endings

McKee argues that in films with closed endings, “all questions raised by the story are answered; all emotions evoked are satisfied” (1999, p.47). However, some scholars have questioned whether the majority of films with closed endings should ever be described as closed. Since many films which have been classified by film scholars, including McKee, as having closed endings do not end at the protagonist’s death, they fail to tell the full story of the protagonist’s narrative (MacDowell, 2010). The ending of *Frozen* (2013), for example, shows Princess Elsa and Anna reunited and the city of Arundel saved, thereby answering the major dramatic questions set up in the narrative. However, the audience cannot know whether Elsa and Anna will fall out again sometime in the future. Instead, films with closed endings offer the audience relief through at least temporary resolution of the main dramatic tension of the film, and by returning the narrative to a dramatic state of equilibrium, where no new threats are posed.

In contrast to the films which McKee categorises as having closed endings, in films with “open endings” the narrative ends with at least some dramatic questions unanswered, leaving the audience to work out their own answers. Since the period of classic Hollywood

cinema, between 1917 and 1960, in which the majority of films had closed endings, endings which leave at least some threads unresolved and some dramatic questions unanswered have become more popular. The preference of audiences for films which resolve all narrative questions and threads, versus those that leave at least some questions unanswered, therefore seems to be cultural and historical. Whether there is a universal preference for films with closed endings, as McKee asserts (1999, pp. 45–47), can only be proven through empirical research. However, films with endings that tie up more narrative threads may express the human evolutionary desire to find meaning in events by fully understanding them. A closed ending may provide more possibilities for drawing meaning from the course of events in the film. Furthermore, closed endings may be liked because they are often, although not always, “happy endings”, which offer the viewer wish fulfilment relating to their desires for narrative outcomes for the protagonist, together with a sense that the protagonist has received their “just desserts”. I discuss this further in Chapter 4. The appeal of open endings may rest in their closer proximity to real life, in which the endings that we might expect or desire are not always provided. Films with open endings therefore provide opportunities to reflect on these possibilities.

3.8.5 Linear time

As already noted, human biographical stories are nearly always told with temporal coherence. This is provided through episodic memory, which provides us with the personal experience of time that we call upon when recalling memories and relating stories as episodic series of events along an imagined timeline (McAdams, 2013, pp.58–60). It is hardly surprising, then, that given our biological hardwiring, our fictional narratives – and films – nearly always tell stories in linear or chronologically-ordered time. For this reason, films with linear narratives tend to be the most popular at the box office. This is not to say that films, and other fictional narratives, cannot work well when using alternative temporal structures. Several films with non-linear structures have been critically acclaimed, including the US-produced crime dramas *Reservoir Dogs* (1992) and *Elephant* (2003), as well as the thriller *Memento* (2000) (Murphy, 2007, Part Three). From a psychological perspective, I suggest that these films sustain viewers’ interest through evoking curiosity about how the film will unfold and how the portrayal of events in the film should be re-ordered so as make sense in the linear chronology to which humans are accustomed. However, a full discussion of non-linear

structures is beyond the scope of my thesis since my primary research interest is in narrative universals, rather than exceptions to the rule.

3.8.6 The goal-driven protagonist

Continuing to unravel the elements of the three-act structure and investigate whether they may constitute narrative universals, at the heart of classical structure is the hero who transforms. Syd Field argues that all dramatic characters experience “internal” and “external” conflict as they strive to achieve their dramatic need (whatever it is that they want to achieve during the course of the narrative). By “internal” conflict Field means psychological conflict between different motivations, and by “external” he means conflict with other people or physical obstacles. McKee’s approach is similar, but he uses different terminology and shows more interest in the psychology of character change. Field’s central character has a conscious desire, which he has the capacity to attain, and a self-contradictory unconscious desire, which the audience senses. According to McKee the screenplay structure builds increasing pressure on the protagonist, which ultimately reveals their true nature (1999, p. 101). Structure and character are therefore interlocked.

There are three problems with these definitions of protagonists’ goals and needs. First, these definitions lack clarity and would be more useful for screenwriters, story analysts and producers if they were articulated with more precision. Second, protagonists’ goals are not always conscious desires and their needs are not always unconscious, as can be seen in screenwriting scholar Patrick Cattrysse’s analysis of Hollywood protagonists’ goals and needs in Table 1, overleaf.

Title	Want	Need
<i>Gone with the wind</i> (1939)	Scarlet (Vivien Leigh) wants (among many other things) Ashley, who is married.	Scarlet needs Rhett Butler, who is not married.
<i>Casablanca</i> (1942)	Rick (Humphrey Bogart) wants to forget about Paris and bury himself in Casablanca.	Rick needs to discover what happened in Paris (in order to regain his proper self).
<i>Some Like it Hot</i> (1959)	Joe (Tony Curtis) wants to cheat Sugar into a relationship.	Joe needs to love Sugar ('tell her the truth').
<i>Kramer vs. Kramer</i> (1979)	Kramer (Dustin Hoffman) wants the custody of his son.	Kramer needs to become a good father.
<i>Romancing the Stone</i> (1984)	Joan (Kathleen Turner) wants to find the stone.	Joan needs to find love.
<i>Witness</i> (1985)	John Book (Harrison Ford) wants to catch the corrupt cops.	Book needs to relate more compassionately to others.
<i>Moonstruck</i> (1987)	Loretta (Cher) wants to marry Johnny because he is a safe bet.	Loretta needs to marry Ronny whom she loves.
<i>Twins</i> (1988)	Vincent Benedict (Danny De Vito) wants \$5 million.	Vincent needs the love of a family.
<i>Pretty Woman</i> (1990)	Edward Lewis (Richard Gere) wants to further his career.	Lewis needs to follow his heart.
<i>The Devil's Advocate</i> (1997)	Kevin Lomax (Keanu Reeves) wants to continue his professional career as a lawyer who never lost a case.	Kevin Lomax needs to seek moral justice and not prevent perverts and gangsters from escaping their rightful punishment.
<i>Traffic</i> (2000)	Robert Wakefield wants to fight the drugs cartel on an international scale as a politico-judicial problem.	Robert Wakefield needs to fight the drugs problem on a family scale as a medical or a healthcare problem.

Table 1: Analysis of Hollywood protagonists' wants and needs (Cattrysse, 2010, p.4). Copyright 2010 Cattrysse.

Taking the example of *The Devil's Advocate* (1997), Cattrysse observes that Lomax's goal could be argued to be his desire to develop his professional ego, while his need is to develop his moral judgment – or, I would suggest, to find meaning in his life. Using either interpretation, both goal and need are “internal”. It could alternatively be argued that Lomax's goal is to win the case against the paedophile, while his need is to resign from the defence of his client. Cattrysse suggests this would mean that both goal and need are “external”, and while the goal plays at the level of story, the protagonist's conflicting need is better explained as an interaction between the plot and its audience (Cattrysse, 2010, p. 88).

Instead, I would suggest that the protagonist's motivations (and the audience's responses to his motivations) are better understood as evolutionary motivations, viewed through the framework that I outline in the next chapter. Lomax's goal to win the case against the paedophile is an example of not just one but a series of motivations. Lomax desires to assert himself, to gain wealth and to display his mental skills (in a bid to increase his status and thus desirability for a future mate), as well as to punish the paedophile.

A third argument against Field's and McKee's definition of protagonists' goals has been posed by film and screenwriting scholars Sue Clayton, David Bordwell and J.J. Murphy, who argue that not all film protagonists have conscious goals. Clayton (2010) suggests that classical structure is founded on individualistic notions about the importance of personal agency that predominate in Western cultures. Bordwell and Murphy note that in the West, art films and on occasion indie films often feature protagonists who may lack clear-cut goals (Bordwell, 1985; Murphy, 2007). Even if this is the case, in my search for narrative universals I am interested in statistical universals as well as absolute universals. In other words, if *motivated* protagonists occur in films from across the globe more often than by chance, we may conclude that having a goal is a statistical universal for film protagonists. Furthermore, some film characters that have been described as being "passive" are anything but. For example, an examination of Carol, the protagonist in Todd Haynes' *Safe* (1995) who is described by film scholar J.J. Murphy (2007) as "passive", reveals a character who is far from passive. Carol is instead motivated by staying "safe", as the film's title reminds us. In evolutionary terms she wants to avoid becoming more ill. To do this she first consults healthcare professionals, tries different health-related regimes, then attends a New Age retreat and escapes from society. Carol is actively driven by her primary motivation until the very end of the film.

It seems, then, that as many other scholars have argued (e.g. Palmer, 2004; Nelson 1998), protagonists' motivations are a narrative universal and form a central feature of our stories, but these motivations are not confined to the dynamic, agentic and individualist goals of the majority of Hollywood films. One of the aims of my empirical research is to investigate the full range of these motivations, and to examine whether there are any cultural differences in audience preferences for particular protagonist motivations. In Chapter 5 I also examine psychological evidence which suggests that emotions and personality traits have a significant impact on goal-directed behaviour, and thus should also be considered when analysing the motivations of film protagonists.

3.9 The “metagenre”

Screenwriting academic and film historian Ken Dancyger notes that in order to appeal to global audiences, writers of screen narratives have transcended genres that have the most appeal for their national audiences and instead follow the conventions of the “metagenre” (2001, p.197). Dancyger suggests that this includes forms of melodrama, whereby a powerless protagonist struggles against society, through to hyperdrama, which conveys a moral fable, docudrama and experimental narrative. As examples of these films, Dancyger cites the melodramas *Ordinary People* (1980) and *Angels and Insects* (1995), docudramas *The Celebration* (1998) and *The Idiots* (1998), and the experimental narrative *Timecode* (2000), among others. Tying together threads uniting these stories, Dancyger poses that the metagenre features believable characters in “credible or recognisable” situations, universal stories, “issues of the day”, or the universal, “educational” plots of the moral fable (2001, p.198).

Considering these observations one at a time, it makes sense that the world’s most popular screen narratives deal with credible characters. Evolutionary and narrative psychologists have suggested that one of the functions of fictional stories is to simulate real-life experience, which allows us to test out how we might act in these circumstances, and rehearse emotional experiences (Green et al., 2003, p.41). If this is the case, and since fictional stories must be based on our own experiences of the world, we would expect the most naturalistic and credible stories to be the most popular. Dancyger fails to elucidate what he means by “universal stories”. From the examples he provides, it may be surmised that he is referring to the kinds of stories about human relationships that are popular across the world, and which somehow transcend culture. The appeal of an “issues of the day” narrative to a global audience must arise through the provision of insights into pan-cultural issues, for example global economic depression, or global historical factors that might include climate change. Clearly, “issues of the day” cannot be narrative universals since they are by their definition relevant to a particular time in history.

On Dancyger’s suggestion that some metagenre films find global audiences through their educational function, it is interesting to note that psychologists including Steven Pinker have argued that the prevalence of storytelling as a pan-human activity may have arisen because literature instructs (Pinker in Boyd et al., 2010, p. 132). Whether some forms of film, including moral fables, are more popular because they instruct more than other genre films

needs further research. While Dancyger presents some useful criteria for defining the metagenre, he neglects to mention that the world's most commercially popular films are not metagenre narratives. Instead, the world's top twenty grossing films of all time are, without exception, action adventures, fantasy, science fiction, animated family or romance films (Box Office Mojo, 2015b).

3.10 Discussion and directions for future research

Top-down, structuralist approaches to comparative mythology, folktales, literature and screenplays have been immensely useful in identifying some thematic and structural elements of fictional narratives that may qualify as universal. These include, but are not limited to, a three-part story structure, binary thematic relationships, genre, causality, consistent realities, closed endings, linear time and a goal-driven protagonist. While the *particular* ways in which these elements are displayed within a narrative are mediated by historical, cultural, aesthetic and individual factors, these universals are best explained through our common psychological structures. The approach I advocate reconciles comparative and particularist paradigms, thus uniting biological/psychological and cultural explanations. Of these universal narrative attributes, protagonists' motivations are of especial importance, since they direct protagonists' actions and thus determine a substantial part of the plot. In the next chapter I trace the development of the idea that protagonist motivations tend to take a specific form, known as the "hero pattern". Then, by investigating the correspondence of this hero pattern to autobiographical life narratives, I assess which aspects of the hero pattern are most likely cultural, and which underlying elements may be universal.

As we have seen, the structural approach to identifying narrative universals attempts to locate thematic commonalities across all forms of literature by looking for emergent patterns that may be explained by the human relationship with the world. The structural approach is the most common industrial approach to analysing film texts, since it is the most logical way to analyse commonalities between hundreds of texts in order to make predictions about which screenplays have the greatest chances of commercial and critical success (Price, 2010, p. 134). Because contemporary methods of box office forecasting rely on retrospective analysis of films that have already been released, and very little is known about the impact of narrative factors on a film's box office performance, Hollywood film studios tend to rely on the prescriptive, structural and character-based rules provided by the authors of screenwriting manuals (Ross, 2011). These screenwriting craft rules include, but are not limited to, the

requirement for a three-act structure, dramatic turning points at specified times within a film, and a protagonist who transforms. While several of these structural rules are simply perpetuating historical practice, others may contribute to a film's commercial or critical appeal through their optimised engagement with our cognitive systems. In order to determine which narrative techniques are popular with audiences simply because of familiarity with these forms priming audience expectations, and which techniques are popular because they appeal to universal psychological structures, further research is required.

By fully understanding which elements of three-act structure – if any – are essential for commercial or critical success, and which elements are by-products of continued historical practice, producers and writers will be able to maximise their chances of making films with the greatest appeal. With this understanding comes the possibility of discarding outdated conventions and the freedom to experiment with new structures and techniques. Thus, the relationships of each element of classical three-act structure with critical or box office performance needs to be examined in turn. Future research questions might include asking whether an “inciting incident” is requisite to a film's critical or commercial success. Is the inciting incident a narrative universal? Alternatively, is it a conditional universal of longer-form fiction-writing, or an example of continued cultural and historical practice in the writing of screenplays? Similar questions need to be asked about every component of three-act structure.

Rather than investigating whether elements of the three-act structure relating to plot are narrative universals with universal appeal, in my empirical research I focus instead on psychological attributes of film protagonists, since I believe these to be the strongest candidates for narrative universals that are linked with films' popular appeal. The stories told in films are about human or humanlike characters and their intentions, like all other narratives written since the beginning of time. Film narratives are the product of the human mind, and they are about the human mind. For this reason, I continue my search for narrative universals in the next chapter by examining psychological approaches to stories and film narratives.

4 The Search for Narrative Universals

Part 2: Psychological Approaches

At the “Hollywood Creative Panel: Screenwriting for a Global Audience” session at the 19th Shanghai International Film Festival, all three panel members agreed that “universally appealing” characters are more important than plot, since viewers engage with film and television narratives through their characters. This statement reflects a widely-received wisdom, not just within Hollywood but also by the majority of media psychologists and many film scholars. Psychological approaches to narrative universals have been used to understand how and why audiences engage with certain film characters, as well as how film characters may reflect aspects of the human mind. In this chapter, I review then build upon psychological approaches to the study of narrative universals in myths, literature and film narratives. According to these psychological perspectives, universal elements of fictional stories are thought to reflect universal structures within the mind. More specifically, fictional characters’ beliefs, dreams, goals, emotions, traits, experiences and thoughts are considered to be the mimeses of human cognitions, mediated by culture, history, aesthetics and individual perspectives. Moreover, the structure of many fictional stories is thought to reflect the typical biographical pattern of the human life. One of the methods I use in order to examine these perspectives takes a bottom-up approach to identifying the most relevant psychological attributes that might result in narrative universals. In pursuit of explanations that may illuminate the relationship between human psychology and common elements of our fictional stories, I examine psychological paradigms including psychoanalysis, analytical, humanistic, existential, narrative and lifespan development psychology, media psychology and cognitive narratology in order to see how these relate to the “monomyth” or “hero’s journey” structure advocated by the Mythological School of screenplay development.

In the next chapter I investigate the relationship between our evolutionary psychology and narrative universals and build upon existing research in these fields. Throughout this thesis I attempt to answer how the relationship between human psychology and narrative universals is best understood. I also ask whether universals in film narratives relating to character transformation are best understood through psychological theories that describe human lifespan development. If so, does this reflect the lifelong process by which individuals integrate their moral wisdom, as Sigmund Freud suggested? Alternatively, do film narratives mirror the process of “individuation”, or psychological integration, which Carl Jung argued is

common to all humankind? If not, does the typical course of a film's narrative follow a biographical pattern known as the "hero's journey"? Could character transformation reflect human development along the "hierarchy of needs" posed by Abraham Maslow? Or does variation in this narrative reflect a character's gender, socioeconomic background, geography, history and culture? What can cognitive psychological approaches tell us about why audiences engage and sympathise more strongly with some characters compared to others?

Since reviewing the work of every psychologist whose research has been relevant to the analysis of narrative universals is beyond the scope of my thesis, I focus instead on the development of ideas by the most influential theorists in this field. This chapter pays particular attention to scholars whose research has been cited by the authors of screenwriting manuals, since their models have been taken as authoritative narrative guides to screenplay development in Hollywood and elsewhere in the West.

The earliest psychological approaches to narrative universals were influenced by the work of Austrian neurologist and founder of psychoanalysis Sigmund Freud (1900) and Swiss psychiatrist Carl Jung (1949), who argued that universal aspects of myth, such as archetypal characters, reflect the workings of the human mind. Freud's and Jung's writings shaped the development of ideas about the relationship between human psychology, lifespan development and the importance of myth by psychologists Alfred Adler (1907), Erik and Joan Erikson (1950, 1963), Erich Neumann (1949) and Maureen Murdock (1990), as well as comparative mythologist Joseph Campbell (1949). Contemporary psychologist and screenwriting manual author William Indick (2004) asserts that their research is an essential read for screenwriting scholars and practitioners in order to better understand character and plot. However, I question whether contemporary empirical research supports these ideas.

Best known to the Western film industry is the work of Joseph Campbell, who proposes that the hero of every myth follows the same biographical journey, which he names "the monomyth". Campbell's writings gave rise to the Mythological School of screenwriting structure, which asserts that popular and commercially successful films also follow the same narrative pattern. Advocated by authors of screenwriting manuals including Christopher Vogler (1998), Dara Marks (2007), John Truby (2007) and screenwriting academic Helen Jacey (2010), this approach continues to be popular in Western mainstream industrial practice. Another paradigm of psychological thought that has been useful in its application towards the analysis of literary universals is humanistic psychology, which focuses on self-

exploration rather than the behaviour of others. Ideas from humanistic psychology have been applied by screenwriting manual author Linda Seger towards an understanding of what is “at stake” for the protagonist, when trying to achieve their goals (Seger, 1994, p.125).

Addressing more recent work by narrative psychologists, I review research by Dan McAdams (1985; 2013), who poses the “Redemptive Self Plot” as the typical, autobiographical life story of the highly-generative North American. Since its superficial resemblance to the monomyth is evident, I ask whether this provides support for Campbell’s hero formula, or whether both the monomyth and Redemptive Self Plot are North American sociocultural constructions. Next I investigate cognitive approaches to narrative universals, which analyse the mental processes behind stories and storytelling. I argue that these approaches pave the way for Evolutionary Criticism, a new field of study which I review in the next chapter. Finally, I draw some conclusions about psychological aspects of narrative universals and propose new directions for screenwriting research. I argue that there is good evidence to support the theory that psychological processes are responsible for the majority of thematic, narrative universals. One way in which many film narratives reflect natural, psychological processes is through a common story structure which follows the biographical sequence of the human life. Further research is required to determine the degree to which particulars in the way this structure is expressed are a product of the film protagonist’s gender, socioeconomic background, history and culture.

4.1.1 Psychoanalysis, analytical and post-Jungian psychology

Of the psychological perspectives that have been drawn upon by scholars analysing literary works of fiction, mythology, films and screenplays, psychoanalytic approaches have been the most dominant. I propose that this is due to the popular appeal of romantic ideas about archetypal characters in myth, developed by Sigmund Freud and Carl Jung and then built upon by American mythologist Joseph Campbell. Psychoanalytic theory has also been highly influential in film theory since the 1970s, likely because psychoanalysis and cinema both came into being around the end of the nineteenth century and share a common historical and social background. Film theorist Barbara Creed notes that while scholars have often explored the influence of psychoanalysis on cinema, films may also have influenced psychoanalysis. For example, Freud drew on cinematic terms like “screen memories” (Creed, 1998, p. 77–89). In turn, psychoanalytic theory has influenced several screenwriting manuals including

Psychology for Screenwriters, written by American psychologist William Indick (2004b). Despite its rather general title, the book is specifically devoted to the application of psychoanalytic theory to screenplay character development and plotting, and omits any reference to other mainstream psychological approaches. These include developmental, narrative, cognitive and evolutionary approaches, which, I propose, have much to offer screenwriters since they offer insights into human life-course development, personality traits, motivations and emotions, which are all highly pertinent to the construction of fictional characters.

4.1.2 Sigmund Freud

Freud is recognized for his development of several highly influential theories as well as the clinical practice of psychoanalysis, which asserts that through the process of making unconscious thoughts or motivations conscious, psychological tensions may be resolved. Indick asserts that a number of these theories may be useful to screenplay development since they examine narrative universals (Indick, 2004b, Chapter 3). These include the “Oedipus complex”, neurotic conflict, the psychosexual stages, repression and ego defence mechanisms, wish fulfilment and “dreamwork”. Reviewing all these theories would be beyond the scope of this thesis, so instead I critique the idea of Freud’s that Indick claims is most relevant to screenwriters – his theory of infantile sexuality. A central tenet of this theory is the “Oedipus complex”, the idea that as an infant a boy desires sexual union with his mother (Jones & Henderson, 1949). It is this idea that Indick asserts is “the very basis of drama and conflict” (2004, p.xiii), arguing that the Oedipus complex may be interpreted literally or as a metaphor for the “son’s desire for his mother’s love and affection”, which will become “projected” upon another woman when the boy matures. While this happens, Freud argues that the boy also feels intense jealousy and aggression towards his father, the main competition for his mother’s attentions.

According to Indick, Oedipal themes are so important because they develop “the two most basic elements of character development: the integration of moral wisdom and the formation of a mature romantic relationship” (2004, p.3). Deflecting criticism of Freud’s theories as androcentric, Indick notes that Freud revisionists have adopted the “Electra complex” as the female equivalent of the Oedipus complex, whereby the infant daughter desires her father (Indick, 2004, p.4). Continuing, Indick proposes that because almost “every script includes some kind of love interest ... [a] comprehensive understanding of Oedipal

themes is every writer's touchstone for creating psychologically resonant love stories" (2004, p.5). In other words, Indick asserts that Oedipal themes are universal, and that in order to write these successfully, writers need to understand Freud's psychosexual theory rather than writing from experience or intuitively about love. These claims are clearly problematic, particularly given that Freud has written that psychoanalysis cannot be taught from books, it has to be taught by someone proficient in its practice (Grünbaum, 2006).

Freudian theory has been widely criticized on three fronts. First, it lacks empirical support. Freud's observations were based on his clinical patients, most of whom were middle-aged, female and from Vienna, and so they cannot be extended to the wider population without additional extra-clinical studies (Colby, 1960; Grünbaum, 1986). Second, psychoanalysis makes untestable claims about unobservable, internal mental states and thus cannot be considered a science because it is not falsifiable (Popper, 1986, p.254). Third, a number of studies have shown that psychoanalytic practice is no more effective than non-treatment (Eysenck, 1991). On the basis of these substantial criticisms, the philosopher of science Adolf Grünbaum (2006) declared the field of psychoanalysis to be in crisis, as evidenced by its dwindling numbers of practitioners across the world. Despite this, psychoanalytic theories continue to be influential within film and screenwriting studies (e.g. Vogler, 1998; Indick, 2004; Cook, 2013), and explicit references to psychoanalysis together with imagery that appropriates psychoanalytic principles have been used in a plethora of films ranging from Hitchcock's thriller *Spellbound* (1945) to *A Dangerous Method* (2011).

4.1.3 Alfred Adler

Adler was a colleague of Freud's and an Austrian doctor who broke away from Freud's psychoanalytic school to develop his own school of "individual psychology". One of the most important concepts in his thinking was the "inferiority complex", or the idea that "we all experience feelings of inferiority, since we all find ourselves in situations we wish we could improve" (Adler in Schirmacher & Nebelung, 2001, p.70). Within modern psychological literature, the preferred term for the inferiority complex is "lack of covert self-esteem", which is still thought to be a useful concept in both experimental psychology and clinical practice (Moritz et al., 2006).

Applying Adler's notions about the inferiority complex to the study of film narratives, Indick links this lack of self-esteem to the mythic hero's "tragic flaw" or "Achilles heel", suggesting that the inferiority complex is a narrative universal. Indick claims that examples

of “child hero’s conflict” in films also rely on Adler’s inferiority complex, since “the greatest and most ubiquitous conflict in childhood is powerlessness” (2004, p. 180) As an example he cites the conflict of Simba when exiled by his uncle from his pride of lions in *The Lion King* (1994). However, to equate powerlessness with inferiority is problematic, as one condition does not necessitate the other. Instead, this is a good example of the trend within the humanities to reinterpret loosely understood psychoanalytic concepts in such general terms that they lose their original meaning.

4.1.4 Carl Jung

The writings of Carl Gustav Jung, the Swiss psychiatrist and founder of the field of analytical psychology, on subjects ranging from philosophy to world mythology have been widely influential in the humanities, and continue to provide the foundations for a number of screenwriting manuals, including those by Christopher Vogler (1998), Dara Marks (2009) and Helen Jacey (2010). Jung believed that myths and dreams were expressions of the “collective unconscious”, or shared *suprapersonal* structures, accessible by all. In Jung’s view, myths express universal wisdoms and concerns encoded into humans in prehistory, either by evolution or some spiritual process. It is for this reason that Jungians argue that myths have universal emotional appeal, since they are thought to be truthful representations of the psyche’s mediations between the conscious and unconscious minds.

According to Jung, all myths share a common structural form and are inhabited by stock characters, which he names “archetypes”. These he understands to be ancient and universal patterns of behaviour that may only be observed when they enter consciousness: “the archetype is essentially an unconscious content that is altered by becoming conscious and by being perceived, and it takes colour from the individual consciousness in which it happens to appear” (1959/1991, p.4). Although Jung notes that there is no limit to the number of archetypes the psyche may produce, and their characteristics may blend, he suggests that the most frequently occurring are “the *shadow*, the *wise old man*, the *child* (including the child hero), the *mother* ... and her counterpart, the *maiden*, and lastly the *anima* in man and the *animus* in woman” (Jung, 1991, p.183). A full examination of each of these archetypes is beyond the scope of this thesis, but by way of illustration, Jung defines the “shadow” as a representation of the totality of the personal unconscious, which usually embodies values to compensate for those held by the conscious personality. In other words, the shadow often represents the “dark side” of the self, or aspects which the self does not acknowledge

(Fordham, 1985). Jung argues that these archetypes are important in myth not only because they represent various stock characters that the dreamer frequently encounters, but also because they play vital roles in the universal form that myths generally take.

According to Jung, the mythic protagonist's journey follows the human "process of individuation". Jung views this psychological merging of opposing archetypes as vital to the integration of the psyche since he believes it to have a healing effect on the individual, enabling the discovery of meaning and purpose in life. Jung felt that "collisions with the environment" were crucial to this process, which lends some support to the claim by Jungian school screenwriting manuals that protagonists must encounter conflict with obstacles as they journey towards their goal. Jung argued the synthesis of opposites was also crucial to the process of individuation, bringing together, for example, conscious and unconscious, personal and collective, psyche and soma, divine and human, life and death (Stein, 2013), and paving the way for Northrup Frye's archetypal literary criticism. Within his labyrinthine and highly metaphorical work *The Archetypes and the Collective Unconscious* Jung describes individuation as taking the following steps:

The meeting with oneself is, at first, the meeting with one's own shadow... Whoever looks into the water sees his own image, but behind it ... [s]ometimes a nixie gets into the fisherman's net... The nixie is an even more instinctive version of a magical feminine being whom I call the *anima*... Only when all props and crutches are broken, and no cover from the rear offers even the slightest hope of security does it become possible for us to experience an archetype that up to then had hidden behind the meaningful nonsense played out by the anima. This is the *archetype of meaning*, just as the anima is the *archetype of life itself*. (Jung, 1991, paras. 45–66)

While ideas about archetypal characters have continued to influence the development of ideas tested by contemporary psychological research (e.g. McAdams, 1985; Cantor & Mischel, 1979; Higgins, 1987; Markus & Nurius, 1986), there is no empirical evidence to suggest that Jung's archetypes exist as described. Instead, theorists including narrative psychologist Dan McAdams suggest that humans internalise archetypal constructions, which are not stock characters but culturally-created ideas about "the self", expressing the individuals' dreams and desires (1993b, pp.122–132).

In a 1942 lecture Jung described five stages of "individuation" (Jung, 1953, Book 13; Franz, 1985), although he often alluded to the traditional notion that spiritual progress was sevenfold (Jung, 1953, Book 12). By comparison, contemporary Jungians tend to simplify the process

and view individuation as having just three stages (Whitmont, 1969, p.266; Edinger, 1973; Young-Eisendrath & Dawson, 2008). Drawing on the seven full stages that may be spliced together from Jung's works, together with psychologist Clare Graves' research based on Jung's writings, James Whitlark posits the following sequence of archetypes during the process of "individuation" (2005).

1) Survivor/Transitional-Object

The first stage consists of surviving. Social instinct is repressed to the unconscious, from whence it may gradually emerge in attachment to some personified object.

2) Trustster/Trickster

When fantasy proves inadequate for the infant, it looks towards its real family or tribe. This stage requires trust, so that the infant may acquire language, mythology and other normative patterns.

3) Unscrupulous Competitor/Hero

This stage in early childhood is marked by new competition for attention and for authority.

4) The Virtuous/the Shadow

During this stage, children learn to adhere to the moral or cultural rules practised by their society.

5) Materialistic Analyst of Things/Anim(a/us)

During this egocentric stage, the young adult is driven by material reward. Instinctive drives are subordinated as the individual works towards "conscious professionalism" (Whitlark, 2005).

6) Empathizer with Every Person/Wise One

In this developmental stage, the adult learns to master empathy.

7) Distancer/Self

In this final stage, often in old age, the individual learns to try and understand life complete with all of its paradoxes. Rather than focusing on material rewards, or having

the occasional empathic intuition, the psyche integrates all that it has learnt during the previous stages.

Jung's writings on myth are complex, occasionally contradictory and open to multiple interpretations. More problematic still are the central tenets on which his theories about the universal aspects of myth depend and the lack of scientific rigour in his analyses. Furthermore, since Jung's mythological research was limited to stories from Indo-European populations, the "process of individuation" that Jung claims to have observed may reflect patterns of cultural conditioning, rather than a universal substructure of mind (McGowan, 1994). Moreover, there is no evidence from the field of neuroscience to support Jung's idea that consciousness is anything other than biologically based and confined to the human brain.

Despite being held up for approval by many contemporary Jungians as having emphasised the female role in myth, and celebrating the "androgynous" or the contrasexual personality in each sex, more rigorous feminist critiques note that Jung characterises the female for her ability to "make connections", as compared to the male for his superior ability in logical thinking. Women attempting to move into the sphere of analytical thought are posited as being at a disadvantage (Goldenberg, 1976). Even Jung's dichotomous thinking, where the anima and animus archetypes as described as in opposition to each other, although complementary (masculine and feminine), encourages overly simplistic and binary thinking about gender. Furthermore, given the influence of Jung's writings on contemporary psychoanalysis, pop psychology and film studies, his view that world myths reflect universal psychological truths including women's bias towards intuitive thinking has very likely played a part in contributing towards contemporary inequalities in gender roles in the labour force and domestic spheres.

Despite these issues, Jung's influence persists amongst the Mythological School of Hollywood screenplay consultants and authors of screenwriting manuals. Bestselling manual-author Christopher Vogler makes the far-fetched claim that an understanding of Jungian archetypes is "as essential to the writer as breathing" (1998, p.29). Fellow Hollywood author Dara Marks asserts that a better understanding of Jung's theory would allow writers to develop more critically successful films (2005). Screenwriting academic and author Helen Jacey argues that a feminist Jungian approach is particularly useful when writing female lead characters (2010). Jung's continuing popularity within Hollywood may be in part explained by the positive reception of psychoanalytic ideas in filmmaking since the advent of film, and also through the romantic appeal of Jung's ideas about a collective unconscious to liberal,

post-World War II North American thinkers, who may view this “common consciousness” as a prospect for global peace and unity. This idea stands in opposition to my rationalist, scientific approach, which instead argues that human universals are best considered within an evolutionary framework and also stresses the value of cultural particulars of expression on the reception of fictional thematics.

4.1.5 Erik and Joan Erikson

Building upon Freud’s psychosexual theory of life development, German-American developmental psychologist Erik Erikson and his wife Joan Erikson argued in their most recent work that there are nine major life stages, from infancy through to old age. Each of these life stages, they posit, is vital for identity development, which, according to Indick, is the writer’s “central concern” (2004, p.79). Erikson and Erikson’s (1998) nine stages of development are:

1) Hope: trust versus mistrust (0–2 years)

According to Erikson and Erikson, the infant’s major task during this stage is to learn whether to trust his or her caregiver. A sense of abandonment can lead to mistrust in later life.

2) Will: autonomy versus shame and doubt (2–4 years)

During this second stage, the preschool child learns to master new automotive skills and to master a sense of autonomy. With a lack of support from caregivers, or if attempts at mastering a skill are met with ridicule, in the view of the Eriksons the child may learn to feel shame and self-doubt.

3) Purpose: initiative versus guilt (4–5 years)

During this period the child learns to master basic skills, and develops courage and confidence. Without the support of caregivers in developing their own confidence, they may develop guilt.

4) Competence: industry versus inferiority (5–12 years)

This is the stage at which children develop competency in a whole range of skills, and learn to become productive. As they become aware of their abilities relative

to those around them, the central question that starts to concern them during this period is whether they will make it in the world.

5) Fidelity: identity versus role confusion (13–19 years)

During adolescence, the teen's central problems are exploring and finding their own identity during the transition from childhood to adulthood, without suffering from role confusion.

6) Love: intimacy versus isolation (20-39 years)

Once the young adult is comfortable with their newfound sense of identity, Erikson and Erikson propose that they are ready to start forming intimate personal relationships. Without these, this period may be defined by isolation.

7) Care: generativity versus stagnation (40–64 years)

This period of middle and later life is primarily concerned with the adult finding “generativity”, or a way of being productive and creative that will help future generations. Without this, stagnation may result.

8) Wisdom: ego integrity versus despair (65–death)

This eighth stage of development was originally Erikson's final stage, before Joan Erikson added a ninth stage. In this penultimate stage adults often look back on their lives and reflect on whether they have lived their life well. Integrity comes with feelings of accomplishment, but despair may accompany the feeling that life goals and happiness have not been achieved.

9) Psychosocial Crises: All first eight stages in reverse quotient order (80–death)

Living into her nineties, Joan Erikson added this final life stage, reflecting that during an individual's eighties and nineties they often go through all the psychosocial stages again, but with quotient orders reversed. For example, hope has to be learned from the mistrust of one's own body in performing the actions it was once able to.

Indick proposes that Erikson and Erikson's life stages are essential for understanding several character archetypes. For example, “the dubious hero”, who is “reluctant to commit himself

to a heroic cause” and is challenged with resolving his identity crisis by learning to trust may be understood as the result of an inadequate foundation of trust in the first life stage. Indick cites the character of the detective, Jake, from the neo-noir mystery *Chinatown* (1972) as an example of a character that finds it hard to trust (2004a, p.80). Contrary to this proposition, I argue that linking Jake’s propensity for mistrusting others with Erikson’s first stage of development is highly problematic. The film’s narrative tells us nothing about Jake’s infancy, so we cannot know what has happened before the film started. Furthermore, mistrust is not confined to early childhood experience, as it may also arise as a result of traumatic experiences in later life (Zlotnick et al., 2003).

Although Erikson and Erikson’s theory of lifespan development may not be applicable to several of the film character examples that Indick cites in his book, their work has been highly influential in the generation of new theory and practice related to developmental psychology. As a theory contributing towards the understanding of screen character development, particularly through the adult years on which most films focus, it foregrounds several interesting ideas in the search for narrative universals. The first of these is the hypothesis that the film protagonist’s journey is linked to age-specific challenges relating to the finding of identity, love and intimacy, and in later life, generativity. As I outline in the next chapter, these age-specific challenges are linked with universal motivations that have evolved in response to pressures on human inclusive fitness. These psychological attributes also play an important part in the biographical stages of Joseph Campbell’s “monomyth”, which I outline in Section: 4.1.6.

4.1.6 Erich Neumann

As a student of Carl Jung and a peer of the American mythologist Joseph Campbell,⁵ Erich Neumann is best known for his psychoanalytic contributions in the field of developmental psychology as well as his theories on the mythological stages in the evolution of consciousness, published in his 1949 book *The Origins and History of Consciousness*. Neumann’s interest in world mythology arose from his belief that origin myths reflect both the prehistoric evolution of the human mind into consciousness and the development of the

⁵ Neumann and Campbell both attended conferences at the Eranos Foundation in Ascona, Switzerland (Paglia, 2006).

infant mind, which he believed to follow very similar processes. Neumann interpreted the “universal” hero myth as a map of the second stage of the three-stage human life cycle. According to Neumann, in this second stage the young adult matures by freeing themselves from matriarchal domination and then embarking on the process of “individuation”, in which the ego aligns itself with the principle of heroic masculinity (Hopcke, 1989, pp.70–72). The father, either real or symbolic, is seen as offering freedom from the constraints of the mother’s nurturing role, but at the same time bringing anxiety about the mastering of competencies required in life. Like Jung, Neumann also believed that an optimum level of frustration, brought about through confronting obstacles in the environment, is necessary for psychological development. At the end of the second stage the young person learns to live life as a responsible adult and contribute to society (Neumann, 1954). According to Neumann the final stage is about the search for meaning in life, in order to become a “centred and whole individual who is related to the transcendent as well as the immediate concrete realities of human existence” (Stein, 2013). In other words, during this stage the goal of the individual is to define their own identity “from within”.

Since Neumann’s theories about the meaning and function of “universals” in myth are based on Jung’s work, some of the same criticisms apply. First, Neumann draws on a limited sample of myths and has the tendency to cite lone examples as evidence supporting his claims (Chankin, 1983, pp.353–354). Second, he fails to consider that some myths may have developed through the process of cultural diffusion. Third, there is no neurobiological evidence to support his theories about the origins of human consciousness. Fourth, there is no evidence to suggest that ontogeny (individual development) recapitulates phylogeny (evolutionary development of the species) (Stevens, 1997, p.174).

4.1.7 Joseph Campbell

Of all scholars on myth, the work of Neumann’s contemporary, the American mythologist Joseph Campbell, is the most influential in the Hollywood film industry. Campbell’s writings in his seminal work *The Hero with a Thousand Faces* (1949/2008) paved the way for the Mythological School of screenwriting, which is followed by authors of screenwriting manuals including Christopher Vogler (*The Writers’ Journey: Mythic Structure for Writers*, 1985), John Truby (*The Anatomy of Story: 22 Steps to Becoming a Master Writer*, 2007), Dara Marks (*Inside Story: The Power of the Transformational Arc*, 2007) and William Indick

(*Psychology for Screenwriters*, 2004). Building on the work of Tylor and von Hahn, who first established a hero pattern, and Rank, Propp and Raglan, who developed this pattern, Joseph Campbell analysed biblical stories, myths and folktales in order to present the “monomyth”, a composite sequence of the world’s tales, which he pronounced universal (2008, pp.28–29).

He writes:

The standard path of the mythological adventure of the hero is magnification of the formula represented in the rites of passage: separation – initiation – return: which might be named the nuclear unit of the monomyth. A hero ventures forth from the world of common day into a region of supernatural wonder: fabulous forces are there encountered and a decisive victory is won: the hero comes back from this mysterious adventure with the power to bestow boons on his fellow man. (Campbell, 2008, p.23)

Campbell organises the seventeen stages of his monomyth within this three-part “separation-initiation-return structure”. This appears to have close parallels with the three-stage process of individuation described by Neumann, based in turn on Jung’s process of individuation. The stages of Campbell’s hero formula are outlined below (2008, pp.41–209):

SEPARATION

1. The Call to Adventure

The hero is summoned to a journey into the unknown, and the process of transfiguration begins.

2. Refusal of the Call

Fuelled by fear or duty, the hero often refuses the call.

3. Supernatural Aid

The hero is offered assistance by a “protective figure” who has undertaken his own adventure.

4. The Crossing of the First Threshold

The hero crosses into the world of adventure, an unknown and dangerous realm.

5. The Belly of the Whale

The hero’s final separation from his known world and self.

TRIALS AND VICTORIES OF INITIATION

6. The Road of Trials

A series of tests or ordeals encountered by the hero during his transformation.

7. The Meeting with the Goddess

The talents of the hero in winning over the person he or she loves most completely are tested in the “mystical marriage”. This represents the hero’s mastery of life.

8. Woman as the Temptress

The hero is tempted to abandon or stray from his or her quest.

9. Atonement with the Father

The hero abandons attachment to the self, and is initiated by a merciful father-figure.

10. Apotheosis

A period of grace which follows, before the hero begins his return.

11. The Ultimate Boon

The achievement of the goal of the quest; often the elixir of life or similar.

THE RETURN AND REINTEGRATION WITH SOCIETY

12. Refusal of the Return

Tempted by the eternal bliss he has just accomplished, the hero often refuses to return to the ordinary world.

13. The Magic Flight

If the Ultimate Boon was stolen from the gods or demons, they may pursue him on his return.

14. Rescue from Without

The hero may need supernatural assistance in his return.

15. The Crossing of the Return Threshold

The hero returns to society, and finds a way to integrate and share his new wisdom.

16. Master of the Two Worlds

The hero has now mastered both the inner and outer, or spiritual and material worlds.

17. *Freedom to Live*

The hero has championed life in the moment, and no longer fears the future or the past.

For Campbell, differences between narratives from across the world were of secondary importance to his belief that myths are universal in their demonstration of the hero's adventure (Segal, 1990, p.63). Writing in the aftermath of World War II, Campbell argued that similarities between world myths reflect the similarities between people across the world, and lay down the path of an ideal life in service of others. Those sceptical about Campbell's claims have attributed his sentiments to wishful post-war thinking (Segal, 1990).

The idea that the hero must set out on an adventure, face obstacles, and ultimately sacrifice his ego in order to return to his society and help others has become one of the central tenets of the Mythological School of screenwriting. However, widely ignored by authors of this school is the fact that Campbell's views on the universality of the monomyth changed substantially across *Masks of God*, the four-volume series that he wrote later (1959, 1962, 1964, 1968). In *Masks of God: Volume I, Primitive Mythology* (1959/1991b) Campbell emphasises the differences, rather than the similarities, between myths of four types of people: primitive, oriental, occidental and creative. Writing in *The Masks of God: Volume II, Oriental* (1962) and *Volume III, Occidental* (1964), Campbell confines the monomyth to the West, and redefines heroism as selfish and aggressive, driven by an egotistical desire to conquer the world (Segal, 1990, p.118). In these volumes Campbell observes that Western mythology is patriarchal and tends to feature male gods, who dominate female gods and humans. In contrast, in Campbell's view, Eastern mythology is matriarchal and non-heroic, with passivity and peace as major themes. The aim of Eastern mythology, Campbell argues, is the "dissolution of the ego" and "return to sheer unconsciousness" (Campbell in Segal, 1990, p.118). In *Masks of God: Volume IV, Creative* (1968/1991a), Campbell's new heroes are the mythmakers themselves, creating new, relevant myths for a world otherwise devoid of myth (Segal, 1990, p.125). In this volume he returns to his earliest thinking as espoused in *The Hero With a Thousand Faces*, arguing that heroism involves selflessness and individualism is essentially human. In this complete turnaround of his views compared to the previous volumes, he now describes the East as oppressive. Some scholars attribute Campbell's changes in views to the Cold War, suggesting that the four volumes of the *Masks of God*, written in the 1950s and 1960s, reflect American opposition to the totalitarianism of

Russia and the Developing World (Sandler & Reeck, 1981). However, religious scholar Robert Segal notes that the changes in Campbell's views do not directly parallel changes in America's foreign policy, and instead may be better explained by a personal change of heart relating to Campbell's expressed disappointment in his first trip to India in 1954. Prior to this visit, India had been the source of many ideas which he had revered (1990, p.167).

In Campbell's more recent works, *The Mythic Image* (1976), *Historical Atlas of World Mythology* (1983) and *The Inner Reaches of Outer Space: Metaphor as Myth and as Religion* (2002), as well as his interviews *The Power of Myth* (1991) and *An Open Life* (1990), he reverts back to his earliest views on the universality of the "monomyth". Campbell states that the hero myth appears "one way or another in practically every mythology I know of" (1990, p.23). Given that Campbell has stated only a few criteria for a story to qualify as the monomyth – its protagonist must be an adult male, who needs only to follow one or two of the steps from the seventeen stages of the hero pattern – the analysis would seem to have become so general as to be almost meaningless (Segal, 1990, p.189; Crespi, 1990). With these qualifications, a story about an adult male, who may be a commoner, king or god, leaving home for a new place, and then following none of the other steps of the hero pattern, would still meet Campbell's requirements for the monomyth. Furthermore, Campbell fails to provide a comprehensive list of the myths that he has studied, which may well exclude a number of cultures. Folklorist Alan Dundes argues that the monomyth is a "synthetic, artificial composite" cobbled together from a wide variety of world myths (Dundes, 1990, p.187). All ethnographic context and the local meaning of the original myths is therefore lost (Crespi, 1990). Campbell's comparative approach to world mythology stands in opposition to the particularist approach preferred by more contemporary mythologists (e.g. Blumenberg, 1988), as well as researchers of Comparative Literature (e.g. Bourdieu, 1984), who argue that the meaning of texts comes from particulars, or "specificities", in the form they take, and that works can only be fully understood within the different cultures where they are created, as well as by comparison with other cultural works, religion and psychology. Moreover, because the monomyth is a composite, it cannot be empirically verified by inductively extrapolating events from any specified hero biography (Dundes, 1990, p.188). I offer a thought experiment as an illustration of this problem: if we experienced the world for the first time as an alien visitor and categorised all films, stage plays and novels as "favels", using Campbell's method of analysis we might describe "favels" as having one or more of the following features: recorded visual imagery; a protagonist; text; live performances by actors; and a front cover. While all "favels" do exhibit one or more of these criteria, since no single

“favel” has yet been found to exhibit all these features, it cannot be empirically verified to exist. It is far more useful to identify films, stage plays and novels as different forms of fiction. In the same way, rather than creating a composite of myths from a number of countries from around the world, it may be more useful to identify any features that are present in all these myths, and potentially other narratives, and then to understand how the particulars of mythic form differ across cultures.

Campbell argues that the meaning of all hero myths is identical (2008, p.viii), and that it may be understood using psychoanalysis (2008, p.vii). While Campbell acknowledges that similarities in myths must in part be attributable to the process of “cultural diffusion” (1964, p.64), whereby stories are spread from their originating source through the processes of cultural migration or intermingling between cultures, he argues that this process does not occur often enough to account for the prevalence of the monomyth, which he attributes to common aspects of human psychology. Campbell writes: “there can be little doubt, either that myths are of the nature of dream, or that dreams are symptomatic of the dynamics of the psyche” (2008, p.219). In other words, Campbell believes that the universality of myths across the world must be explained by human’s common psychology, which have resulted in the independent invention of myths that share the same pattern.

Influenced by Carl Jung, Campbell suggests that this pattern represents an abridged version of the hero’s “psychic” journey through the trials of initiation on the road to maturity, then healing the fractured psyche, sacrificing the ego and returning to society to serve the community. In representing myth as a version of the Jungian “process of individuation”, whereby the personal and collective unconscious is brought into consciousness to be assimilated into the whole personality, thus healing the fractured psyche, Campbell introduces the problems that I have already discussed in relation to Jung’s work as flawed foundations for his argument. Another problem with Campbell’s reasoning about the universality of the “monomyth” deals with its lack of applicability to women, despite Campbell’s claims that it applies equally to both genders (2008, p.101). At the heart of the hero’s initiation, in stages six to eleven, woman as hero is lost (Segal, 2004, p.14), and from this point on female characters are confined to supporting roles, generally in the form of a goddess, temptress or earth mother (Pearson & Pope, 1981, p.4; Nicholson, 2011). In a personal interview with American psychoanalyst Maureen Murdock, Campbell is reported to have said that women in myth don’t transform:

In the whole mythological tradition the woman is there. All she has to do is realise that she's the place people are trying to get to. When a woman realises what a wonderful character she is, she's not going to get messed up with the notion of being a pseudo-male. (Campbell in Murdock, 1990, p.2)

If the monomyth is found to be a *conditional* narrative universal applicable only to highly generative men, this is essential knowledge for screenwriters and producers as it would mean that female protagonists' journeys must differ, and that the monomyth is not the absolute narrative universal that authors of screenwriting manuals often claim it to be (e.g. Vogler, 2011).

4.1.8 Maureen Murdock

The work of American psychoanalyst Maureen Murdock attempts to address the question of whether the monomyth is a conditional or absolute universal by rebutting Campbell's assertions, proposing instead that the modern (American) heroine undergoes a transformational quest to embrace her "feminine nature", through which she learns to value herself as a woman and heals "the deep wound of the feminine" (1990, p.3). According to Murdock, women experience an entirely different life journey to the heroic male journey outlined by Campbell. Drawing partly on personal experience as well as work with her clients, Murdock develops a ten-step biographical pattern which she names the "Heroine's Journey". As Murdock notes, this applies (only) to women from her culture at the time of writing. Yet in *Psychology for Screenwriters*, Indick chooses to include the Heroine's Journey as a working model for all female protagonists, but one that is "especially relevant to the challenges of modern 'liberated' women in contemporary society" (2004b, p.172). Given Murdock's limited sample of clients, drawn from a self-selected, clinical population of North Americans, cross-cultural generalisations or even generalisations to non-clinical populations should not be drawn, and thus Indick's inclusion of the Heroine's Journey as a working model for screenwriters is ill-founded.

While there is plenty of evidence to suggest that women in Western cultures still have different social roles and encounter different obstacles to men, Murdock does not merely assert that North American women's external path is different, but also that their interior journeys and therefore their psychology are presumably also different. While it is known that some gender differences in human psychological attributes do exist, these are mostly attributable to the gender-differentiating effects of social expectations that reinforce gender

stereotypic behaviour and the maintenance of the status quo in the division of labour roles. Differences that have arisen either as a result of sexual selection or the disparate adaptive problems that men and women have faced during their evolutionary history are thought to be small by comparison (Buss, 1995; Wood & Eagly, 2002; Eagly & Wood, 2011).

4.2 Humanistic approaches

Humanistic psychologists, including one of the paradigm's founding fathers, Abraham Maslow, sought inspiration from the likes of Otto Rank and the philosophies of existentialism and phenomenology in order to create a new approach to psychology which emphasised the positive human drive towards "self-actualisation", the process of realising and moving towards the expression of the individual's most capable and creative self.

4.2.1 Abraham Maslow

The American psychologist Abraham Maslow is best known for his humanistic theory of psychological health, in which he proposes a hierarchy of innate "needs" that must be fulfilled. Commonly referred to as "Maslow's hierarchy of needs" (1943), this theory remains widely influential within the humanities, the social sciences and management studies. In developing his ideas Maslow was influenced by the humanist psychologist Carl Rogers, who proposed that optimal human development enabled an individual to "self-actualize" or develop into their "ideal selves". Maslow places this drive to self-actualize at the zenith of the hierarchy of needs. By contrast, the most fundamental "physiological" needs are placed at the bottom, including the need for air, water, clothing, shelter and the ability to reproduce. Above this Maslow places the need for safety, which includes the needs for personal security, and health. Next comes the need for "love and belonging", which includes friendship, intimacy and family. The penultimate stage is the requirement for esteem, from self and others. In Maslow's later writings he adds one further stage, the need for "self-transcendence", or the motivation towards giving of self to something outside oneself, for example through altruism or spirituality (1969).

Maslow also mentions cognitive needs in his 1943 paper, including desires for knowledge and aesthetics, but does not include them within his hierarchy, suggesting that Maslow recognized his list was incomplete. Despite this, Maslow's hierarchy has often been reproduced in many texts as a complete theory, represented within the image of a triangle, an illustration that was not Maslow's own. Screenwriting manual author Linda Seger refers to

Maslow's hierarchy of needs when arguing that something important must be at stake for a film's protagonist when trying to achieve their goal. She states: "Many successful films have spoken directly to these needs. Any one of these seven psychological stakes can be in jeopardy at various times in a film, and most good films will draw on more than one of them" (Seger, 1994, p.125).

Debate continues over whether motivations are hierarchical, in the sense that those linked with personal survival will be attended to with most urgency (Bernard et al., 2005; Nettle, 2005). Moreover, the ordering of Maslow's hierarchy, with the placing of needs that relate to autonomous, individualistic values at the zenith, is more likely the product of Maslow's North American, middle-twentieth century, white middle class values and ethnocentric thought, rather than a reflection of pan-human universals. Some evidence demonstrates that more communal cultures tend to rank Maslow's needs in a different order (Hofstede, 1984b).

4.2.2 Rollo May, Existential Psychology and Terror Management Theory

American psychoanalyst Rollo May was heavily influenced by existentialist ideas, particularly the writings of Soren Kierkegaard, the Danish religious writer who inspired much of the existential movement. Suggesting that neurotic anxiety is often related to existentialist "angst", May proposes that most people experience conflict and anxiety when they realise that life does not provide the meaning they expect it should have. According to May, the answer to this existential angst lies within myth – the dramatic representation of the human condition. May argues that the universal narrative patterns, within myths, allow people to interpret events in their own lives with meaning. Writing towards the end of the twentieth Century in his book *Cry for Myth* (1991), May asserts that "the great interest in Joseph Campbell's talks on myth is the most obvious demonstration of the profound need throughout Western countries for myth" (1991, p.9). In May's view, many psychological problems, including depression, suicide and addiction, are caused by the lack of positive myths in society. Citing as examples novels including *The Great Gatsby* (Fitzgerald, 1925/1993) and *Death of a Salesman* (Miller, 1949/1994), May argues that these cultural narratives of the time fail to provide their readers with relief from "neurotic guilt and excessive anxiety" (1991, p.16). In contrast, positive myths, born from the human unconscious and containing universal elements (1991, p.37), are asserted by May to supply individuals with "roots" and meaning.

Although May argues that such positive myths were in short supply at the time of writing, I contend that he has reached these conclusions as a result of the selective reading of fictive works that may have been popular with academics, or some of his clinical patients, but are not representative of the predominantly redemptive and uplifting bestselling films and novels of the time. Some of the highest-grossing films at the annual North American box office in 1991 include *Robin Hood* (1991) and *Beauty and the Beast* (1991), which are both uplifting and redemptive stories. Developing Rollo May's ideas, I suggest that mythic film narratives reflect society's cultural values, but these are pluralistic in their depiction of themes, reflecting the range of cultural ideas held by different groups within any society. In the next chapter, I propose that the majority of popular films, throughout time, have positive, redemptive stories because of the human bias towards positive illusions.

Writing about Rollo May's ideas in *Psychology for Screenwriters* (2004b), Indick devotes one complete chapter to May's description of "the American hero archetype" as depicted in Hollywood films (Chapter 16), and another chapter applying May's "stages of self-consciousness" to character development in film protagonists (Chapter 15). Since May proposes the American hero archetype to be a North American cultural construction, his arguments do not require further discussion in this chapter on the search for narrative universals. Instead, I will next examine whether May's lifespan model of the development of self-consciousness is a universal in narrative character development.

In his book *Man's Search for Himself* (2009), Rollo May describes his four hypothesized stages as:

1) Innocence

This is the stage before self-consciousness develops. Here, the "innocent" infant child is driven to satisfy his or her needs.

2) Rebellion

In this stage the young adult is "trying to become free to establish some inner strength" (2009, p. 100). This stage is generally seen in the two- to three-year-old, or adolescent child.

3) The ordinary consciousness of self

At this point in life development, the adult has developed a “healthy personality” and can make responsible decisions and learn from experience (2009, p. 100).

4) Creative self-consciousness

This fourth stage of consciousness is rarely achieved. When it is, it involves creative insights and the ability to choose the meaning of one’s life (2009, p.208).

Drawing on this theory in his analysis of film character development, William Indick suggests that “in the film version of the stages, there is a constant interchange of conscious energy from internal conflict to external goals” (2004b, p.211). Why or how this is the case, Indick fails to clarify. Moreover, in his application of May’s stages to character development, Indick once again applies May’s ideas in such a broad and often metaphorical fashion that they fail to conform to the requirements that May has provided for each stage. Taking May’s first stage of pre-consciousness as an example, Indick suggests that within screenplays this is represented as the first stage of the hero’s development, in which the protagonist is innocent to the main conflict of the story. However, given that May intends his term “pre-consciousness” to be understood literally, and to refer to the stage preceding conscious thought in the infant child, it cannot be equated to Indick’s metaphorical interpretation of “pre-consciousness” as a stage in which the protagonist lacks important dramatic knowledge (Indick, 2004b).

Related to May’s ideas about the importance of myths in providing people with meaning in their lives, “Terror Management Theory” argues that humans embrace cultural values or symbolic systems as a means of providing life with meaning and value in the face of the terror that comes with knowledge of mortality (Greenberg et al., 1986, following Becker, 1973). Applying Terror Management Theory to the creation of narratives, it has been argued that authors seek to conform to culturally-recognised forms and structures so as ensure their narrative is deemed significant and meaningful (Landau & Greenberg, 2008). For audiences, viewing popular films may represent a way of engaging with narratives that are thought to have cultural value and meaning, and from which they may draw culturally-valued meaning to help make sense of their own lives, while managing existential terror by reducing the threat of passing time. However, the application of Terror Management Theory to people’s desire to watch films – and draw meaning from them – remains untested.

4.3 The Mythological School of screenwriting

Following the work of anthropologist Joseph Campbell and psychiatrist Carl Jung, proponents of the Mythological School of screenwriting view narrative structure as a metaphor for an individual's journey through life, where dramatic “turning points” within the narrative structure represent the key stages of either Campbell's monomyth or Jung's process of individuation, on which Campbell's biographic model is based. This mythological paradigm has been immensely popular in Hollywood since George Lucas, the writer and director of *Star Wars: Episode IV – A New Hope* (1977), was reported to have been influenced by Campbell's writings (Campbell & Moyers, 2011).

Christopher Vogler, the author of one of the most popular screenwriting manuals in Hollywood and a former Disney story analyst, hypothesized that Campbell's monomyth may be universal to the structure of all screenplays. Along with fellow story analyst David McKenna, he proposed a twelve-step simplification of the monomyth that charts the protagonist hero's “outer” and “inner” journeys. These are illustrated in Figures 7 and 8 below. The outer journey follows the protagonist's physical quest, while the parallel inner journey maps the protagonist's transformation and spiritual journey as detailed in Vogler's bestselling screenwriting manual: *The Writers' Journey: Mythic Structure for Screenwriters* (1992). Vogler summarises his model:

The hero is introduced in his ORDINARY WORLD where he receives the CALL TO ADVENTURE. He is RELUCTANT at first to CROSS THE FIRST THRESHOLD where he eventually encounters TESTS, ALLIES and ENEMIES. He reaches the INNERMOST CAVE where he endures the SUPREME ORDEAL. He SEIZES THE SWORD or the treasure and is pursued on the ROAD BACK to his world. He is RESURRECTED and transformed by his experience. He RETURNS to his ordinary world with a treasure, boon, or ELIXIR to benefit his world. (Vogler, 1985)

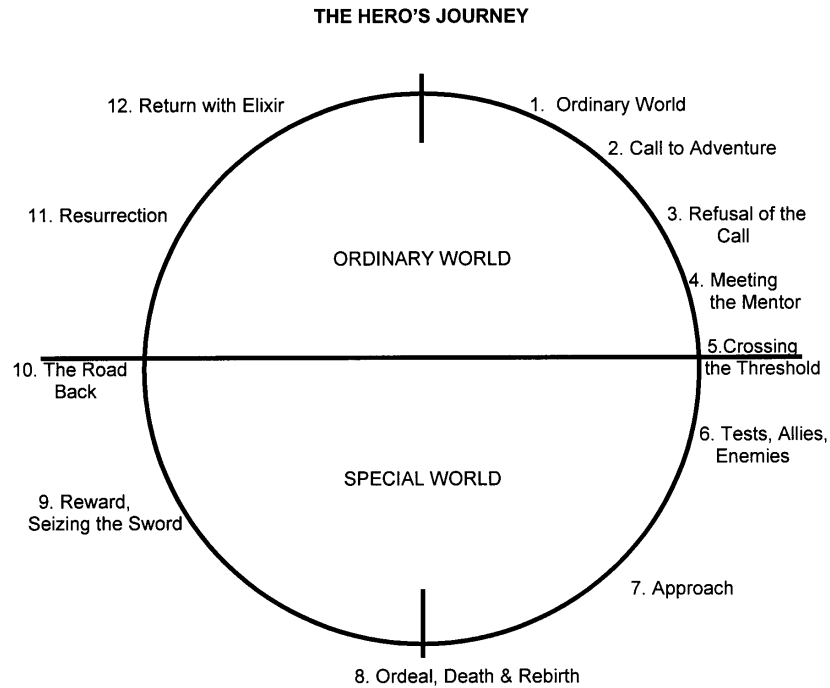


Figure 8: The Hero's Outer Journey (Vogler, 1985). Copyright 1985 Vogler.

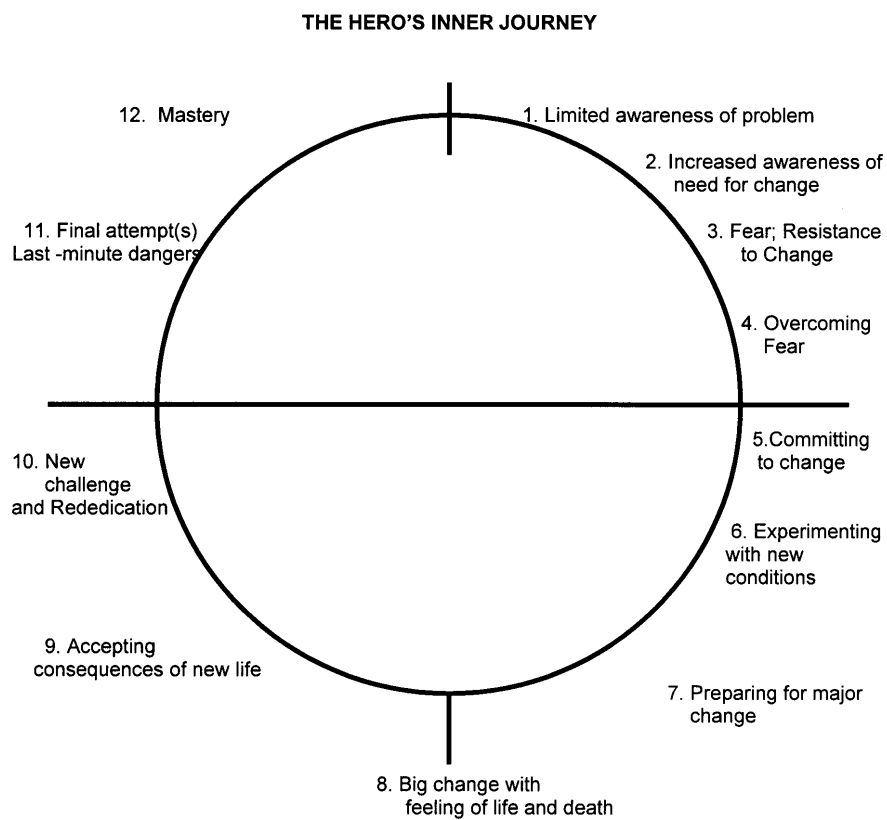


Figure 9: The Hero's Inner Journey (Vogler, 1985). Copyright 1985 Vogler.

Vogler argues that stories built with this model engage and resonate with audiences because they are “psychologically valid” (1985). According to Vogler:

This accounts for the universal power of such stories. Stories built on the model of the hero myth have an appeal that can be felt by everyone, because they spring from a universal source in the collective unconscious, and because they reflect universal concerns. (Vogler, 1985)

However, as already noted in the preceding discussion of Jung’s work, scientific evidence fails to substantiate the idea of a collective unconscious. While evolutionary models of human motivations support the existence of “universal concerns”, this is not sufficient to warrant Vogler’s claim that the hero myth is “psychologically valid”, since the two are unconnected. Universal concerns are, by Vogler’s (1985) definition, questions that include “Who am I? Where did I come from? Where will I go when I die? What is good and what is evil? What must I do about it? What will tomorrow be like? Where did yesterday go? Is there anybody else out there?”, and these are evidently concerned with a different set of intellectual enquiries to the typical themes of Vogler’s twelve-stage biographic journey.

In addition to borrowing from Campbell’s monomyth, Vogler is also heavily influenced by his use of Jungian archetypes. These, he argues, are not the internalized images of desired selves as reconceived by contemporary psychologists (e.g. Markus & Nurius, 1986), but “flexible character functions” that “can liberate your storytelling” (Vogler, 1998, p.30). Although Vogler suggests that characters can take multiple archetypal roles, how flexible can the functions of hero, shadow or shapeshifter be, given their strong association with mythic characters? While Vogler notes that these archetypes should be considered *functional* roles, I have found that this is often misunderstood by student screenwriters, who instead understand these character roles to be literal descriptions of the types of characters that should be inserted into a screenplay text, resulting in clichéd stock characters.

Vogler’s claims for the “power” of the monomyth are equally problematic. According to Vogler, by using Campbell’s ideas “...you can almost always determine what’s wrong with a story that’s floundering; and you can find a better solution [sic] almost any story problem by examining the pattern laid out in the book”. Given that Vogler’s reinterpretation of the monomyth has been widely popular within Hollywood since 1985, if Vogler’s claims for the power of the monomyth in solving story problems were valid, it would be reasonable to

expect an increase in the numbers of films with critically-acclaimed narratives being produced in the US over the last thirty years, particularly for those films with mythic structures. Despite this, as screenwriting manual author Dara Marks notes, “a quick scan of the great majority of films that have come out of Hollywood over the last decade would seem to indicate otherwise”. She concedes that we cannot know how well Vogler’s framework has been understood by the studios or integrated into their approach, and observes that good writing is at least as essential to a well-told narrative as is the technique it uses (2005, p.41). Marks proposes that shortcomings of existing studio “Hero’s Journey” films may be in part solved by understanding this narrative journey as an example of Jung’s process of individuation, which differs from Campbell’s monomyth in arguing that it is the hero who is saved – and humbled – rather than the hero’s world. Jung’s hero, focused on an internal journey, is therefore a very different kind of hero to Campbell’s selfless “saviour”. Marks (2005, p.45) observes that while Campbell’s hero is best-suited to understanding the transformation of protagonists in “saviour epics” like *The Lord of the Rings: Fellowship of the Ring* (2001) and *The Matrix* (1999), Jung’s process of individuation is far more applicable to the vast majority of films, in which the protagonists struggle to save themselves rather than their society – for example, in *It’s a Wonderful Life* (1946).

Related to the above is the question of how a Hero’s Journey film is defined. According to Vogler, a Hero’s Journey film needs only to include five stages of the journey in order to qualify. These are: the Ordinary World; Call to Adventure; Threshold Crossing; Ordeal or Resurrection; and Return with the Elixir (2011). Elsewhere, Vogler notes that the stages of the journey may be presented in a different order (1985). In revising Campbell’s seventeen-step process to a twelve-step story map, more of the original composite myth is lost. The result is that Vogler’s version creeps closer to Aristotle’s beginning, middle and end paradigm, which is broad enough to encompass most stories. In a similar vein, there are often a variety of dramatic moments that can be shoehorned into any one of Campbell’s stages. Taking the example of *Frozen* (2013), the “Meeting the Mentor” stage has been variously analysed as being the moment where Princess Anna meets Olaf (Bazonski, 2014), the trolls (Frias, 2014) or Kristoff (Wilson, 2014) for the first time. I would add the moment that Anna meets the troll king as another contender to the list. If we are to identify narrative universals, and if these are to be useful to the writer or script consultant, clear definitions are essential.

Addressing the oft-mooted idea that Campbell’s monomyth may be a product of cultural imperialism, Vogler concedes that his own take on the paradigm may “carry subtle biases”,

but according to Vogler the underlying structure is “universal and timeless” (1998, p.xvi). Responding to criticisms that Campbell’s work applies only for male protagonists, Vogler argues that men’s and women’s journeys are mostly similar:

I believe that much of the journey is the same for all humans, since we share many realities of birth, growth, and decay, but clearly being a woman imposes distinct cycles, rhythms, pressures, and needs. There may be a real difference in the forms of men’s and women’s journeys. (1998, p.xix)

Vogler fails to clarify whether he believes these differences between women’s and men’s journeys, should they exist, are universal or cultural. Either way, should significant differences exist, then this story structure cannot be the absolute universal it is generally claimed to be.

4.3.1 Gender differences in heroic behaviour

Ideas about male heroism lie at the centre of the monomyth, as well as Christopher Vogler’s distilled version. Before considering whether gender differences in heroic behaviour exist, it is first necessary to define heroism. The English word *hero* originates from the Greek ἥρως (*hērōs*), which means “hero, warrior”. Contributing further to our understanding, the Oxford English dictionary defines heroism as “great bravery” (2004), while the Merriam Webster dictionary defines heroism as “heroic conduct especially as exhibited in fulfilling a high purpose or attaining a noble end”, or “the qualities of a hero” (2006). Missing from these definitions is the idea that heroism involves risk-taking for a socially-valued goal (Becker and Eagly, 2004). In other words, heroism can be said to constitute the taking of great risk when using physical and mental skills in order to help others in a culturally-valued way.

In their study of the differences between male and female displays of heroism, psychologists Selwyn Becker and Alice Eagly (2004) found gender differences in the ways that men and women are heroic. While male heroism tends to involve greater shows of physical skills, to be more public and to be more likely to risk death, female heroism is often more private and less likely to risk death. Becker and Eagly argue that as a result of female heroism being confined to a subset of the social roles in which heroism occurs, and because of its more private nature, female heroism has been culturally undervalued – for example American Carnegie Medal winners are more likely to be men.

I contend that the linking of spectacle with male heroism through shows of greater physical strength, higher stakes risk, and the desire for a larger audience provides substance for intensely dramatic and attention-grabbing narratives. As I will discuss further in the following chapter, evolutionary biologist Daniel Nettle has proposed that attention-grabbing stories about survival and the highest evolutionary stakes are the most likely to be popular (in Boyd, Carroll and Gottschall, 2010). This contributes towards explanations of why men have predominated as heroes from classical literature onwards, in both the East and West. An additional factor is that throughout history stories have been co-opted and sanctioned by patriarchal leaders (Brin, 1999), and thus we have become accustomed to narratives about male heroism and draw on such models when creating new stories. Given the impact of the perpetuation of male-dominated narratives on women's professional and domestic roles, it is time to rethink how female heroism may be better presented in today's narratives and screen stories. While the "big, loud and proud" public spectacle of male heroism may be best suited to films in the action genre, the more private nature of women's typical heroism, combined with high risk but not necessarily death-defying actions, may lend itself better to the building of dramatic tension narratives in the thriller, sci-fi or fantasy genres. In this vein, the recently-released sci-fi film *Arrival* (2016) has received critical acclaim for its treatment of a quiet, female protagonist who risks death in finding a way to communicate with an alien civilization. Combining spectacle with emotional truths, the film presents an alternative to the dominant Hollywood narratives, which tend to reinforce the limited conceptions of male heroism that have been historically and culturally celebrated.

4.3.2 Cross-cultural and historical conceptions of heroism

While Joseph Campbell's ideas about male heroism are culturally aligned to North American post-War values, Christopher Vogler notes that for a number of other nations, including Germany and Australia, notions of heroism are more problematic (1998, p. xvii).

Furthermore, since definitions of heroism incorporate behaviour directed toward a "socially-valued goal", national heroes change according to cultural history. Taking the example of China's First Emperor of Qin, who united six kingdoms in order to found the nation now known as China in 221BC, in traditional Chinese historiography he was considered a brutal tyrant who conducted family executions, attacks on scholars and the burning of books (Primary School Learning Resources Network, 2016), but during the Cultural Revolution in 1973–1974 a national campaign sought to reinstate the First Emperor of Qin as a national

hero who struggled against the reactionary ideas of the Confucianists. After the death of Mao Zedong and the collapse of the Cultural Revolution in 1976 the bid to restore the reputation of the First Emperor of Qin failed, and it was not until 2002 with the release of Yhang Zhimou's film *Hero* that controversy about its heroic portrayal of the First Emperor was reignited (Louie, 2008). Given these shifting views of what it means to be a "hero", does this mean that heroism is entirely a sociocultural construct, defined by historical values and ideals, or could there also be a universal element to heroism?

The Chinese scholar of cultural studies Kam Louie argues that the film *Hero* (2002) embodies ancient, mythical Chinese ideas about the "*wen-wu*" masculine ideal, and it is for this reason that the film was so well received both critically and at the international box office (Louie, 2008). "*Wen-wu*" translates as literary martial, and thus requires a unity of mental and physical skills which necessitates self-control. The most revered Chinese leaders, and the idealised Chinese man, is considered to have both *wen* and *wu*, but *wen* (the possession of mental skills) has been considered to be superior to *wu* (the possession of physical skills) throughout Chinese history. In *Hero* the First Emperor is portrayed as *wen-wu*, with superior *wen*, and thus according to Louie he is intended to be a heroic character.

A second line of enquiry investigates cross-cultural differences in the conception of heroism in ancient poetry. While many scholars and critics have argued that epic poetry, celebrating heroic acts, has been missing from China's literary tradition, literary scholar C.H. Wang argues that heroic conceptions of events were present in the *Shijing*, China's oldest collection of poetry dating from the seventh century BC (Wang, 2009). Wang argues that in the account of King Wu's victory over the Shang dynasty, accounts of *wen* (mental skills) are developed in preference of those of *wu* (physical or martial skills), because "Confucianism judges the conquest incomplete until the weapon is put away and the rite performed appropriately" (p.27). So according to Wang, Confucianist cultural ideals at the time scribes wrote China's most ancient collection of poetry resulted in far more limited descriptions of weaponry and arms than in the epic poetry of the West. Instead, the *wen* is emphasised and the *wu* sublimated.

Thus, while the definition of heroism remains unchanging, it appears that different cultures at different times in history have placed varied amounts of emphasis on whether the display of physical or mental skills in heroism is more important. In addition, the socially-valued goal towards which heroic behaviour is directed is an entirely cultural and historical construction. In my empirical research I will examine how today's cultural differences in the display of heroism are reflected in the display of protagonists' mental and physical skills.

4.4 Lifespan development and narrative psychology

Given that the Mythological School of screenwriting claims that many, if not all, narratives follow the pattern of the typical life course of a hero (e.g. Campbell, 2008; Vogler, 1998), and that the universal popularity of this narrative is due to its “psychological validity”, in order to verify these claims, it is essential to investigate whether development throughout the human life follows a typical pattern. Do the life course narratives of the most heroic humans differ from those of typical humans? If so, is the heroic life course the pattern charted most frequently in stories across the world? Are there cultural differences in developmental patterns of the human life course, and are these reflected in different narrative structures in films produced across the world?

Over the last forty years, psychologists and psychiatrists including Dan McAdams (2013), Daniel Levinson (1991), George Vaillant (1977), Roger Gould (1978) and David Gutmann (1975) have argued that human development follows predictable life-stages. In so doing they follow earlier frameworks developed by Carl Jung (1953), Sigmund Freud (1905, 1920) and Erik Erikson (1998). Insights from developmental psychology and the burgeoning field of narrative psychology, which examines the autobiographical life stories told by various cultural groups in order to understand the role of cultural narratives in the construction of identity, have been dominated by narrative accounts from white, professional and relatively prosperous males who have grown up in post-World War II America. Very little cross cultural or minority research exists, and there is even less research on adult development earlier in history (McAdams, 1993, p.96). For this reason, the typical life course developmental patterns found in studies of North Americans’ lives cannot be concluded to be a cross-cultural universal until further cross-cultural research into typical patterns of adult development is conducted.

Researching the autobiographical life stories of highly generative North Americans, narrative psychologist Dan McAdams (2013, p.xvii) found that at the beginning of accounts of their life, highly generative North Americans tend to report being driven by agentic desires for power and freedom. Their mid-life period is reportedly a time of turmoil, when conflicting views of self are reconciled. After this, the later life period is driven by communion and the need to create meaning and build legacy. McAdams describes this typical life story, as recounted by highly generative North Americans, as the “Redemptive Self Plot” (2013, p.xvi). It is outlined below:

HOW DOES THE STORY BEGIN?

The main character (protagonist, or “P”) is favoured in some way, enjoys a special blessing, advantage, gift or status that distinguishes him or her from others. At the same time, P sees that others in the world are not so fortunate. P shows a precocious sensitivity to the suffering of others. By the time P enters young adulthood, he or she has established a firm and coherent belief system that will promote prosocial action and provide life guidance.

HOW DOES THE STORY DEVELOP?

P encounters many obstacles and suffers many setbacks, but bad things often lead to positive outcomes or else they teach positive lessons. P moves forward over time, makes progress, rises from adversity, recovers from setbacks, frees the self from oppressive forces and/or develops from some full actualisation of an inner destiny. Along the way, P’s strong needs for power and freedom often conflict with his equally strong needs for love and community.

HOW DOES THE STORY END?

P works to promote the well-being of future generations. P leaves a positive legacy of the self. Even though his or her life will end someday, P expects to leave behind people and things that will continue to grow and prosper.
(McAdams, 2013, p. xvii)

On first inspection there are striking parallels with Campbell’s monomyth, and some points of earlier formulations of the hero myth. First, McAdams recounts the story in three parts, which could be thought of as a reversioning of the three-act structure of Campbell’s separation-initiation-return. However, McAdams presents no evidence to suggest that his participants’ stories were structured in this way, and elsewhere McAdams describes his participants recounting their lives as a series of chapters, which might vary in number (2013, p.78). Furthermore, in McAdams’ more detailed discussions of the changing psychological process at work during adult human lifespan development, he notes significant transformational episodes that happen during five – not three – distinct stages of adult life, namely the teenage years, the twenties, thirties, mid-life and the later years. It is more likely, therefore, that McAdams’ three-part structure reflects the embedded cultural and historical practice of viewing narratives as having three parts, a beginning, middle and end, or the monomyth’s separation-initiation-return.

McAdams’ description of the main character as being “favoured in some way”, or enjoying a special status, recalls the beginning of Otto Rank’s hero formula. Rank suggests life guidance is provided by a prophecy; Campbell suggests it comes with a “call to adventure”; according to McAdams, life guidance is provided by a strong belief system. More convincing are the parallels between the redemptive sequences that McAdams presents in his second “act”, and similar sequences in the monomyth, whereby the hero overcomes

obstacles. Campbell writes: “every one of us shares the supreme ordeal – carries the cross of the redeemer” (2008, p.337); the monomyth is a redemptive story. Furthermore, although it is interesting to note the sense of destiny that McAdams reports his North American participants feeling, this is experienced *retrospectively* when piecing together an autobiographical life narrative, rather than as the immediate goal-driven behaviour of the hero of the monomyth.

Building upon the work of American psychologist David Bakan (1966), McAdams notes that the central internal conflict experienced by the highly generative North American is between agency (the drive for power and autonomy) and communion (the drive to experience community with others). Elsewhere, McAdams (1993, p.98) writes that agentic desires emerge at the beginning of late childhood, and that in their twenties men’s goals tend to be dominated by occupational desires. Some research suggests that women’s goals at this stage may be split between occupational and interpersonal goals. These studies of early adult lifespan development provide some support for mythological hero’s goal-driven, egoistical and agentic behaviour during their first stages of their journey, or when adapted to film, up until the midpoint of the film. The importance of the mentor during these first stages of the hero’s journey is supported by American psychologist Daniel Levinson’s finding that mentors may become important during early adulthood (in McAdams, 1993, p.98).

In the next stages of life, the trajectories of some men and women diverge because of “the parental emergency” (Gutmann, 1975). After this comes the mid-life period, defined by psychologists as being from around forty to sixty years of age. Levinson (1991) describes this period as a time of reassessment. Similarly, McAdams (1985) views this period as a time of reconciliation of conflicting views of self. From this mid-life “turning point” onwards, the highly generative North American adult becomes primarily driven towards generativity and communion. These studies may explain why Campbell’s highly-generative heroic protagonist abandons his attachment to self and pursues communal and generative goals after the mid-story turning point. However, since studies of human lifespan development have been confined to the investigation of predominantly male, white professionals in the US, conclusions about the cross-cultural applicability of this narrative structure cannot yet be drawn. Moreover, Gutmann proposes that during and after their forties women may pursue more agentic goals, which suggests there may be different life course journeys for man and woman.

The most conclusive studies to throw more light on the question of whether the typical Hollywood narrative protagonist's transformation from agentic to communal goals reflects a universal, rather than cultural, pattern in human life-course development examine human moral development. In an influential study, cognitive psychologist Lawrence Kohlberg (1981) proposed that individuals pass through a series of stages in moral reasoning as they learn how to interpret their obligations to others, and broaden their concerns from self to unrelated others. While most contemporary psychologists agree that the specifics of Kohlberg's theory are wrong, there is consensus that his general approach was correct (Bloom & Wynn, 2016), including support from wide-ranging cross-cultural studies (Snarey, 1985; Gibbs et al., 2007) and neuroscientific research into brain architecture and functioning (Prehn et al., 2015). If human moral development proceeds along a universal path that broadens concerns from the self to the wider community, then this provides support for the general trend of development from more agentic to communal goals in the Hero's Journey model. It could also be argued that the film protagonist's transformation in the Hero's Journey model may be understood as emulating the process of human moral development. In the next chapter I examine how this may be understood in evolutionary terms.

Another interesting point of note is that Vogler's Hero's Journey paradigm compresses the timespan of adult psychological transformation into the fictional timespan covered by a feature film narrative. This is typically somewhere between a few hours, where the narrative is presented as though in "real time", for example in Hitchcock's crime thriller *Rope* (1948) and the popular franchise action film *Die Hard* (1988), to a few months, for example in the epic science fiction film *Avatar* (2009), or years, for example in another epic science fiction film *Interstellar* (2014). The change from more agentic to more communal goals that tends to occur in highly generative North Americans over the mid-life period is generally compressed in film narratives into a much shorter timeframe. Furthermore, this change that most typically occurs in individuals during the early mid-life period is often transposed to feature film protagonists in their mid-twenties.

For McAdams, his Redemptive Self Plot is a quintessentially American cultural construction (2013, p.97), gathered from a history of narratives that include stories of the Puritan founding fathers (following Tocqueville, 1835/2000), escape from slavery, the rise of the American dream, the preachings of the self-help movement and Hollywood myths. As psychologists Kate McLean, Monisha Pasupathi and Jennifer Lilgendahl have argued, our lives inform our narratives, and our narratives inform the stories we feel we ought to tell

about our lives (McLean et al., 2007). The public shaping of narratives is also a very important social factor determining which stories we select to perpetuate (e.g. Tice, 1992). While women are more likely to tell stories about their experiences of fear, sadness and narratives themed with communion than men (McAdams et al., 2004), more positive stories are likely to be told for entertainment. Furthermore, audiences prefer personal stories about managing difficulties rather than those about vulnerability (McLean & Thorne, 2006). More generally, there is a process whereby personal narratives are refined until they become socially acceptable (McLean et al., 2007). In Chapter 5, I consider evolutionary explanations for gender differences in storytelling.

Cultural factors have been found to play significant roles in shaping autobiographical narratives. Chinese nationals tend to tell personal narratives with less detail, less focus on the self and more emphasis on morality than North Americans (Wang & Conway, 2004). These differences in narrative styles are even evident in children. In one study comparing the writing styles of North American and Chinese six-year olds, Chinese children were found to be more concerned with moral behaviour and authority figures, and showed more expressions and more situational details (Wang & Leichtman, 2000). These social mechanisms at play remind us that McAdams' Redemptive Self Plot is not everyman or everywoman's story, it is the typical life history recounted by a select group of *highly-generative* professional North Americans, who have made unusually high contributions towards their communities or society at large. McAdams notes that most North American adults are *moderately* generative, focusing their generativity on their family, and some are not generative at all. While parts of the Redemptive Self Plot may resemble the life stories that the majority of North American adults tell, or feel they *ought* to tell, as outlined earlier the Redemptive Self Plot is the contemporary idealised North American cultural narrative (McAdams, 2013). Similarly, Joseph Campbell noted a second "way of the multitudes" when surveying the global tradition of mythology. He writes: "[t]he multitude of men and women choose the less adventurous way of the comparatively unconscious civic and tribal routines", and adds that the multitudes are "saved" by the stories handed down by those choosing the redemptive "hero's way" instead (2008, p.17). Astrophysicist and science-fiction novelist David Brin argues that the monomyth was co-opted by kings and other rulers as a means of "extolling the all-importance of elites who tower over common women and men", thus maintaining the existing social order and suppressing the masses. Brin continues: "[p]laying a large part in the tragic mirroring of our spirit, demigod myths helped reinforce sameness and changelessness for millennia, transfixing people in nearly every culture, from *Gilgamesh* all the way to comic book super

heroes” (1999). In the next chapter I will continue to investigate why this form of mythic narrative has held its appeal, and whether analysing it through an evolutionary framework will help reveal any underlying psychological universals.

4.5 Cognitive narratology

Cognitive approaches to narrative analysis, or “cognitive narratology”, emerged in the late 1990s and encompass the study of the mental process involved in stories or storytelling. These may include research into language use, perception, creativity, memory, emotion, attention, problem-solving and thinking. In his seminal book on the subject, *The Mind and Its Stories: Narrative Universals and Human Emotion* (2003, p.2), literary scholar Patrick Colm Hogan writes: “the celebrated stories of any given society form an almost ideal body of data for research in emotion and emotion concepts.” Later, he notes:

...anyone who pays attention to this body of literary data by examining it cross-culturally, cannot help but be struck by the uniformity of the narrative structures and of the emotions and emotion ideas that are inseparable from those structures. More exactly there are extensive and detailed narrative universals. (2003, p.2)

Hogan explains that these narrative universals are universals in the way that humans understand emotions (and presumably other psychological attributes), and that these ideas are closely correlated with the psychological attributes themselves. The central aim of *The Mind and Its Stories* is to build the case for the cognitive analysis of stories, whether through examining patterns of plot, the understanding of emotions in narrative, or any of the other psychological elements relating to literature or its re-enactment, both of which appear to be universal phenomena.

In the last fifteen years a new set of cognitive approaches have emerged, using computer-based analysis to extract semantic data related to cognitive processes from films. In one study, information about character emotions from the audio descriptions of thirty films, intended for the visually-impaired, were analysed (Salway & Graham, 2003). Fear was found to be the most common emotion, and incidences of fear were often concentrated around the film’s climax. After this was typically a sequence in which relief was the most frequently expressed emotion, which the authors hypothesised as indicating a release of tension. One of the limitations of this study is that emotions were quantified only by frequency of display, and not by intensity. Thus, all instances of synonyms for fear in a film’s audio text

description were counted as displays of fear, regardless of whether the description described that fear as “terror” or “concern”. From the audience’s perspective, this discounts the significant difference in the intensity of feelings experienced at these moments, which is related to the dramatic importance of that scene. Another issue with this research is that the analysis fails to account for which character displays an emotion. If, for example, a “liked” protagonist displays fear, typically the audience would experience that fear too. However, if the antagonist displays fear, the audience would be more likely to experience pleasure, for reasons I outline in the next section. Therefore, in order to understand audience reactions to a film, not only is the frequency and intensity of a character’s emotion important, but also knowledge about which character experiences the emotion. Within my quantitative analysis I build upon this research by comparing the frequencies and intensities of displays of emotions by films’ protagonists, as measured by viewers’ ratings of these emotional displays.

4.5.1 Emotional contagion, disposition theory and moral judgments

Early research into audiences’ identification with screen characters posited empathy and emotional contagion as the primary mechanisms by which emotionally expressive characters evoked affective responses in audiences (see Zillmann & Cantor, 1977). Emotional contagion was defined as the process by which one person’s emotions or actions trigger similar affects or actions in another person, initially through a process of mimicry, which in turn arouses the emotions being mimicked (Hatfield et al., 1994). While both these processes are essential in explaining an audience’s emotional responses to the actions of film characters (Coplan, 2006), they fail to explain why a viewer fails to empathise with a protagonist (or antagonist) whose actions are judged to be morally wrong, even if the character is perceived to be experiencing a positive emotion.

In order to address this question, cognitive psychologists Dolf Zillmann and Joanne Cantor (1972) developed affective disposition theory, which contends that spectators’ moral judgments about characters drive their enjoyment of the narrative. They argue that viewers experience pleasurable feelings when protagonists, judged as morally correct, are rewarded by positive narrative outcomes, and antagonists, perceived as morally wrong, are punished with negative outcomes (Zillmann, 1996). Zillmann and Cantor’s theory is rooted in the premise that conflict between good and bad forces is essential in drama, and that because of this, audiences form dispositions towards characters according to whether their actions have been subjectively assessed as morally good or bad (1977). The greater the audience’s

empathy with a character, based on their initial judgments about the character's disposition and their perceived similarity to that character (Tsay & Krakowiak, 2011), the stronger the audience's emotional feelings in response to narrative outcomes. Once these dispositions towards characters are formed, they rarely change, so that when liked characters perform immoral acts, audiences justify these behaviours through the process of moral disengagement (Raney, 2004; Krakowiak & Tsay-Vogel, 2013). In *Avatar* (2009), for example, the protagonist Jake Sully is initially portrayed as being someone with no care for others, and who is prepared to trade intelligence about the Na'vi in order to receive an operation to restore the use of his legs when he returns home. Given that the narrative of the film is dependent on audience sympathy for Sully, the audience's moral disengagement during this sequence may explain how the audience excuse his immoral actions. This process is mediated by how much a character is liked (Tsay & Krakowiak, 2011).

The full range of emotions that the audience experiences during a film, or the film's "emotional rhythm" (David, 2014) or "emotional flow", appears to motivate the viewer to pay continued attention to the film. In turn, this appears to facilitate narrative transportation or engagement with the story, which strengthens the possibility of being persuaded by its narrative (Nabi et al., 2015). Research into health education has found that narratives using a shift in emotional valence, from negative to positive, are more successful in affecting behaviour change than consistently neutral emotion communications, and it is hypothesized that audiences may identify better with characters who experience emotional lows before highs (Carrera et al., 2010; Haider, 2005).

Developments of disposition theory have thus been useful in explaining the relationship between screen characters' moral behaviour and audiences' desires for a character's behaviour to be rewarded or punished through "just" narrative outcomes. However, disposition theory fails to explain *why* audiences base their dispositions towards fictional characters on their moral behaviour. Disposition theory also fails to explain why audiences desire narrative outcomes to reflect everyday ideas about a "just world", whereby good things are expected to happen to good people and bad things are expected to happen to bad people. In Chapter 5, I propose that Trivers' (1971) evolutionary theory of reciprocal altruism provides this missing link, suggesting that prevalent ideas about social justice may be seen as evolved "moral emotions".

The cognitive approach to the study of narratives paves the way for an evolutionary approach, since evolutionary theories provides biological explanations for the mental

phenomenon posed by cognitive explanations. While cognitive narratology focuses on narrative patterns that are best explained through mental processes – *what* these may be, and *how* they might operate – these mind-as-a-machine analogies fail to explain the essential question of *why* such processes have arisen. Some cognitive narratologists, including Patrick Hogan, express caution about evolutionary and biological explanations of behaviour being too rigidly deterministic and failing to take into account the wide variety of cultural choice and variation that exists (Hogan, 1997, Chapter 17). This is mostly due to a lack of appreciation of the flexibility that evolutionary explanations may offer, as I will elucidate further in the next chapter.

4.6 Discussion and directions for future research

Drawing together threads from psychological research from over the last century, several themes emerge. First, there is good evidence to support the theory that psychological processes are responsible for the majority of thematic universals – if not all. Our stories are the products of our minds, which process our experiences of the world through our common biological structures, mediated by historical, cultural, individual and aesthetic reshaping. Some fictional narratives may have started as true stories about an individual's life, pieced together in linear fashion from their most significant memories and forged into redemptive sequences where good outcomes result from difficult events. As these stories are told and retold, they will have evolved in response to audience feedback. The most interesting narratives that fit with current cultural ideas, told by the most influential – and probably the most highly generative – members of society, will be the stories that are most likely to stand the test of time and be repeated across generations. Over time these narratives will become more thematically coherent, which inevitably means that the initial events of the narrative are distorted or lost in order to better serve the general coherence of the story. Further changes come about when these narratives are passed from one culture to another. The embellishments of the story and particular ways of life that made sense in one culture make less sense in another, so the details of the narrative are changed in order to keep the story relevant and to give it the best chance of competing with other narratives that are being passed around.

A subset of these narratives includes hero pattern stories that follow the protagonist's biographical life events, from early adulthood through to later life. One essential element of these stories is the protagonist's transformation from having agentic to communal goals. I

propose that this is modelled on the typical pattern of moral development in middle-aged adults. While in real-life this change from more selfish to communal goals tends to span a ten- to twenty-year mid-life period, in feature films this timeframe is typically compressed to a few months of story time, in order to keep the film's pace as dynamic as possible.

Other popular narratives, including folktales, will have originated in fictional ideas. Once again, through the process of cultural selection and then diffusion, only the most engaging and instructive ideas will have been propagated, and through this process these stories will have been refined to make them culturally and historically relevant, reflecting the norms and ideals of the society in which they are told. Since these stories will have been constructed using the same psychological tools that are employed to make sense of our life narratives, they nearly always follow similar rules of linear time, coherence, redemptive sequences and character transformation.

The specific assertions made by advocates of the Mythological School of screenwriting need to be examined in turn, rather than accepting the entirety of the Hero's Journey approach as is, or dismissing it outright. Examples of questions which need to be investigated include asking whether the Call to Adventure is universal to all narratives. If not, is it confined to a subset of narratives? In what ways does the Call to Adventure vary across different cultures? To fully understand whether the Hero's Journey is a useful model for studios when developing film narratives, or making decisions about which screenplays to greenlight, research needs to qualify which aspects of the template are necessary for commercial or critical success, and the relative contribution of each of these elements.

If psychological models and approaches provide the best framework for the explanation of narrative universals, then they should also provide convincing explanations for why stories are told. Campbell contends that one of the functions of myth is to guide humanity through the stages of our life (2011, p.11–12). If the purpose of myth is to instruct, it could be argued that science would do this better (Segal, 1990, p.265). However, this misses the point that humans appear to more readily absorb information in story form, and that reading fictional stories or watching films is a highly enjoyable process. Campbell's second proposed function of myth, to reveal human unity with the cosmos (Segal, 1990, p.270), is more problematic. In addition to there being no scientific evidence to support this idea, it is also an interpretation that is virtually impossible to draw from the majority of myths. A third possible function of

myths is that they help make sense of our lives and provide us with meaning, as Rollo May and narrative psychologists have argued.

In the next chapter I investigate how some of these possible functions of fictional storytelling may be understood through insights provided by evolutionary psychology, which attempts to explain psychological attributes as adaptations that have evolved as a result of natural or sexual selection during human evolution. If human motivations are important to the analysis of fictional narratives, how can these be best defined using an evolutionary framework? Following Abraham Maslow's hierarchy of needs, is there any evidence from research in evolutionary psychology to support the existence of a hierarchy of motivations? If so, could the ranking of a film protagonist's primary motivation in this hierarchy mediate the popularity of a narrative? Is it possible that the redemptive sequences of the monomyth and Redemptive Self Plot have an evolutionary origin, and if so, what purpose might this serve? The next chapter will attempt to answer these questions, and others, while examining how developments over the last twenty-five years in the evolutionary sciences have delivered insights into the study of narrative universals and the function of storytelling.

5 The Search for Narrative Universals

Part 3: Evolutionary Explanations

In my previous chapter on psychological approaches to the search for universals, I drew on evidence from narrative, humanistic, developmental, cognitive and analytical psychology as well as mythology and psychoanalysis in order to conclude that human psychological attributes make a major contribution to the explanation of narrative universals. I argued that fictional narratives from across the world often feature similar themes for two reasons. First, fictional narratives are writers' mimeses of universal psychological phenomena, mediated by individual, aesthetic and cultural concerns. Second, storytellers are constrained by the same biological and cognitive limitations. Even though some stories have propagated through a process of cultural diffusion, they will only continue to be retold if they resonate with their audiences and appeal to universal attributes of the human mind. The same can be argued of film narratives. As long as audiences are free to choose which films they watch from a variety on offer, then the most frequently chosen films must engage their audiences due to their appeal to common psychological structures. If such common structures in the human mind exist, then rationalist, scientific explanations point towards these having been selected through evolutionary processes. Within this chapter, I investigate how narrative universals are explained through insights from the burgeoning fields of Evolutionary Psychology and the related field of Evolutionary Criticism. Theories developed within these fields may also provide answers to important questions like why humans spend so much time within fictional worlds. Why is this experience is often so pleasurable? Why has storytelling arisen, and what is its function?

In this chapter I trace developments in the evolutionary sciences, from Charles Darwin's observation of the process of "natural selection" (1859/2011) to the rise of the new field of Evolutionary Psychology, which draws on evolutionary explanations to account for the workings of the human mind. Theories developed by evolutionary psychologists have in turn been influential in the critical analysis of literature using evolutionary ideas. Within this paradigm, known as Literary Darwinism or Evolutionary Criticism, literary scholars apply ideas from the evolutionary sciences to the study of literature in order to answer questions about the function of fiction, as well as the appeal of certain narrative themes and motifs. Since the turn of the twenty-first century Literary Darwinists have rallied to the call of the

American biologist E.O. Wilson, who wrote in his influential book *Consilience: The unity of knowledge* (1999) of his desire for consilience between sciences and the humanities, which, he argued, should be united through evolutionary theory.

In tracing the development of ideas within Evolutionary Psychology and Literary Darwinism, I pay particular attention to evolutionary theories of human motivation, personality and emotions, since characters' goals, personalities and emotions are generally considered by authors of screenwriting manuals to be central to engaging film narratives. These evolutionary theories enable me to evaluate the validity of the widely-received claim that primal, psychological attributes of fictional film protagonists contribute towards the universal appeal of films featuring these protagonists, as measured by global box office ticket sales. As well as analysing protagonists' verbal and non-verbal behaviour for motivational, emotional and trait-related cues, I also consider how actors' physical looks may contribute towards audiences' impressions of their personality traits, since evidence demonstrates that visual cues about personality may be read from the face and demeanour. Thus, an actor's physical look may be as important as verbal and non-verbal cues in communicating character to an audience, and in determining how that character is received.

In addition to appraising evolutionary theories of motivation, personality and emotions, I also present evolutionary theories related to the "*optimism bias*", or the pervasive human tendency to underestimate past, present and future risks in relation to the self in a self-serving attribution bias. Since a wealth of cross-cultural evidence supports the view that this bias towards "positive illusions" is universal, it follows that if screenwriters consciously or unconsciously emulate common, psychological attributes when developing screen characters, an optimism bias among fictional characters should be a narrative universal. This optimistic bias towards their future explains why the majority of film protagonists demonstrate a conviction that they will fulfill their goals.

In the final section, I conclude that an evolutionary framework provides the best structure for the analysis of narrative universals in fiction, including screenplays and feature film narratives. I also propose that an evolutionary framework for examining protagonists' psychological attributes may be very useful in providing insights into cross-cultural similarities and differences in audiences' reception of these traits. Last of all, I suggest avenues for future research.

5.1 From the evolutionary sciences to evolutionary psychology

The earliest ideas that we now consider to relate to evolution precede Charles Darwin. However, it was the British naturalist and geologist who established that all forms of life have evolved from one common ancestor, and with this, Darwin provided the foundation for modern evolutionary biology. In his seminal work *On the Origin of Species* (1859/2011), Darwin argued that evolution arises through “natural selection”. Having observed that attributes of organisms, for example wing length, vary in all sorts of ways, Darwin concluded that only some of these variations are inherited. He hypothesized that these must offer survival or “fitness” advantages, by helping the organism to survive in an environment where resources are limited. For example, finches with beaks that are better shaped to be able to crack open nuts would be expected to survive better in a woodland environment in which the primary food source is nuts, increasing their likelihood of surviving and passing on their beak shapes to the next generation through their genes.

Darwin also noticed that sexes in some species show a considerable degree of variation in size and structure. In order to explain this, Darwin hypothesized that there must be “intrasexual competition”, or competition between members of the same sex, which results in higher chances of mating for more successful individuals. A stronger or more athletic stag, for example, will be more likely to win fights with other stags in order to gain access to females. Because of this, heritable qualities leading to increased strength or athletic ability will be passed on to future generations, while those that have resulted in stags losing mating-access competitions will not be inherited.

In the early twentieth century, new ideas from the field of classical genetics were integrated with Darwin’s theories in order to create the “Modern Evolutionary Synthesis”, which is considered to be one of biology’s major achievements. Central to the Modern Synthesis are five core ideas. First, significant “phenotypic” variation – the range in observable characteristics of an organism, produced by an interaction between their “genotype”, or genetic constitution, and the environment – arises from genetic mutations, which emerge independently of natural selection. Second, because most favourable mutations have small phenotypic effects, the process of evolution is very slow. Third, inheritance is genetic. Fourth, adaptation is explained solely through natural selection. Fifth, “macro-evolution” arises through the accumulation of differences that are brought about through “micro-evolutionary” processes (Laland et al., 2015).

Since the advent of this Modern Synthesis, the field of evolutionary biology has continued to develop with new theoretical and empirical findings. These are covered in depth by Laland et al. (2015), who go on to propose a new “Extended Evolutionary Synthesis”. To include a comprehensive overview of these developments is beyond the scope of this thesis. Instead, this chapter outlines the most important new ideas from the evolutionary sciences that are most relevant to an evolutionary analysis of psychological universals in the characters of fictional feature films. These are the theories of “inclusive fitness”, “group selection” and “reciprocal altruism”.

According to the British evolutionary biologist William Donald Hamilton, Darwinian ideas about an organism’s fitness, or the measure of its reproductive success through its production of offspring, are too narrow a concept to be useful in describing the process of evolution. Instead, Hamilton hypothesized that an organism’s inclusive fitness is better measured as its ability to pass on its genes, regardless of whether or not the organism produces offspring. In Hamilton’s “kin selection theory” (1964), he proposed that parental care and care of other kin, who share the organism’s genes, also increases the organism’s evolutionary success. Applying these ideas to an analysis of the motivations of the film protagonist in the animated family film *Frozen* (2013), it could be argued that when Princess Anna risks her life to save her sister from death, in the writing of her character the screenwriter has emulated human behaviour that is governed by kin selection.

Another important but highly controversial idea developing scholarly thinking about the process of evolution was formulated in the mid-1960s. In *Animal Dispersion in Relation to Social Behaviour* (Braestrup, 1963), British zoologist Vero Copner Wynne-Edwards proposed that adaptations evolve not for the benefit of the individual, but for the benefit of the group. Accordingly, only organisms behaving in ways that might benefit the group will reap survival advantages, for example through rationing their share of food, if food is a scarce resource. A few years later, Austrian zoologist Konrad Lorenz (1966/2002) also asserted that animals behave in ways to promote the good of the species. These ideas about “group selection” were almost immediately rebutted by American evolutionary biologist George Williams (1966/2008), who instead argued that although theoretically possible, this phenomenon was likely to be an extremely weak factor in evolution because selection operating on individual differences within a species undermines the power of selection operating at the level of the group. Williams’ arguments were so persuasive that they were taken up by the majority of scholars within evolutionary biology, who provided a large body

of evidence over the following decades to demonstrate that group selection was rare or non-existent (Smith, 1964; Maynard-Smith, 1976; Williams, 2008).

However, since the 1970s there has been renewed interest in group selection (Wilson, 1975; Colwell, 1981; Lehmann et al., 2007; Leigh, 2010; Marshall, 2011), and recent research suggests that kin selection may not be sufficient to explain large-scale cooperation in human societies. Instead, it has been argued that “cultural group selection”, a form of multi-level selection through which traits found in more successful human cultural groups are more likely to spread, must be inferred as an explanation (Richerson et al., 2014). With scholars continuing to debate these theoretical possibilities, further research is needed in order to determine how frequently cultural group selection actually occurs.

Relating the debate about explanations of group selection versus kin selection to film narratives, the behaviour of the typical heroic protagonists of action-adventure blockbusters may be explained in one of two ways. According to the theory of cultural group selection, it could be argued that heroic film protagonists are modelled on real-life prosocial individuals who risk their lives in order to save their cultural group by acting on evolved “tribal social instincts” (Richerson et al., 2014) which promote the success of the group. For example, in the commercially successful US-produced action film *The Hunger Games: Mockingjay – Part 1* (2014), the protagonist Katniss Everdeen risks her life on multiple occasions in order to try and save other civilians from the oppressive government. Alternatively, using the theory of kin selection as an explanation, the actions of life-risking heroic protagonists are better understood as instances where their own survival goals are aligned with survival of the group, and where kin-recognition mechanisms have been manipulated by cultural myths about the importance of helping “faux-family” or “brothers-in-arms” (Pinker, 2012). For example, in *The Hobbit: An Unexpected Journey* (2012) the protagonist Bilbo Baggins risks his life to help his friends, the band of dwarves, return to their home.

“Reciprocal altruism” is another central concept in evolutionary explanations of the risky prosocial behaviour of typical action blockbuster hero. Evolutionary biologist Robert Trivers (1971) contributed the seminal idea that acts of reciprocal altruism, whereby one organism benefits another that is not closely related at apparent cost to its own individual fitness, have evolved because they increase the likelihood that the other organism will reciprocate with a beneficial act at some later point. In other words, reciprocal altruism is “cooperation between two or more individuals for mutual benefit” (Barkow, Cosmides & Tooby, 1995). In order to promote reciprocal altruism, Trivers proposes that a sophisticated system regulating the

moral emotions is likely to have evolved. This is expected to include the development of friendships with individuals who are most likely to reciprocate altruistic acts, sophisticated cheater detection, moralistic aggression directed towards those who cheat, gratitude and sympathy, guilt and acts of kindness in order to make amends for “immoral behaviours”, grouping together with other individuals so as to better deal with cheaters or similar, and developmental plasticity, which would allow moral senses to be in part educated so as to permit cheating when it is adaptive to local environments (Trivers, 1971, p. 53).

These moral emotions remain such a major human preoccupation that ideas about morality underlie the premises of the majority of film and other fictional narratives. For example, in the sci-fi Western thriller *Westworld* (1973), and the adapted television series of the same name (2016), one of the main themes investigates how humans might behave towards intelligent and emotionally-capable robots. This interest in the moral emotions is typical of many fictional works because they are concerned with the very fabric of what it means to be human. Taking another example from film, the premise and popular appeal of *The Godfather* (1972) may be best understood through Trivers’ concept of moralistic aggression. In the opening scene, fictional mafia boss Vito Corleone threatens revenge on behalf of a victimized undertaker, and demonstrates the importance of reciprocity in traditional societies (Pinker in Shoard et al., 2016). Later in the film, one of Corleone’s rivals, Sollozzo, explains why the human disposition towards violence (Gómez et al., 2016) evolved to be a selective and not indiscriminate strategy: “I don’t like violence, Tom. I’m a businessman. Blood is a big expense” (Puzo and Coppola, 1972).

In addition to his seminal work on reciprocal altruism, Trivers also advanced influential theories about parental investment and parent-offspring conflict (1974). Hypothesising about parental expenditure towards offspring, Trivers argued this comes at a cost to their inclusive fitness. This results in conflict between parent and child, since both must balance different requirements. For example, while the child will want to secure the largest share of parental resources, this may not be of optimum benefit for the parent.

Another milestone in the development of evolutionary thinking was American biologist Edward O. Wilson’s (1975/2009) proposal to synthesise ideas from behavioural ecology, anthropology, evolution, zoology, population genetics, archaeology, cellular biology, integrative neurophysiology and comparative psychology in his 1975 book *Sociobiology: The New Synthesis*. In this seminal text, E.O. Wilson connected an immense range of ideas with the conclusion that human psychology is best understood as a response to evolutionary

selection pressures. At the time of publication Wilson's arguments were highly controversial, since he had little empirical evidence on which to draw his conclusions and some of his core ideas were misunderstood. Several dissenters mistakenly believed that if human behaviour had evolutionary origins it would be genetically determined and thus immutable. However, this discounts the role of the environment in shaping phenotype and developmental plasticity (Buss, 1999). By the late 1970s, scholarly support gathered behind E.O. Wilson's ideas and the cognitive revolution in psychology paved the way for the new field of Evolutionary Psychology. In this new paradigm modern psychology is fused with evolutionary biology (Buss, 1999), and theories attempt to identify and explain psychological traits as the products of natural or sexual selection.

5.2 The development of evolutionary psychology

The new field of Evolutionary Psychology began in earnest with the publication of two books. The first was *The Evolution of Human Sexuality* (1979) by Donald Symons, and the second was *The Adapted Mind* (1992) by Leda Cosmides and John Tooby. In *The Adapted Mind*, the authors set out their arguments against the Standard Social Science Model (SSSM), also known as "cultural determinism", "social constructionism", or the view that the mind is a "blank slate" (Pinker, 2004). According to this framework, humans have virtually no instincts, and instead acquire their behaviours through learning and cultural transmission (Wilson, 2005). When related to fictional film narratives, a typical hypothesis from this viewpoint is that films featuring "characters who are self-willing, self-aware, able to affect and change their world in an uncomplicated linear continuum of cause-and-effect" are a product of Hollywood's cultural values (Clayton, 2010, p. 178). Furthermore, the global popularity of films featuring protagonists with these attributes stands testament to Hollywood's ability to "devour difference and homogenize global diversity" (Clayton, 2010, p. 178). Contrary to the SSSM, Barkow, Cosmides and Tooby (1995) argue instead for the Integrated Model (IM) or Integrated Causal Model (ICM), which takes the view that the minds of all organisms are genetically adapted to their ancestral environments. They posit that since there are many adaptive problems to solve, the human brain has evolved as a collection of modular, domain-specific processors or specialized adaptations, rather than one generalized adaptation. Furthermore, human behaviour is the result of interactions between evolved psychological mechanisms and cultural and environmental influences. Arising from human behaviour, culture itself is based on a universal human nature, which is constrained by

biology (Barkow, Cosmides & Tooby, 1992). Since the human mind is thought to have adapted to solve problems of inclusive fitness in the Paleolithic era, there are a number of ways in which modules of the mind behave in maladaptive ways in today's modern environment. These include ancestrally-developed desires for foods high in fat and sugar, which often lead to health problems in the contemporary environment where such foods are readily available. Since this theoretical position reconciles evolutionary and biological explanations of behaviour with the argument that culture is socially constructed, it has also been described as "Evolutionary Social Constructivism" (Wilson, 2005).

Relating this viewpoint to film narratives, it could be argued that broad differences in the portrayal of the sexes in films may reflect adaptive strategies that evolved in ancestral environments (Wilson, 2005, pp.112-113). However, given that recent reports have concluded that working male screenwriters and directors by far outnumber working female screenwriters and directors in the US as a result of systemic bias (Smith, Choueti & Piepr, 2015), it is likely that broad differences in the portrayal of the sexes on screen also reflect a predominantly male viewpoint as well as producers' ideas about the preferences of film audiences.

The results of recent research pose questions about the degree to which the human mind is ill-adapted to today's environment. Using a new technique which appears to identify natural selection at work in the human genome, geneticist Jonathan Pritchard and his team found a number of genetic changes that have occurred in the British population over the last 2000 years, including increased lactose tolerance, fairer hair and lighter skin colour (Field et al., 2016). These unexpected changes demonstrate that humans are still evolving. It is therefore possible that the human mind is somewhat better adapted to the modern environment than evolutionary psychologists would contend. Another argument against the current conception of Evolutionary Psychology contends that the mind has evolved as a series of interdependent adaptive changes, which work together in a complex fashion rather than as discrete modules that have specialized to solve independent problems of adaptation (Shea, 2012). This "New Thinking" emphasises the complementary roles of gene-based and culturally-based selection processes and plasticity in the development of adaptive features. Relating this viewpoint to literature and film, it could be argued that "narratives have a powerful effect on human behaviour and adaptation to current environments proceeds in part through the creation and selection of alternative narratives" (Wilson, 2005, pp.112-113).

Since firm conclusions about the possible role of culturally-based selection processes on the evolution of the mind cannot be drawn until further research tips the scales for or against this theoretical viewpoint, my empirical analysis is instead guided by theory and research by evolutionary psychologists working within the paradigm of the Integrated Model. Over the last twenty-five years this paradigm has produced numerous hypotheses which have been successfully tested. These have given rise to an accumulation of supportive empirical evidence on subjects ranging from human mating strategies to the development of prosocial behaviour (e.g. Buss, 2003; Buss, 1989; Buss et al., 1998; Buss, 2013; Lewis et al., 2014; Buss, 1995; Eagly & Wood, 1999; Plomin & Buss, 1984).

5.3 Cultural evolution and dual-inheritance theory

The idea that culture evolves may be traced all the way back to Darwin, who noted that humans have tended to acquire higher standards of “knowledge, morals and religion” throughout their history (1871/1981, p.74). Darwin argued that both “inherited habits” and customs contributed towards human evolution, and observed that language plays a vital role in this process. Darwin’s ideas about the contribution that inherited habits make towards human evolution influenced several other scholars in the late nineteenth century. These included the philosopher David George Ritchie, whose work paved the way for the development of “Dual Inheritance Theory”. During the first half of the twentieth century Darwinian ideas became far less popular, until the rediscovery of Mendelian genetics and the Modern Evolutionary Synthesis. In the mid-1960s the American social scientist Donald T. Campbell applied evolutionary ideas about “blind variation and selective retention” (BVSr) to creative processes, which set the stage for two publications about cultural evolution in 1976. The first of these was the popular science book *The Selfish Gene*, written by the evolutionary biologist Richard Dawkins. In this book, Dawkins introduces the idea of the “meme”, analogous to the gene, as the basic unit carrying cultural ideas, which may be transmitted through language, gestures, rituals or other processes of social learning. In the same year, geneticists Marcus Feldman and Luigi Cavalli-Sforza published the first model of gene-culture evolution. Together, these publications paved the way for the development of Dual Inheritance Theory (DIT), which asserts that genetic evolution favours the selection of certain cultural traits, for example the cognitive architecture which stores cultural information. This, in turn, may affect the speed of genetic evolution. In other words, cultural traits alter the physical and social environments on which genetic selection acts.

Human behaviour is therefore a result of two interacting evolutionary processes: genetic and cultural evolution (Cavalli-Sforza & Feldman, 1981; Lumsden & Wilson, 2005). In the 1980s a handful of academics established that cultural change may be mathematically modelled using evolutionary process (Cavalli-Sforza & Feldman, 1981; Boyd & Richerson, 1988). This process of transmitting cultural ideas, beliefs, languages, knowledge, customs and skills from one individual to another occurs through social learning rather than genetic inheritance, but is thought to broadly conform to Darwinian mechanisms. For example, the most adaptive cultural ideas and skills to suit a particular environment are “selected”, and “random variation” of cultural ideas occurs through imperfect social learning. Through these processes, biologists Richerson and Boyd (1988) argue that cultural evolution enables humans to rapidly adapt to changes in the contemporary environment, which genetic evolution cannot keep pace with. The relationships between cultural and genetic transmission have been studied through the use of phylogenetic trees, which trace the evolutionary history among individuals or groups, in order to draw an evolutionary hypothesis about the ancestry of a particular group or cultural artifact.

Over the last decade this process has been applied within the new field of Computational Folkloristics in order to trace contemporary folk-tales back to their origins. This enables the mapping of developments in the structure of details of a story (Tangherlini et al., 2016), the identification of relationships between folktales and how they may have merged with other stories, and the evolution of specific folktales to be matched to be related to groups telling these stories (Tehrani, 2013). The recent films *Hoodwinked* (2005) and *Red Riding Hood* (2011), for example, have been adapted from the European oral folk tale “Little Red Riding Hood”, which can be traced back to an eleventh century Latin poem (Tehrani, 2013). Such comparative phylogenetic analyses may help shed light on the kinds of stories told by ancestral societies and allow scholars to draw conclusions about why these stories have continued psychological appeal (Graça da Silva & Tehrani, 2016).

Critics of dual-inheritance theory argue that cultural evolution cannot be explained through the algorithms used to explain neo-Darwinian selection, and that there is no merit in using evolution as an overly-simplistic metaphor for history (Fracchia & Lewontin, 1999). Other scholars have argued that the processes by which cultural ideas are transmitted differ in fundamental ways from genetic evolution. For example, mental representations of cultural ideas are distributed across assemblies of neurons and so cannot be considered to be discrete, particulate carriers like the gene (Gabora, 2008). One of the most important arguments against dual-inheritance theory is that it fails to satisfactorily take into account the individual

creative force in reshaping cultural ideas. Unlike genetic transmission, humans often use their creative agency in changing ideas that they have received before passing them on, rather than just selecting between ideas (Gabora, 2008). The weight of current evidence supports the idea that dual-inheritance theory provides a useful metaphor for the understanding of gene-culture co-evolution. However, since the two processes of genetic and cultural evolution require different mathematical and biological explanations, they are not identical.

5.4 Literary Darwinism

Over the last twenty-five years, evolutionary science has reinvigorated not only the biological and social sciences, but also literary criticism. The synthesis of knowledge from different fields within the natural and human sciences has opened up exciting areas of new research. Within the emerging field of Evolutionary Criticism, a handful of scholars including David Bordwell, Brian Boyd, Joseph Carroll, Denis Dutton, Ellen Dissanayake, Jonathan Gottschall, Daniel Nettle and Steven Pinker have taken the first steps to reconcile cultural explanations of literature with the evolutionary sciences.

Anthropologist Ellen Dissanayake (1996) was one of the first scholars to propose that art is a human adaptation which must have an evolutionary purpose. To support this claim, she makes three observations. First, human art is ubiquitous. Second, it requires effort; and third, it is highly pleasurable, both to the artist and to the spectator. Since evolution has tended to make adaptive behaviours physiologically rewarding, and since energy tends only to be expended for adaptive purposes, Dissanayake (2000) argues that the production of art must increase the artist's inclusive fitness. This, she posits, is achieved by raising the artist's status, which in turn would make the artist more attractive as a potential mate. Evolutionary psychologists John Tooby and Leda Cosmides (Tooby & Cosmides, 2001) observe that the creation of imagined, fictional worlds appears to be a cross-cultural universal that is intrinsically rewarding. They note that fictional worlds activate emotion systems while inhibiting action systems, so in some ways engagement with fictional worlds is like dreaming. In order for this to happen, it appears that humans have developed specialized cognitive apparatus that enable us to create and engage with imaginary worlds. Cosmides and Tooby argue that there are three possible explanations for this human propensity towards fiction. The first is that humans find joy in fiction because it has an *adaptive* purpose, in other words it solves a problem of human inclusive fitness. Alternatively, fiction may have arisen as a *byproduct* of adaptation. It is possible that the utilisation of fictional narratives provides

no advantage to survival, but that fiction may instead have arisen as a supportive mechanism to another, adaptive psychological module. Such byproducts are also known as *exaptations* or *spandrels* (Buss et al., 1998). For example, the belly button has no adaptive function in its own right, but is thought to have arisen as a byproduct of the requirement of an umbilical cord to feed a growing foetus (Barkow, Cosmides & Tooby, 1992). A third explanation is fiction has arisen as “noise” or “evolutionary fluff” that does not contribute to or detract from the architectural design of an adaptive system.

The majority of literary Darwinists and evolutionary psychologists argue that fiction has an adaptive function. Tooby and Cosmides (2001) propose that fictional representations of events in the mind have evolved in order to enhance foresight, planning and empathy, which increase an individual’s inclusive fitness. According to Tooby and Cosmides, humans prefer to store this information in story form, since the individualized presentation of knowledge through a human viewpoint reflects everyday interaction with the world. Research in this area indicates that information presented within narrative evokes greater affective responses, while information presented within the context of statistics evokes greater cognitive effects (Kopfman et al., 1998; De Wit, Das & Vet, 2008). This may explain why social information that needs to be retrieved rapidly in the context of social interaction is best encoded in narrative form.

Other evolutionary psychologists believe that storytelling itself may be an evolutionary adaptation. Michelle Scalise Sugiyama (1996), for example, asserts that storytelling is a transaction that may have adaptive benefits for both storyteller and listener. For the listener, the story provides useful information about the environment, while for the storyteller, the listener’s reception of the narrative may reveal information about the listener’s inclusive fitness. Responding to Sugiyama, philologist Katja Mellman (2012) notes that since narrative format can be sufficiently well explained by the cognitive workings of the mind, there is no reason to assume that storytelling has evolved as a specific adaptation. Instead, she proposes, it is best explained as the “blended result” of a number of other adaptations and biological limitations, which cause us to talk about or narrate upon specific topics in specific situations. Taking a similar viewpoint to Sugiyama, evolutionary psychologist Geoffrey Miller proposes that through the process of sexual selection, a talent for poetry may have arisen as an indicator of verbal intelligence in courtship display (in Boyd, Carroll & Gottschall, 2010, p. 172). Offering some support for Miller’s proposition that displays of verbal creativity and intelligence may be sexually selected, a recent study found that men who were perceived as being good storytellers were rated by women as being more attractive

prospects for long-term (but not short-term) partners. By contrast, men did not rate women who were perceived to be good storytellers as any more attractive (Donahue & Green, 2016). The researchers argue that storytelling ability may reflect a male's ability to gain resources, through the ability to influence others and gain positions of authority in society. Given that the study was confined to North American undergraduate students, cultural explanations for these gender differences in linking storytelling ability to attractiveness cannot be ruled out. Furthermore, despite some scholars' suggestions that men's higher drives for status explain why males outnumber females as popular storytellers, filmmakers and screenwriters (Boyd, 2009, p.195), systematic bias against the hiring of female directors and screenwriters within the US film industry plays a major role in explaining this gender disparity (Smith, Choueti & Pieper, 2015), as I have noted.

A counter-argument to Miller's proposition that verbally creative literature may be sexually selected as an indicator of neural fitness is provided by the literary Darwinist Brian Boyd (2008). He suggests that the sexual selection theory would predict that art and literature were primarily created and consumed during courtship, which is clearly not the case. However, there are many well-documented sexually selected attributes which are displayed throughout the organism's life-course and not confined to the mating period alone, including the peacock's tail feathers. Thus, Boyd's proposition overlooks the fact that if a propensity towards displaying verbal creativity and intelligence through fiction is at least in part hardwired, it may be displayed throughout life and not just confined to courtship. In the same way, displays of status, thought to be related to reproductive success (Buss, 1989), are also exhibited throughout life.

An alternative to the hypothesis that displays of verbal creativity and intelligence are sexually selected is the idea that art and literature have a functional basis. Boyd (2008) proposes that art is a form of cognitive play that trains the mind for creativity and flexible thinking. According to Boyd, the human ability to create and enjoy fictional stories may be an adaptation in its own right since, like other cognitive adaptations, it requires the processing of limited perceptual information into rich conceptual output. Moreover, the human ability for fiction is impossible to suppress – it is very hard *not* to imagine and engage with a well-told story (Boyd, 2009, p.189). Boyd argues that fiction improves the capacity to rapidly interpret real-life social events through focusing attention on what is most strategically important. Although Cosmides and Tooby (2000) have argued that obviously-false scenarios do not aid future planning, Boyd proposes that through providing opportunities to engage with a greater range of scenarios, fiction enables the individual to

learn about more opportunities and risks, and to develop better strategies to deal with these (2009, p.193). Thus, according to Boyd, literature has two adaptive functions: to increase social cohesion, and to raise the status of gifted storytellers through engaging the attention of others. However, although it seems that humans appear to use fictional narratives as a method of promoting social cohesion, it is very difficult to prove that this is in fact the case. In order to confirm Boyd's theory, it would also have to be demonstrated that the telling of fictional stories has been adaptively selected as the best method of promoting social cohesion over and above other methods (Pinker, 2007). Also emphasizing the functional value of literature, literary Darwinists Joseph Carroll (1995) and Denis Dutton (2009) assert that the arts help organize the human mind, providing emotionally and aesthetically modulated models of reality which allow individuals to gain better understandings of their own and others' motivations.

While the explanations offered by Tooby and Cosmides, Sugiyama, Mellman, Miller, Boyd, Carroll and Dutton all attempt to explain the evolution of the human propensity towards fiction purely through its adaptive functions, Pinker (2007) suggests that fiction may instead best be understood as being both adaptive and a by-product of adaptation, through its dual functions of being able to delight and instruct. As a by-product, fiction may have co-opted the human motivational system that rewards individuals with pleasurable feelings when they experience the outcomes of behaviours that are adaptively useful, for example sex, finding safety, and locating information-rich environments. Thus, fiction may provide pleasurable rewards through enabling "virtual experiences" of conquering enemies, winning attractive sexual partners, acquiring status or exploring information-rich environments. Through presenting detailed information in the most palatable form, Pinker suggests that fiction is able to best serve its adaptive function of instructing (2007).

Behavioural scientist Daniel Nettle (2005) makes the case that fiction is an intensified form of "simulated gossip", which has adapted in order to allow humans to track the actions of others in a social context, and is intensified so as to compete for attention with ordinary social conversations. In these ordinary conversations, humans often relate to stories about the biological fitness of others in their social circle, and according to Nettle, the more extreme the fitness stake, the more interesting the story. Thus, a story about a friend having an affair is more engaging than a story about a friend's day spent shopping. Because of this, Nettle predicts that the power of a fictional story to grab attention is likely to increase as the fitness-

stakes rise, particularly if the story is related to gaining limited social resources, including mate choice, survival and status competition. In the previous chapter I explored the similar ideas of screenwriting manual author Linda Seger on the relationship between a hierarchy of motivations, akin to Maslow's "hierarchy of needs" (1943), and creating "jeopardy" in a film by placing something that the protagonist values "at stake" (Seger, 1994, p.125).

Lending support to Nettle's hypothesis, an examination of the films ranking most highly in the global box office during the last five years reveals that contemporary blockbusters have tended to be dominated by themes of individual and group survival, with sub-plots about mating. For example, *The Hunger Games* film series (2012, 2013, 2014, 2015) centres around protagonist Katniss Everdeen's attempts to survive, to save her group and to demonstrate her superior physical skills in competition against others. The major sub-plot running through the series portrays Katniss' struggle with mate choice as she decides between Peter and Gale. By contrast, films with themes that could be defined as being in the "memetic domain" (Bernard et al., 2005), or which examine specific cultural ideas, are rarely hits at the box office, but may on occasion achieve critical success. The US-produced black comedy *Birdman or (The Unexpected Virtue of Ignorance)* (2014), for example, examines culturally-particular ideas about self-actualization and the meaning of artistic success. While the film drew widespread critical acclaim and won four Academy Awards, it drew relatively low figures at the North American domestic and international box office (Box Office Mojo 2015c), demonstrating its more niche appeal.

However, without a full empirical analysis of the contribution of a film protagonist's primary fitness stake towards a film's domestic and global ticket sales, it is impossible to draw full conclusions. One point of interest is that horror films, which often draw on themes of survival and mating, tend to appeal to niche audiences. It may be that in order to maximize the power of a fictional narrative to gain attention, the story needs to appeal to the highest stakes of biological fitness *within certain limits*. In other words, there may be optimum levels of displays of survival and courtship or sex for films to reach their maximum audiences, but displays over this level may put audiences off. Scholars Anemone Cerridwen and Dean Keith Simonton (2009) found that while cinematic violence is associated with domestic US and global box office success, displays of nudity or sex were not associated with higher ticket sales. Graphic sexual displays therefore appear to turn cinema audiences away, which may in part be due to the public nature of the cinema-viewing experience. Further research is required to determine the relationship between protagonists' romantic or courting activities and films' ticket sales.

Introducing evolutionary ideas to film theory, American film theorist David Bordwell (1996), argues that biological universals constrain stylistic conventions in filmmaking, which are specified through cultural norms. For Bordwell, the pan-cultural practices of having fictional, on-screen characters typically face each other, in a three-quarters view towards the camera, results from biological constraints on the human cognitive perceptual system. That is to say that Bordwell (2008) takes the view that some stylistic conventions of cinema are by-products of evolutionary adaptations. Other scholars have argued that films may be perfectly constructed so as to appeal to human cognitive and perceptual dispositions (Cutting, 2007; Ghazanfar & Shepherd, 2011). In support of this view, Bordwell (2008) argues that universal biological constraints have resulted in cultures separated by geography and history coming up with some similar solutions to universal challenges in stylistic filmmaking conventions. These include “shot/reverse shot editing”, in which a film cuts from displaying one figure to another when they are interacting face-to-face with each other, other editing transitions such as dissolves or fades, complex camera movements, and most acting styles (Bordwell, 2008, pp.416, 425). As other academics have noted, cultural variation is part of human nature (Sugiyama, 2003) and so some differences in cultural filmmaking practices, for example a preference for lavish musical romantic comedies in Bollywood, are to be expected. Since complex adaptations are required to be sensitive to environmental variation in order to allow organisms to thrive over a greater variety of environments, it would follow that filmmaking as a potential cultural by-product of adaptation would also be expected to be sensitive to environmental variation.

Cognitive critic Alan Richardson (2000) cautions against over-simplistic, retrospective mapping of evolutionary universals to fictional narratives, arguing that “[l]ike dreams, fictive works can bear a number of different relations to the rules and regularities of daily experience, often giving us the inverse of the lived world”. Taking the example of the relationship between the fictional characters Heathcliff and Catherine in the novel *Wuthering Heights* (Brontë, 1847/1993), Richardson takes issue with literary Darwinist Joseph Carroll’s contention that this may be best understood through “recent evolutionary research” on incest avoidance, and that critics who suggest their adult relationship may have sexual undertones are “erroneously” importing this into the text (Carroll, 1995, pp.44–45). Richardson points out that if Emily Brontë was “at liberty” to populate the Yorkshire moors with ghosts, she would be equally free to include incestuous foster-siblings as well. Richardson’s example

also demonstrates the problem associated with evolutionary interpretations of single works of fiction, selected at will. As I noted in Chapter 3, I am interested in *statistical* narrative universals which are not required to be *absolute* universals of narrative. That is to say that I would expect fictional narratives to show a wide variety of relationships with the real world. Of these, I would anticipate that the most popular narratives would most closely resemble the real world or an intensified version of the real world, since for the evolutionary reasons already discussed, these would be most likely to delight, instruct and co-opt existing human motivational systems. For this reason, stronger conclusions about evolutionary hypotheses may be drawn from random or systematically-selected samples of fictional works. Larger sample sizes allow statistical universals to be identified with greater certainty, and enable the correlations between occurrence of these universals and the popularity of the narratives in which they appear to be measured. This is the approach I use in my empirical research.

As Murray Smith has noted (in Boyd, Carroll & Gottschall, 2010, Chapter 22), any understanding of screen characters' emotions also needs to take into account the approaches filmmakers take when "aesthetically reshaping" facial expressions into order to convey their artistic goals. While some directors work with emotions in more naturalistic and transparent ways, others, for example the Chinese director Wu Ershan, craft stylized and occasionally opaque performances, as seen in his fantasy film *Hua pi 2/Painted Skin: The Resurrection* (2012). Sometimes the audience is left to deduce the emotional meaning of an action from its context, as Kuleshov demonstrated in his film montage experiments (Pudovkin, 1974, p.184). While stylised approaches are likely to have culturally particularistic appeal, I would expect the world's most popular films, as sampled in my empirical research, to exhibit more naturalistic performances and characterizations that bear the closest resemblance to universally identifiable emotions. It is for these reason that my empirical research investigates as large a sample of fictional feature films as I could reasonably analyse during the period of my study. Across this larger sample, I expect that the statistical majority of films will feature characters behaving in naturalistic ways, regardless of the film's genre or setting. In other words, I anticipate that protagonists' motivations, personality traits and emotions will appear to be close imitations of real human responses, and that the majority of actors' performances will be naturalistic, suggesting that a close approximation of human behaviour, both in writing screen characters and crafting performances, is requisite for a film's universal appeal. Accordingly, I propose that the more a film, or narrative, subverts our fundamental psychological realities, the less it resembles human life, and the lower its appeal.

5.5 Evolutionary theories of motivation

Protagonists' pursuits of conscious and unconscious goals have shaped stories since the first recorded fictional narratives (Bruner in McAdams, 1997, p.27; Boyd, 2009, p.224).

According to the standard opinions of authors of screenwriting manuals, goals are central to determining the protagonist's journey through a film narrative (Cattrysse, 2010). Within the field of psychology, the study of motivation has been framed by many competing approaches, including biological (e.g. Gendolla, Wright & Richter, 2012), behavioural (e.g. Skinner, 1963), and a multitude of cognitive perspectives (e.g. Carver & Scheier, 1982). Psychologists Larry Bernard, Michael Mills, Leland Swenson and Patricia Walsh (2005) were the first to unify these approaches within an evolutionary framework, by viewing conscious and non-conscious motivations as directed towards the end goal of increasing inclusive fitness.

Bernard et al. propose that humans may possess fifteen primary motivations, which they suggest fall within the five social domains in which they operate. These social domains are: a) self-protection of the individual; b) the mating domain of the "dyadic system"; c) the small kin system, within which relationship maintenance and parental care acts; d) the larger coalition system of non-kin; and e) the "memetic domain" of the larger, cultural system (following Bugental, 2000). According to Bernard et al. (2005), the fifteen primary motivations are:

Self-Protection Domain

1. Safety (avoiding danger)
2. Health (avoiding illness)
3. Aggression (intimidating others)
4. Curiosity (exploring the world)
5. Play

Mating Domain

6. Dating/sex
7. Physical (displaying or improving one's physical skills)
8. Mental (displaying or improving one's mental skills)
9. Appearance (improving one's appearance)
10. Wealth (displaying or improving one's wealth)

Relationship Maintenance and Parental Care

11. Affection (helping one's romantic partner or children)

Coalition Formation

12. Altruism (helping relatives)
13. Conscience (helping unrelated others)

Memetic Domain

14. Legacy (making the world better for future generations)
15. Meaning (understanding life's purpose)

Bernard et al. (2005) suggest that these motives act independently, thus an individual may be simultaneously motivated by conflicting motivations, cognitions and emotions. If the human mind is often conflicted by competing motivations, this may explain why authors of screenwriting manuals assert that a protagonist's psychological conflict is vital to a compelling narrative and a film's popular appeal (e.g. Field, 2005, p.12).

Examining the relationship between protagonists' and antagonists' motivations and novels' "agonistic structure", in which protagonists display cooperative motivations and antagonists display non-cooperative motivations, literary Darwinists Johnson, Carroll, Gottschall and Kruger (2008) surveyed twelve "evolutionary motivations" in 201 nineteenth century English canonical novels. The authors found that protagonists of these novels who were perceived to be morally good were rated as having significantly higher "Constructive Effort" (seeking education or culture and creating, discovering or building something) and lower "Social Dominance" (related to wealth, power and prestige) than antagonists. However, since the study was confined to high-culture novels produced during one cultural and historical period, the results may not be generalizable and conclusions cannot be drawn about whether these differences reflect universals among all fictional protagonists and antagonists. There are also methodological issues in this research relating to the participants' memory recall of fictional characters, since in some instances participants were required to rate characters from books they might not have read for up to five years.

5.6 Evolutionary theories of personality traits

Within the field of psychology, contemporary research into personality traits has its roots in the work of Sir Francis Galton (1884), the English statistician and psychologist who proposed that individual differences in personality are encoded in natural language. This “lexical hypothesis” (John, Robins & Pervin, 1998) was tested some fifty years later by psychologists Allport and Odbert (1936), who organized over 4,500 adjectives from the American English dictionary into three levels of personality traits. These were:

1. *Cardinal traits* – considered to control and dominate behaviour, and thought to be very rare. Allport posited that these included Christ-like, Narcissistic and Machiavellian behaviours.
2. *Central traits* – general traits found in every person to some degree. Allport proposed that these included honesty and friendliness.
3. *Secondary traits* – thought to appear under particular circumstances, for example becoming nervous about making a public speech.

Developing Allport and Odbert’s work, psychologist Raymond Cattell (1978) eliminated synonyms from their list of 4,500 adjectives, and reduced the total to 171. Through his pioneering use of factor analysis Cattell grouped these adjectives into sixteen primary personality traits, from which he constructed one of the earliest self-report personality tests, known as the Sixteen Personality Factor Questionnaire. Cattell (1995) also found five “second-order” or “global” factors, which he suggested provide structure and meaning for the sixteen primary traits. Five factors were also found in research by Ernest Tupes and Raymond Christal (1961), who identified recurring factors in personality tests. These were: *Surgency*, *Agreeableness*, *Dependability*, *Emotional Stability* and *Culture* (related to intellect and open-mindedness). Dependability was later renamed *Conscientiousness* by psychologist Warren Norman (1963), while Surgency became *Extroversion* and Culture became *Openness to Experience* (Costa & McCrae, 1992). The importance of the discovery of these five factors did not become apparent to psychologists until the 1980s, when further research demonstrated that they were five fundamental dimensions of personality, stable across adulthood and valid in cross-cultural research (McCrae & John, 1992). Today, personality research continues to be dominated by these five factors, now known as the “Big Five” (Goldberg, 1981). The Big Five traits are:

1. *Openness to Experience* – a general appreciation of art, unusual and abstract ideas, adventure and a variety of experiences.
2. *Conscientiousness* – showing self-discipline, responsibility, a desire to achieve and a preference for planned rather than spontaneous activities.
3. *Extraversion* – the preference for engaging with the external world, surgency, positive emotions and sociability.
4. *Agreeableness* – the trait associated with showing compassion, being trusting, open and friendly towards others.
5. *Neuroticism* – the tendency to be more sensitive, less emotionally stable and experience anger, anxiety, depression and vulnerability more easily.

While the Big Five approach was derived from lexical analysis, Hans Eysenck was guided by physiology and genetics in his alternative approach, arguing that a model of personality requires explanation in terms of psychobiological causes. In Eysenck's three-factor model, he posits that Extroversion is caused by individual differences in cortical arousal, Neuroticism is determined through variation in the limbic system, and Psychoticism (typified by aggression) is linked to genetic heritability (Eysenck & Eysenck, 1975). Eysenck's personality questionnaire was used by the American psychologist Marvin Zuckerman in developing his "Alternative Five-Factor Model" of personality (1989; 1991). Also based on a psychobiological approach to personality, Zuckerman posits that the five main personality traits that he theorises have demonstrated psychophysiological correlates and at least moderate heritability, lending themselves to evolutionary explanations. It is for this reason that I selected Zuckerman's model of personality as the basis for the design of personality-related items within my research questionnaire.

Zuckerman's (1991) five factors are:

1. *Sociability* – a liking for social situations and an intolerance of social isolation. This is related to the Extraversion dimension of the Big Five.
2. *Neuroticism-Anxiety* – the tendency to worry, experience emotional upset, tension and sensitivity to criticism; related to the Neuroticism dimension of the Big Five.
3. *Impulsive Sensation Seeking* – a preference for lack of planning and a tendency to act without thinking as well as a need for novelty and excitement.

4. *Aggression-Hostility* – a readiness to express verbal aggression, as well as vengefulness, and have a quick temper and impatience. This is related to the inverse of the Agreeableness dimension of the Big Five.
5. *Activity* – a need to keep active and busy, as well as a preference for challenging work.

The main difference between the dimensions of Zuckerman's model and the Big Five is that Zuckerman's Alternative Five model includes Activity as its fifth dimension rather than Openness to Experience. This is because Zuckerman et al. (1991; 1992) excluded markers relating to culture, intellect or openness from their analysis, since they argue that related behaviours cannot be found in other animal species and thus are more likely a product of culture rather than a true personality trait, as defined by their criteria. In relation to their proposed Activity dimension, American researchers have tended to either ignore it (Digman & Inouye, 1986), or downplay it as a sub-trait of Extraversion (McCrae & Costa, 1983). In contrast, Eastern European personality researchers have recognised Activity on their scales, and even classified it as one of three primary dimensions (Plomin & Buss, 1984). Since being active is widely considered by authors of screenwriting manuals to be one of the most important traits of the protagonist, I felt that it was important to include Activity as an item in my research questionnaire.

Subsequent research confirming the validity and reliability of Zuckerman's model includes studies by Aluja, García and García (2002; 2004), Rossier, Hansenne and Baudin (2012), García, Escorial, García and Blanch (2012), Aluja (2013), Hyphantis, Antoniou, Floros and Valma (2013), and Suranyi and Aluja (2014).

From the late 1990s onwards, authors of popular North American screenwriting manuals have frequently made reference to ideas about characters' "true nature" and the notion that this is only revealed under pressure, brought about through encounters with various obstacles. For example, Robert McKee argues that the protagonist's "true nature is revealed as he chooses to take one action over another" (1999, p. 105). McKee continues: "this deep nature is at odds with the outer countenance of the character, contrasting with it, if not contradicting it." Leaving aside questions about whether a film character can be said to have a true nature, and if so whether this would be revealed under pressure, competing hypotheses about human personality traits have argued that these traits are either stable throughout adult life (McCrae & Costa, 1996) or that they change with context (e.g. Helson, Mitchell & Moane, 1984).

More recent research suggests that individuals show maturation in all five factors of personality throughout early and middle adulthood, becoming significantly more conscientious and agreeable and a little less extrovert and open to experience as they age. In addition, women show a tendency to becoming less neurotic as they reached middle age (Srivastava, John & Gosling, 2003). These authors suggest that personality development may be best understood through environmental plasticity related to the life contexts that accompany change, for example employment and child-rearing. Further research is required to establish whether the typical transformational arc of the film protagonist – or, as McKee suggests, the revelation of their “true nature” – is best understood through these developmental changes in personality. It seems plausible, however, that the usual growth in character shown by Hollywood film protagonists, from having more agentic to more communal goals, may also follow the typical development in human personality, from less to more agreeable, since the agreeableness trait reflects individual differences in concern for social harmony.

One of the questions I investigate within my empirical research is whether film protagonists’ personality traits contribute towards films’ box office success, and whether this is mediated by cultural preference for certain traits. Very little academic research has investigated the relationship between screen characters’ personality traits and audience engagement. In their analysis of reader’s ratings of the Big Five personality traits of characters in English Victorian novels, Johnson et al. (2008) found that the sample’s protagonists were significantly more Agreeable, Conscientious, Emotionally Stable, Open to Experience and Introverted than the antagonists. Except for Introversion, these personality traits also contributed towards readers’ liking of these protagonists. However, as previously noted, one of the problems with this study was that readers were asked to reflect on characters in novels that they may not have read for over five years, and thus their recall of protagonists’ personality traits was likely to be less accurate, and may also have been influenced by other people’s opinions of these characters, or depictions of these characters in adapted works including films.

5.7 Visual signals of personality

As I discussed in the Introduction to this thesis, characterization is achieved in fictional screen narratives through the screenwriter(s)’ depictions of a range of verbal and non-verbal

cues. Casting an actor in a role adds a further physical dimension to this characterization, which is in part based on the actor's personality and how this interplays with the character as written in the screenplay. Since my empirical work attempts to analyse the personality traits of fictional characters on-screen, it is vital to consider this physical dimension.

The idea that an individual's character can be read on their face has a long cultural history. In the popular romantic comedy film *When Harry Met Sally* (1989), one of the characters reveals that she recognized that she had a connection with her husband the moment that he introduced himself, suggesting that she read something of his character in his visual appearance and demeanour: "At that moment I knew. I knew the way you know a good melon." Recent research has demonstrated evidence supporting the idea that personality may be understood through "controllable" cues (Nielsen, 2007), including posture, clothing and facial expression, as well as "constant" cues which are not under voluntary control. In relation to personality traits, Openness to Experience, Extroversion, Agreeableness and Neuroticism may all be discerned by viewers of neutrally-posed images of the face (Jones, Kramer & Ward, 2010). Extroversion appears to be most easily judged through posture (Jones, Kramer & Ward, 2010) and has also been linked to smiling and standing energetically, wearing stylish clothes, having a neat appearance and even looking healthier (Naumann, Vazire & Rentfrow, 2009). Other research has found that accurate inferences about people's interpersonal relationships may be drawn from watching just thirty seconds of non-verbal behaviour, but that some people's behaviour is harder to judge than others (Ambady & Rosenthal, 1992).

In addition to these behavioural and facial cues to personality, audiences may also make deductions about a character's personality from their homes, cars, significant props and clothes. Personality judgments based on individuals' bedrooms and offices, for example, are fairly accurate (Gosling et al., 2002). From this evidence, it is clear that both controllable and constant cues from the actor add further complexity to the characterization of a role described in the screenplay. Given these circumstances, "casting with type", or repeatedly assigning an actor to a similar type of role, may be a response to the casting director and director reading their personality from constant, non-verbal and physical cues, and matching these with similar fictional characters. For example, the actor Robin Williams was frequently cast as a character who was agreeable, conscientious, emotionally stable and open to experience in films including *Mrs. Doubtfire* (1993), *Good Will Hunting* (1997) and *Patch Adams* (1998). The thriller *Insomnia* (2002) introduces more complexity into Williams' casting, by having him play a role in which his character conceals an emotionally unstable side beneath his

outwardly agreeable manner. Similarly, in *One Hour Photo* (2002) Williams was cast “against type” in the role of a highly introverted, neurotic and disagreeable character, who masquerades as a more agreeable individual when serving customers in his shop. Given that research suggests that extroversion is mostly communicated through posture (Jones, Kramer & Ward, 2010), body movements and dialogue, extroversion may be a trait that is more easily acted since it relies less on constant involuntary cues. These are interesting areas to explore in further research, particularly since casting an actor “with type” versus “against type” for some personality traits may contribute towards a film’s performance at the global box office.

5.8 Evolutionary theories of emotions

The relationship between motivations and emotions has been recognized by psychologists, film theorists and some authors of screenwriting manuals (e.g. Plutchik, 2003; Field, 2005; Bordwell, 2008). Syd Field argues that there are two kinds of action for the film protagonist, physical and emotional, both of which are related to the central character’s “dramatic need” or primary motivation (2005, pp. 23–24). While a film’s major plotline is generally “carried by the line of action”, or in other words relates to the protagonist’s physical motive, the subplot tends to relate to emotional or thematic through-lines, and has been argued by some authors of screenwriting manuals to have the greatest impact on audience engagement (Marks, 2009, p. 34). By contrast, psychological perspectives on the relationship between emotions and motivations tend to view these attributes as intimately related rather than as distinct courses of action or plots, as the authors of screenplay manuals tend to suggest. Bernard, Mills, Swenson and Walsh (2005) hypothesize that emotions guide motivations through assisting “if-then” searches among motives. They suggest that when an individual considers a possible course of action, they first search through their working memory for instances when they have behaved in similar ways, which triggers emotional responses that then guide the choice of the consequential action. If this is the case, it may be time for authors of screenwriting manuals to rethink their current conceptions of distinct physical and emotional action pathways.

Writing about human emotions in *The Expression of the Emotions in Man and Animals* (1872/1965), Charles Darwin notes that it would be hard to understand emotions without the framework of evolution. Advancing Darwin’s observations that facial and vocal expression

play a vital role in the communication of universal feelings, which are displayed in distinct ways in different cultures, psychologist Silvan Tomkins (1962, 1963) proposed eight biologically-based affects, related to those found in other animals. He described these in high versus low intensity pairs of emotions: Interest/Excitement; Enjoyment/Joy; Surprise/Startle; Distress/Anguish; Fear/Terror; Shame/Humiliation; Contempt/Disgust; and Anger/Rage.

Nearly a decade later, American psychologist Paul Ekman demonstrated that six basic universal emotions are recognized and interpreted in very similar ways across cultures (1971, 1992). According to Ekman, these emotions are Anger, Fear, Disgust, Happiness, Sadness and Surprise. A few years after proposing this basic list of six, Ekman expanded his list to include a wider range of emotions that are not all expressed through the face: Amusement, Contempt, Contentment, Embarrassment, Excitement, Guilt, Pride, Relief, Satisfaction, Sensory Pleasure and Shame (1999). Ekman's original set of basic emotions were used in recent research which used biometric measures of viewers' emotions in response to feature films, in order to develop an interactive web application that attempts to visualize and categorize films based on their emotional impact (Oliveira, Martins & Chambel, 2013). Developing this idea, another recent exploratory study visualized the emotional valence of 750 movie scripts using Ekman's "basic six", but no conclusions were drawn from this analysis (Denis et al., 2014).

An alternative psycho-evolutionary model of emotions was developed by American medic and psychologist Robert Plutchik, who proposed eight basic emotions: Anger, Fear, Sadness, Disgust, Surprise, Anticipation, Trust, and Joy (1980). These, he posits, must have evolved because they increase an animal's inclusive fitness by triggering behaviours with high survival value. Through Plutchik's model, which he presented as a "wheel of emotions", all other emotions could be understood as a combination of the basic emotions. Some psychologists have contested whether emotions can be classified into a discrete number of affects (Ortony & Turner, 1990), but measures of brain activity support the existence of basic emotions (Stephens, Christie & Friedman, 2010).

Further developing the ideas of Silvan Tomkins, Swedish medical researcher Hugo Lövhelm (2012) proposed that Tomkins' eight basic emotions are all regulated by the monoamine transmitters. Arguing that since each of the three monoamine transmitters, dopamine, serotonin and noradrenaline, are related to different aspects of emotion, he observed that the eight high and low combinations of these transmitters map onto Tomkins' eight basic

emotions. In order to conceptualise this, Lövheim envisaged the three monoamine transmitters as the axes of a cube model, and then mapped Tomkins' eight emotions onto the corners of the cube as shown in Figure 10. Because the model bridges psychological and neurobiological correlates, it is compatible with evolutionary explanations.

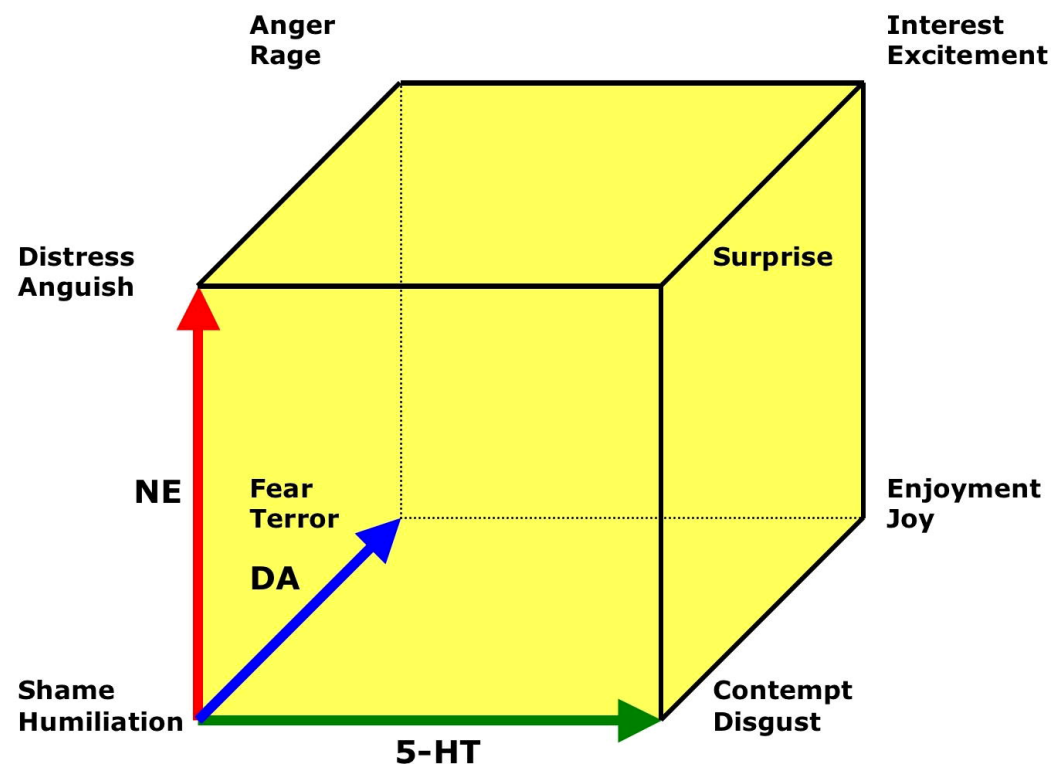


Figure 10: Lövheim's three-dimensional model for emotions and monoamine neurotransmitters (2012). Copyright 2012 Lövheim.

More recent research suggests that the “moral emotions” of pride and guilt, along with romantic love, familial love and compassion towards (unrelated) others, may also be considered as basic evolved emotions (Buss, 2014). In the previous chapter I suggested that Trivers' theory of reciprocal altruism provides the missing link in explanations of why audiences desire narrative outcomes to reflect everyday ideas about a “just world”, whereby good things are expected to happen to good people and bad things expected to happen to bad people. It also explains why audiences base their dispositions towards fictional characters on their moral behaviour. By understanding audience dispositions towards fictional characters as proxies of those formed in real human relationships, determined by the moral emotions so as to maximise the possibilities of future acts of reciprocal altruism, Trivers' evolutionary theory explains how an audience's moral judgments about fictional characters may be a by-

product of the evolution of reciprocal altruism. Through this same approach, an audience's moral disengagement from the morally ambiguous screen may be understood as the overlooking of learned, contextually-adaptive cheating from a character who is otherwise moral and considered to be a good candidate for future acts of reciprocal altruism. For example, most viewers watching *Avatar* (2009) will sympathise with protagonist Jake Sully because he is generally portrayed as being a trustworthy character, despite initially being depicted as being prepared to trade operational intelligence about the Na'vi with Quaritch, behind the back of his supervisor. Thus, the audience disengages with Sully's immoral acts, and considers the character to be a good candidate for future acts of reciprocal altruism within the film's narrative.

5.9 The optimism bias

In the majority of films ranking within the top 100 at the all-time global box office, the protagonist is not only active in pursuit of their goal, but also optimistic about their chances of achieving that goal. In *Avatar* (2009), for example, the protagonist Jake Sully wants to provide Quaritch with information about the Na'vi, so that he might be granted the appropriate healthcare to regain use of his paralysed legs in return. Sully also demonstrates optimism about his chances of achieving his goals. Unlike others in his lab, who express more doubts, Sully marches straight onto Pandora, and is not put off by the setbacks he encounters along his narrative journey. These examples of optimistic behaviour are typical to humans with self-serving attributional positivity, otherwise known as positive illusions (Taylor & Brown, 1988), or the optimism bias (Sharot, 2011), which is the pervasive human phenomenon through which individuals feel unrealistically optimistic about past experiences, the future and the self (Taylor & Armor, 1996). From an evolutionary perspective, such self-deception would be entirely maladaptive for a solitary non-social creature, but this is not necessarily the case for social species (Trivers, 2000). Self-deception, in the form of an unrealistic optimistic bias, could be advantageous for convincing others that one is an effective and beneficial partner for reciprocal altruism (Alexander, 1987; Trivers, 2000; 2011).

Other approaches to the optimism bias suggest that human cognitive mechanisms are too fragile to "accept" mortal reality, and construct unrealistic bias as a form of protective cocoon (Varki, 2009; Sharot, 2011). Whatever its basis, a predisposition towards positive, self-serving attributions has been suggested to explain why people attempt to find meaning in

difficult events that they have experienced in the past (Taylor & Armor, 1996). It may also contribute towards a human preference for redemptive stories, where bad events are “made good” through positive outcomes. In addition, I propose that the gap between viewers’ more realistic assessments of a protagonist’s chances of achieving their goals and the protagonist’s more optimistic assessment of their chances of achieving their goals may contribute towards dramatic tension in a film. Accordingly, the more optimistic and confident a protagonist appears to be about their chances of achieving their goals, the greater the gap between their expectations and the audience’s assessment of the odds that they accomplish their goals, and the more this potentially contributes towards dramatic tension in the film. As a result, films in which protagonists display greater optimism towards achieving their goals may stand a greater chance of box office success. It is for these reasons that I investigate protagonists’ levels of optimism in popular films in my quantitative research.

Cross-cultural studies and research investigating gender differences in the levels of self-serving attributional bias suggest that the optimism bias is a universal bias, demonstrated in its highest levels by individuals in the US, China and Korea. By contrast, adult women, individuals who are depressed, native Indians, Japanese and Pacific Islanders demonstrate the lowest levels of self-serving attributional bias (Mezulis et al., 2004). This raises interesting questions about how the gender and culture of the protagonist and audience mediate any dramatic gap between the protagonist’s assessment of their chances of achieving their goals and the audience’s assessment of their chances.

5.10 Discussion

Research in Evolutionary Psychology and Evolutionary Criticism has stimulated plentiful theory, provided empirical data supporting research hypotheses, and given rise to big questions such as why humans spend so much time creating and engaging with fictional worlds; why they tend to take so much pleasure from these activities; and why certain themes and motifs are universally popular. I contend that since Evolutionary Psychology is concerned with universals of the human mind, it is best positioned to explain why some narrative themes, ideas or aspects of characters appear frequently in films from across the world, and why these appear to have universal appeal. Evolutionary Psychology is also likely to offer new insights into why film audiences across the globe share many similar viewing preferences, based upon their common mental structures. As demonstrated in Chapter 2, these questions are not only of theoretical interest to film and screenwriting scholars, but are also

of concern to the film industry, since new knowledge contributing towards a better understanding of global audience preferences will also be useful in enabling films which secure international release to be more successful at the global box office.

In attempting to deliver the consilience between the Arts and Sciences first discussed by E.O. Wilson, Evolutionary Criticism is an important new field that has made the first attempts to bridge the two paradigms. With a few exceptions its scholars have come from the fields of Literary Criticism, and have focused primarily on evolutionary critiques of novels. In comparison the evolutionary study of film and television narratives is very much in its infancy, despite the huge potential for research in this field. First, an evolutionary framework is already aligned to the “universal themes” relating to “human nature” that are frequently discussed in screenwriting manuals. Second, the high budgets of mainstream studio films require these films to have universal audience appeal, which I propose is best understood through an evolutionary framework. Finally, the accessibility of worldwide film box office figures and viewing data for television shows provides researchers with opportunities to analyse universal narrative appeal and draw statistically powerful conclusions from big data sets. Related to these research possibilities, I have suggested that characters’ personality traits, motivations, emotions and optimism bias are central to the writer’s construction of character, and the audience’s enjoyment of that character. As such, I propose that these psychological attributes of fictional characters are useful first points of analysis when considering narrative universals in film.

In conclusion, I propose that through understanding film characters’ traits, motivations and emotions as writers’ emulations of our evolutionary adaptations to problems of inclusive fitness, modulated by the environment as well as aesthetic, cultural and individual concerns, researchers will gain valuable insights into the psychology of screen protagonists and their associated, cross-cultural audience appeal. These approaches should not be considered as reductive in nature, but consilient – capable of joining explanations of human behaviour from the biochemical and molecular to the cultural and aesthetic through a series of unbroken causal chains.

5.11 Directions for future research

In his review of *The Literary Animal: Evolution and the Nature of Narrative* (Gottschall & Wilson, 2005), an edited series of essays which lay the groundwork for Evolutionary Criticism, Steven Pinker (2007) responds with six suggestions for future research in this field, many of which are applicable to my empirical research. First, Pinker suggests that the goal of explaining human preferences for certain fictional stories through psychological adaptations may not facilitate the task of “improving” the criticism or analysis of fictional works. As a rebuttal to this point, I argue that considerations first need to be given to the definition of improving, and whether this is a goal of artistic criticism. If improving is thought to mean increasing a fictional work’s critical reception, then given that this is likely to be judged by high-cultural values of the time, there is limited scope for remedial evolutionary analysis since evolutionary analysis is best-placed to understand the popular, which is often at odds with the values of high-culture. On the other hand, if “improving” is taken to mean making fictional works including films more popular, I would argue that using an evolutionary framework to better understand the public’s tastes and preferences, and then to develop films which accommodate these preferences, is a highly promising area of research. Drawing on theories developed within evolutionary psychology, researchers may form hypotheses about which adaptive human psychological or physical attributes are likely to be reflected in the characters, structure or themes of screen narratives, and then test the contributions that these attributes make towards a film’s popularity, using measures of domestic and global box office performance, number of digital downloads, frequency of film piracy and so on.

Once the contribution of each of these attributes is understood, as well as how the expression of different attributes mediate each other, researchers may then form and test hypotheses about how moderating the frequency of display of certain attributes may increase the popularity of a film narrative in a certain culture. For example, if it was found that film audiences across the world tend to prefer action film narratives in which the protagonist exhibits frequent and intense displays of physical strength (with no limits), one of the ways in which an action film’s popularity at the global box office may be improved would be by increasing the protagonist’s display of physical strength. Since evolutionary theories also account for cultural variation in the expression of narratives, further research may also investigate how the popularity of film narratives in various territories may be increased, through changing the frequency and intensity of display of certain psychological or physical attributes of screen characters so as to maximize their local cultural appeal.

Second, Pinker pleads for theories of the possible evolutionary functions of literature to be raised above “just-so stories”, or narratives that are essentially unverifiable. In order to do this, Pinker suggests that scholars might consider the methodologies of engineering analysis used in the study of Artificial Intelligence in order to understand the design of intelligent systems. Third, evolutionary critics should look beyond evolutionary psychology for their explanations of human preferences in fiction to other disciplines attempting to understand human nature, including artificial intelligence, cognitive science, behavioural genetics and social psychology. It is for this reason that my research considers approaches from neuroscience, narrative psychology, anthropology, linguistics, behavioural genetics and social psychology in order to better understand universals in film narratives.

Fourth, Pinker notes that any hunt for narrative universals needs to consider the differences between high-culture and low-culture fictional works. While Literary Darwinists have tended to focus their analyses on the critically-acclaimed high-culture novels generally preferred by literary scholars – for example, Johnson et al.’s (2008) study of the agonistic structure of nineteenth century English canonical novels and Carroll’s (2008) analysis of human nature in *Wuthering Heights* (Brontë, 1847/1993) – these critically-acclaimed high-culture novels often develop ideas that contest those portrayed in fiction with mass appeal, and are thus bound to refute generalisations about psychological evolutionary universals. To avoid this issue in my empirical research, I instead analyse protagonists’ psychological attributes in the most commercially-successful films released in North America and China in recent years.

Fifth on Pinker’s list is the observation that insights from evolutionary psychology and game theory may be useful in understanding the tendency of fictional protagonists to struggle between a choice of conflicting motivations. I have already made a similar observation in relation to Bernard et al.’s (2005) modular framework of evolutionary motivations, and this is one of the reasons that I chose this framework of analysis in my quantitative research. Finally, Pinker cautions evolutionary critics to avoid ideas about group selection when attempting to explain the themes of various fictional works, since it is still unclear whether Wilson’s (1975) concept is useful. On this final point, I observe his cautions.

Building on the ideas that I have developed in this chapter, as well as those preceding it, in the next chapter I outline the methodology of my quantitative research. This includes accounts of the development of the survey instrument, the selection of my sample films and participants, and the procedures that I implemented in my five empirical studies.

6 Methodology

In this chapter I first outline the development of a new survey instrument, the Assessment of Protagonist's Traits, Emotions and Motivations Questionnaire (APTEM-Q), which was refined through an iterative process of item writing, testing and retesting on purposively-selected critically successful films. The APTEM-Q was used in five experiments. In Study 1 I investigate whether the protagonists of popular films recently released in North America and China display examples of the personality traits, emotions and motivation items measured by the APTEM-Q. I then used the survey instrument to determine whether my ratings of these psychological attributes may be used to predict whether a recently exhibited film, ranking in the top ten at the North American or Chinese box office, is more popular in North America or China, based on the different frequencies of occurrence of these items. In Study 2 I determine whether protagonists' personality traits, emotions and motivations as measured by the APTEM-Q, may be used to correctly classify whether a recently exhibited film, ranking in the top ten at the North American or Chinese box office, was produced by a US studio or Chinese studio. The ratings were based on my analyses of film protagonists using the APTEM-Q. There were no other participants.

In the third study I analyse some of the most popular and least popular recently exhibited films in North America, in order to resolve whether psychological protagonist qualities, measured by the APTEM-Q, may be used to determine whether a film is more likely to rank in the top ten or in places 91 to 100 at the annual North American box office. The ratings were based on my analyses of film protagonists using the APTEM-Q.

Since a film's high production budget has been found to be positively correlated with ticket sales at the North American box office, in the fourth study I control for a high film budget when investigating whether ratings of psychological protagonist attributes predict whether a recently exhibited high-budget film, made for US\$110 million or over, is more likely to be a "blockbuster," at least doubling the value of its investment in worldwide ticket sales, or a "flopbuster", failing to double the value of its production budget in worldwide ticket sales. The ratings were based on my analyses of film protagonists using the APTEM-Q.

Finally, in the fifth study I investigate whether there are differences in my ratings of protagonists' personality traits, emotions and motivations compared with other British participants. I also investigate whether there are cross-cultural differences in British and

culturally-Chinese viewers' perceptions of protagonists' attributes in order to determine whether the findings from the first four studies may be cautiously generalized to the British, North American and Chinese populations. First, I examine whether protagonist attributes identified as being significant predictors of Chinese or North American consumer preference in the first study, Chinese or US producer preference in the second study, and global audience preference in the fourth study, may be used to differentiate between British and Chinese viewers in a general, linear, mixed-effects binomial regression analysis. I then use a similar approach to determine whether the protagonist attributes identified as being significant predictors of Chinese or North American consumer preference in the first study, Chinese or US producer preference in the second study, North American audience preference in the third study, and global audience preference in the fourth study, may be used to differentiate between my own ratings of protagonists' attributes and the ratings of other British participants. British participants were used as a proxy for North American participants for the reasons outlined in the introductory chapter.

6.1 Questionnaire design

Design of the Assessment of Protagonists' Traits, Emotions and Motivations Questionnaire was guided by psychological theories of personality (Zuckerman et al., 1991), emotions (Lövheim, 2012) and motivations (Bernard et al., 2005; 2008; Bernard & Lac, 2014). Since the majority of screenwriting manuals place the film protagonist's motivations at the heart of story design (e.g. McKee, 1999), and primal character motivations have been linked with a film's universal appeal (e.g. Snyder, 2005, p. 54), protagonists' motivations were the focus of my first iteration of the questionnaire. I first considered whether to track any changes to a protagonist's motivations through the course of the narrative, since many screenwriting manuals assert that the transformation of the main character's goals is essential to a good story. However, I decided against this because such an analysis might be difficult for less film-literate participants. Tracking a protagonist's changing motivations through a film may also require emotional distancing from the character, which I felt would likely influence viewer engagement. In addition, asking participants to look out for motivational change would likely bias them towards expecting a change of motivations that may not be present in some of the Chinese-produced films in the sample. Therefore, in the first iteration of the questionnaire, participants were instead required to identify whether a film's protagonist displayed each of the fifteen evolutionary motives proposed by Bernard, Mills, Swenson and

Walsh (2005). Bernard et al.'s sixty-item Assessment of Individual's Motives – Questionnaire (2008) provided a model for these survey items. An example of one of the pilot questionnaire items is shown in Figure 11, below.

1. Is one of the protagonist's major goals at the beginning, or towards the end of the film, to explore somewhere he hasn't explored before?	
YES	NO

Figure 11: Example of item in the first iteration of the APTM-Q.

The participants in this initial pilot study comprised two colleagues working in the film industry and two family members, who are not film-literate. They watched ten recently-released critically-successful films. Five of these films won the Academy Award for Best Picture between 2009 and 2013: *The Hurt Locker* (2008), *The King's Speech* (2010), *The Artist* (2011), *Argo* (2012) and *12 Years a Slave* (2013). The other five won the Sundance Grand Jury Prize: Dramatic for the same years: *Precious* (2009), *Winter's Bone* (2010), *Like Crazy* (2011), *Beasts of the Southern Wild* (2012), and *Fruitvale Station* (2013).⁶

Participants in the pilot study reported finding the wording of the item statements too long. It also became clear that limiting participants' responses to yes/no answers failed to capture their perception of the intensity and duration of the display of protagonists' motivations. For this reason, in the next iteration of the questionnaire participants were required to rate the degree to which the main character invests time, money or other personal resources in each of the motive items on a 6-item Likert scale, where 0 represents no investment and 5 represents a great deal of investment. I hypothesised that resource allocation should act as a guide to the strength of a protagonist's motivations since the length of a film presents a finite time during which a protagonist can invest resources, and life-

⁶ These films are referenced in Appendix C.

history theory predicts that effort dedicated to solving one adaptive problem diminishes effort directed to solving other adaptive problems (Gadgil & Bossert, 1970; Kaplan & Gangestad, 2005). The participants were asked to base their responses on observation of the behaviour or dialogue of the films' protagonists, so that overly subjective responses based on inferred non-observable traits might be avoided.

The motivational items included in this second iteration of the questionnaire are included in Figure 12, below and continued overleaf.

For each motivation below, rate the degree to which the main character invests time, money, or other personal resources in this goal.

0 represents no investment, and 5 represents a great deal of investment.

MOTIVATION	Degree of investment
Exploring the world	0 1 2 3 4 5
Avoiding illness	0 1 2 3 4 5
Avoiding danger	0 1 2 3 4 5
Asserting oneself/Intimidating others	0 1 2 3 4 5
Being playful	0 1 2 3 4 5
Improving one's appearance	0 1 2 3 4 5
Displaying mental skills or knowledge	0 1 2 3 4 5

Displaying physical strength or skills	0	1	2	3	4	5
Displaying wealth	0	1	2	3	4	5
Dating or having sex	0	1	2	3	4	5
Helping life partner or children	0	1	2	3	4	5
Helping relatives	0	1	2	3	4	5
Helping unrelated others	0	1	2	3	4	5
Making the world better for future generations	0	1	2	3	4	5
Understanding life's purpose	0	1	2	3	4	5

Figure 12: Motivational items included in the second iteration of the APTEM-Q.

In addition to these fifteen motives, I also included ‘Seeking Revenge and Punishing Others’ as a further item within the questionnaire, since punitive behaviour has been considered another important characteristic in the evolution of human cooperation (e.g. Jensen, 2010; Melis & Semmann, 2010) and it is a theme that occurs frequently in many popular films.

After piloting this second iteration of the questionnaire on the same set of films, an analysis of several of the films together with their protagonist ratings demonstrated that focusing a study on motivations alone would fail to adequately describe the proximal or distant causes of behaviour of a typical protagonist. Taking the example of the US-produced, war thriller, *The Hurt Locker* (2008), it seems unlikely that the motive ‘Helping Unrelated

Others' adequately describes the proximate and distant causes which explain why the protagonist exposed himself to so much danger during the film's sequences set during the Iraq War. A more complete explanation would also reference displays of the character's inclination towards risk-taking activities, his conscientiousness, his drive towards activity (as opposed to passivity), and his emotional countenance. Since personality traits and emotions are also closely linked with motivations as determinants of behaviour, in subsequent iterations of the questionnaire design I included two further categories of items, assessing protagonists' personality traits and emotions.

Zuckerman's (1989; 1991) Alternative Five theory of personality guided my selection of the five traits included for analysis in the questionnaire. In order to analyse the contribution that visual characteristics of the leading actor playing the role of the film's protagonist bring to audience perceptions of the character's personality traits, I also added further personality-assessment items at the beginning of the questionnaire. These required participants to rate a neutral headshot of the actor playing the film's protagonist, in terms of the personality traits shown in Figure 14, overleaf. These items were recorded *before* participants watched the film, so that their ratings of the leading actor's personality were not influenced by watching the actor perform "in character". The headshots used for this purpose were high-resolution images (>1MB) sourced online, depicting the leading actor in a neutral pose with minimal if any make-up. The actor's face was required to be fully visible and not concealed by hair, unadulterated by digital image manipulation, and either looking straight towards camera or in a three-quarter view. Examples of these headshots are included in Figure 13, overleaf. Two further items were included in this section of the survey in order to mitigate for any effects that the protagonist's 'Attractiveness' and 'Gender' might have on perceptions of personality traits.



Figure 13: Examples of neutrally-posed headshots. On the left is actor Sam Worthington, protagonist in Avatar (2009), and on the right is actor Zhao Wei, protagonist in Hua pi 2/Painted Skin: The Resurrection (2008).

Please study the photograph of the actor playing the central character in this film and rate the degree to which the actor's face appears to demonstrate the personality traits below.

0 represents no representation of this trait, and 5 represents a very strong demonstration of this trait.

For Gender, 0 represents a highly masculine face, and 5 a highly feminine face.

TRAIT	Degree displayed
Sociability	0 1 2 3 4 5
Anxiety	0 1 2 3 4 5
Impulsiveness	0 1 2 3 4 5
Aggression	0 1 2 3 4 5
Active	0 1 2 3 4 5
Attractiveness	0 1 2 3 4 5
Gender	0 1 2 3 4 5
	MASCULINE <= => FEMININE

Figure 14: APTM-Q items assessing visual personality traits of the actor playing the protagonist.

The final items of the questionnaire ask participants to rate the same personality traits after the film has been viewed, considering only the protagonist's behaviour and dialogue. See Figure 15, overleaf.

Now please consider the degree to which the film's main character displays the following traits within this film.

0 represents a lack of this trait, and 5 represents a very strong demonstration of this trait.

For Gender, 0 represents highly masculine behaviour, and 5 highly feminine behaviour.

TRAIT	Degree displayed
Sociability	0 1 2 3 4 5
Anxiety	0 1 2 3 4 5
Impulsiveness	0 1 2 3 4 5
Aggression	0 1 2 3 4 5
Active	0 1 2 3 4 5
Attractiveness	0 1 2 3 4 5
Gender	0 1 2 3 4 5
	MASCULINE <= => FEMININE

Figure 15: APTEM-Q items assessing the protagonist's personality traits.

Lövheim's psychobiological theory of universal emotions (2012) was used as a guide for developing the category of items measuring film protagonists' emotions. To these, I added further items measuring the moral emotions of 'Pride' and 'Guilt', along with 'Romantic Love', 'Familial Love' and 'Compassion' towards (unrelated) others, which were frequently displayed by the protagonists of the pilot films. Participants were required to rate the degree to which the protagonist demonstrated the following basic emotions, as shown in Figure 16, below and continued overleaf.

For each of the emotions below, rate the degree to which these are experienced by the main character during the film.

0 represents no experience of this emotion, and 5 represents an intense experience.

EMOTION	Degree experienced
Happiness	0 1 2 3 4 5
Sadness	0 1 2 3 4 5
Anger	0 1 2 3 4 5
Fear	0 1 2 3 4 5
Surprise	0 1 2 3 4 5
Disgust	0 1 2 3 4 5

Shame	0	1	2	3	4	5
Excitement	0	1	2	3	4	5
Pride	0	1	2	3	4	5
Guilt	0	1	2	3	4	5
Romantic love	0	1	2	3	4	5
Familial love	0	1	2	3	4	5
Compassion	0	1	2	3	4	5

Figure 16: APTEM-Q items assessing the protagonist's emotions.

One further observation came from analysis of protagonists' behaviour in the pilot films. I noticed that the films' main characters typically displayed an optimism bias towards achieving their stated goals – in other words, they appeared to view their chances of achieving their primary stated goal more highly than the audience or other characters within the film might view them. In order to verify whether a protagonist's display of an 'Optimism Bias' towards their primary goal is a narrative universal, I added a further questionnaire item, shown in Figure 17, overleaf.

How optimistic is the main character about achieving their personal goals?	0	1	2	3	4	5
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Figure 17: APTEM-Q item assessing the protagonist's optimism bias.

The third iteration of the questionnaire was piloted on the top-five grossing⁷ US-produced films of all time at the global box office. These were *Avatar* (2009), *Titanic* (1997), *The Avengers* (2012), *The Dark Knight* (2008) and *Star Wars: Episode I - The Phantom Menace* (1999). Also included were the top-five grossing Chinese-produced films of all time at the global box office: *Ren zai jiong tu: Tai jiong/Lost in Thailand* (2013), *Xi you xiang mo pian/Journey to the West* (2013), *Sap ji sang ciu/Chinese Zodiac* (2012), *Hua pi 2/Painted Skin: The Resurrection* (2012) and *Rang zi dan fei/Let the Bullets Fly* (2010). After watching these films I added 'Helping Friends' as a further motivation item, since a number of the sample films included instances in which the protagonists helped close friends, a form of altruistic behaviour which incurs stronger reciprocal advantage than helping unrelated others.

When the development of the questionnaire was complete, a version was translated into traditional Chinese for Chinese participants. The APTEM-Q was then submitted to Bangor University's School of Creative Studies and Media Ethics Committee for ethics approval.⁸ The final English-language version of the APTEM-Q is included in Appendix H and the traditional Chinese-language version is included in Appendix I.

6.2 Procedure

Participants were first briefed using the Participant Information Sheet included in Appendix B. They were then asked to read through the APTEM-Q and ask questions about any of the

⁷ According to Box Office Mojo (April, 2015). These films' grosses were not adjusted for inflation.

⁸ The Ethics Approval Form is included in Appendix A.

items that they did not understand. Next, the participants were given high-resolution, neutrally-posed, digital headshots of the main actor of the film, and asked to rate these for the first seven questionnaire items relating to the leading actor's personality traits. The film was then screened. Some participants watched the film on a large-screen television or on an overhead projector within a group setting. Other participants watched the film on television screens in their own homes. After viewing the film, all participants completed the remaining items in the questionnaire.

6.3 Study 1

The first objective of this study was to investigate whether protagonists in recently exhibited films that were popular in North America or China display examples of the traits, emotions and motivation items in the APTEM-Q. The second objective was to determine whether ratings of these protagonist attributes could be used in a binomial regression model in order to predict whether a recent top ten domestic box office hit at the North American or Chinese box office is most popular in North America or China, based on the different frequencies of occurrence of these psychological protagonist attributes. The ratings were based on my analyses of film protagonists using the APTEM-Q.

6.3.1 Films

The films viewed in this study were the fifty top-ten grossing fictional feature films at the annual North American box office for the years 2009 to 2014, excluding 2011 (Box Office Mojo, 2015b), and the fifty top-ten grossing fictional feature films at the annual Chinese box office for the same years (Box Office Mojo, 2015a; SARFT, 2015a, 2015b; Shaoyi, 2015). Films released in 2011 were excluded because of widely reported fraud at the Chinese box office in that year (Lee, 2011). Documentary feature films ranking in the top ten at the North American or Chinese box offices were also excluded.

Box Office Mojo, a website that tracks box office revenue, was the main source of box office data for North America, but since Box Office Mojo currently does not provide a full historic list of annual domestic box office data for the Chinese territory for the years in question, this data was instead gathered from the website of the Chinese State Administration of Press, Publication, Radio, Film and Television (formerly known as SARFT). For the year 2009 when SARFT box office data was not published, Chinese film box office data was

sourced from the personal blog of Shaoyi Sun, Professor at the School of Film and Television, Shanghai Theatre Academy (2015). Further complicating the Chinese box office data used in this analysis is the fact that 2010 SARFT data reports the annual domestic top ten box office for the National Cities, and therefore appears to leave out regional box office figures. In addition, for the years that Box Office Mojo publishes annual domestic box office data for China, its reported figures differ from those published by SARFT. Nevertheless, for these years, Box Office Mojo and SARFT both report the same Chinese films as ranking in the top ten at the annual Chinese domestic box office.

The full list of films screened in Study 1 is included in Appendix D. The screened films were primarily PAL versions of UK-released DVDs. Where these were unavailable for several of the Chinese films, either US or Hong Kong versions of the DVDs were screened instead.

6.3.2 Films by genre

The genres of the films produced in the US were classified using Box Office Mojo's genre classifications. Since Box Office Mojo classifies most Chinese films only as "foreign", the genres of the Chinese sample films were instead classified manually according to the primary categories used by Box Office Mojo. To calculate the percentages of films by genre as shown in Figure 18, films falling into hybrid genres were reclassified under their primary genre – for example, action thrillers were reclassified as action films, and drama/romance films as dramas.

Action and fantasy films were similarly popular with audiences in North America and China (with action films comprising 26% of the top ten box office in North America versus 32% in China, and 24% versus 18% for fantasy films). Science fiction films were also similarly popular in North America and China (6% versus 10%). Chinese audiences had a greater preference for romantic comedies (rom coms), which made up 10% of the Chinese box office hits but none of the American box office hits. Animations were also popular in North America, making up 26% of domestic box office hits, but constituting a mere 4% of recent hit films in China. Dramas, thrillers, comedy dramas, sports films, Westerns, detective stories and historical epics make up the remaining American and Chinese hits.

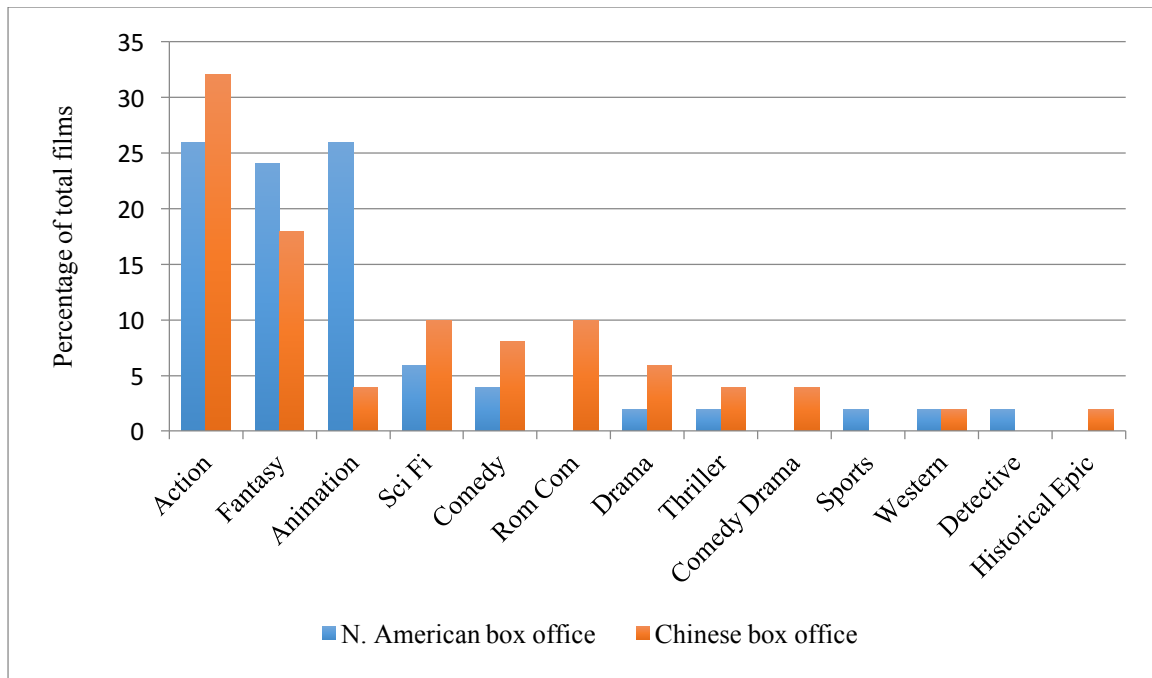


Figure 18: Percentages of films exhibited between 2009 and 2014, excluding 2011, ranking in the top ten at the annual North American and Chinese box offices, by genre.

6.3.3 Films by classification

China does not currently have a nationwide classification system, so there are no age restrictions on any film licensed for release in Chinese cinemas. Therefore, classifications have only been provided for films released in the US. These ratings are provided by the Motion Picture Association of America (MPAA). As shown in Figure 19, overleaf, 90% of the top-ten grossing hits at the annual North American box office between 2009 and 2014, excluding 2011, were rated PG and PG-13. Of the remaining films, 4% were G rated and 6% were R rated. There were no NC-17 rated films at the top ten North American domestic box office for the years included in the study.

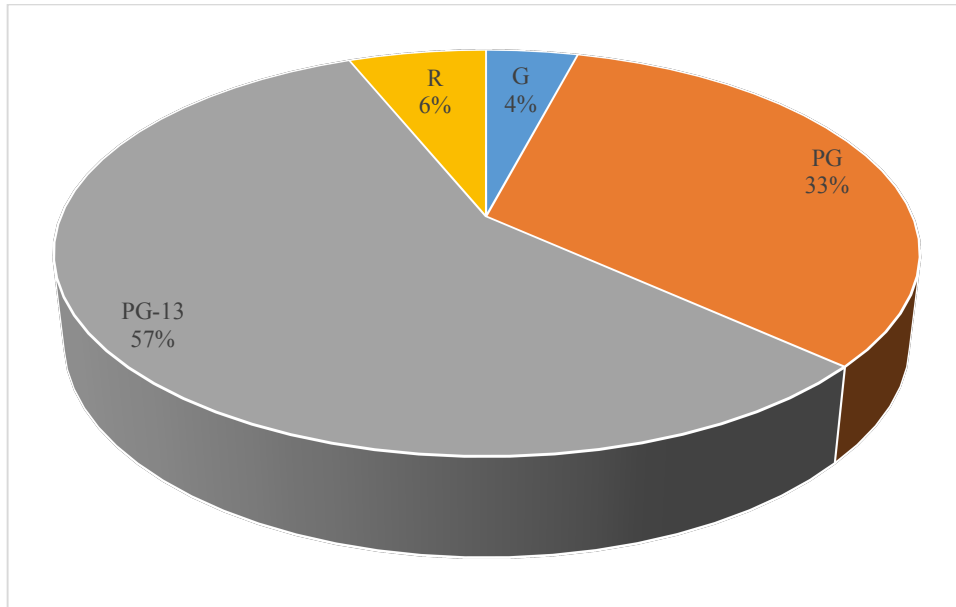


Figure 19: MPAA classifications of the top-ten ranking films at the annual North American box office, exhibited between 2009 and 2014, excluding 2011.

6.3.4 Film ratings

Since the popularity of a film may also be measured by audience and critic ratings, I recorded mean American-user film ratings from the International Movie Database (IMDb) website, and compared them with mean user-ratings on the Chinese film and game review site Douban.⁹ IMDb is the largest online, user-generated film review website with over two hundred million visitors each month (IMDb, 2015). Douban is the Chinese equivalent of IMDb, and was ranked the 27th most popular site in China by Alexa Internet (in April 2015). Since the content of Douban is published in Chinese, it is assumed that the site is primarily accessed by members of the Chinese cultural community.

It is worth noting that IMDb ratings are generated from the weighted mean of all the site's registered users who vote on any one film, purportedly in order to safeguard against vote stuffing. However, Douban does not report whether its mean ratings are true or weighted means. Furthermore, although IMDb claims to be "the world's most popular and authoritative source for movie, TV and celebrity content", its audience reviews and ratings differ in a number of ways from film audience reviews and ratings (Koh, Hu & Clemons, 2010; Boyle,

⁹ This data was sampled on April 30th, 2015.

2014). In particular, IMDb film reviews tend to suffer from under-reporting, while Douban reviews are a better proxy of a movie's perceived quality (Koh, Hu & Clemons, 2010).

The top ten films at the annual North American box office received, on average, slightly higher American-user IMDb ratings than their Chinese box office counterparts (US box office $M=7.0$; Chinese box office $M=6.0$). Douban ratings followed a similar trend: higher ratings were given for the top-ten ranking films at the annual North American box office, compared with the top-ten ranking films at the annual Chinese box office (US box office $M=8.0$; Chinese box office $M=7.0$). There were strong positive correlations between American users' IMDb ratings and Douban users' ratings for the top-ten ranking films at the annual North American box office ($r_s = .643$, $p<0.0005$) and also for the top-ten ranking films at the annual Chinese box office ($r_s = .681$, $p<0.0005$), demonstrating consensus between North American and Chinese users' ratings of these films on social media sites.

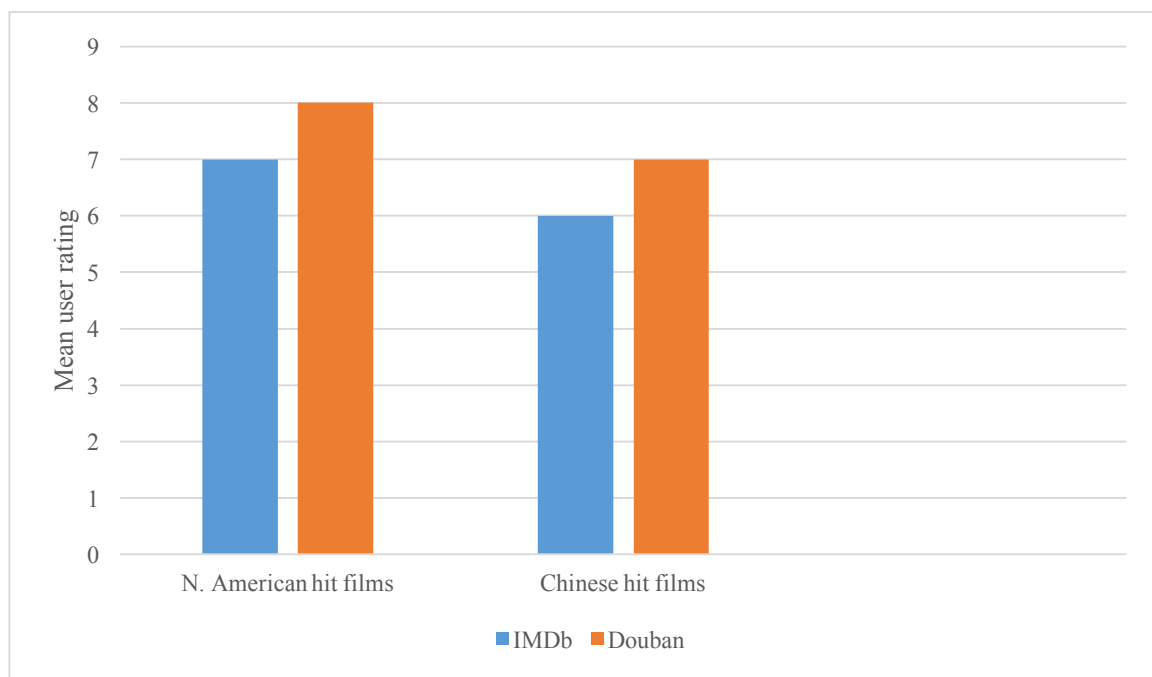


Figure 20: Mean American IMDb user ratings compared to Douban user ratings of the top-ten ranking films at the annual North American box office compared to the annual Chinese box office, for films exhibited between 2009 and 2014, excluding 2011.

Critics' ratings, derived from the film review aggregator sites Rotten Tomatoes and Metacritic, were used as a third measure of comparison of domestic box office performance. Ratings from both sites were recorded for comparison. While Rotten Tomatoes is by far the more popular aggregator of the two (Alexa website rankings, 2015), and derives its means from a far greater number of critics' ratings, Rotten Tomatoes critics' reviews are measured

only as positive or negative, i.e. as binary ratings. A high Rotten Tomatoes score therefore shows critics' consensus in liking a film, but not by how much. On the other hand, Metacritic attempts to translate the subtleties of selected critics' reviews into a scalar rating and then uses these to produce weighted means.

As Figure 21 illustrates, recent films that performed well at the North American and Chinese annual domestic box offices have been liked by the critics. Films that were hits in North America received the highest mean Rotten Tomatoes and Metacritic scores while those that were hits in China received the lowest critics' scores, although the differences were small.

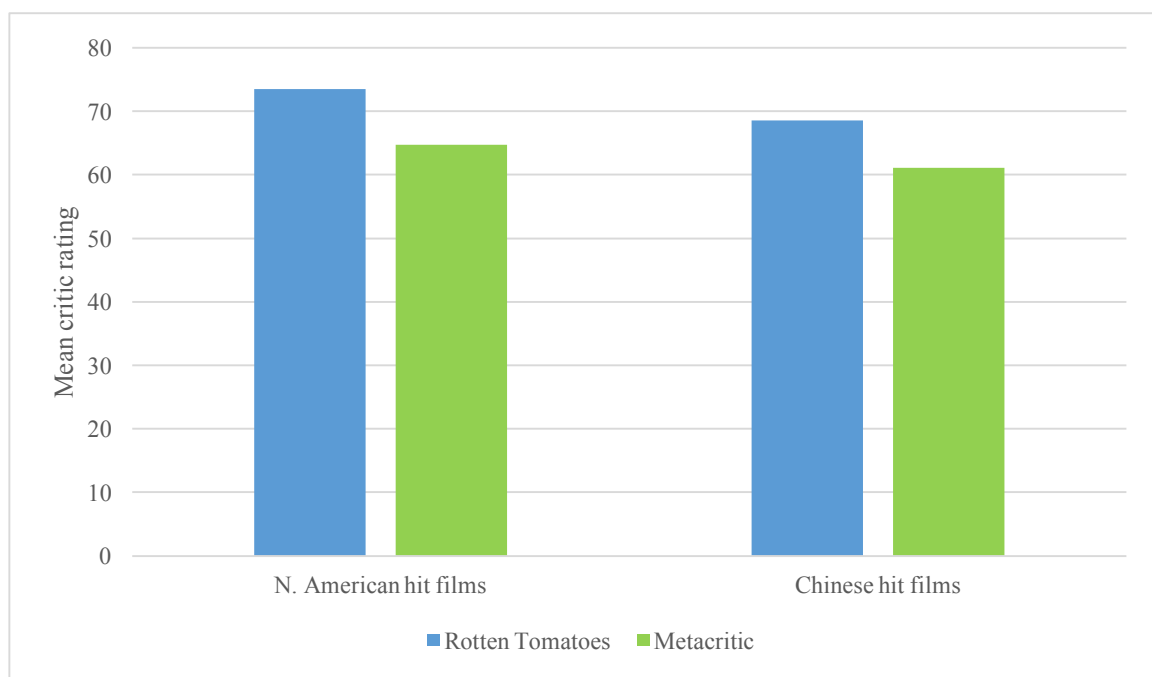


Figure 21: Mean Rotten Tomatoes versus Metacritic ratings of the top-ten ranking films released between 2009 and 2014, excluding 2011, at the annual North American domestic box office compared with the annual Chinese domestic box office.

Strong positive correlations were found between the mean critic ratings of the top-ranking films in North America ($r_s=0.880$, $p<0.0005$) and also in China ($r_s=0.800$, $p<0.0005$) indicating a consensus between the critics of Rotten Tomatoes and Metacritic over the popularity of the films in the sample.

6.3.5 Film budgets

The top-ten ranking films at the annual North American box office, exhibited between 2009 and 2014, not including 2011, were produced for US\$159.55 million on average, excluding their marketing costs. Budgets for many of the Chinese-produced films were unavailable. Excluding the Chinese-produced films for which budget data was unavailable, the average production budget for the most popular films in China over these years was US\$98.26 million. It is anticipated that this figure would be much lower if the production budgets for all the Chinese-produced films that were popular in China were available.

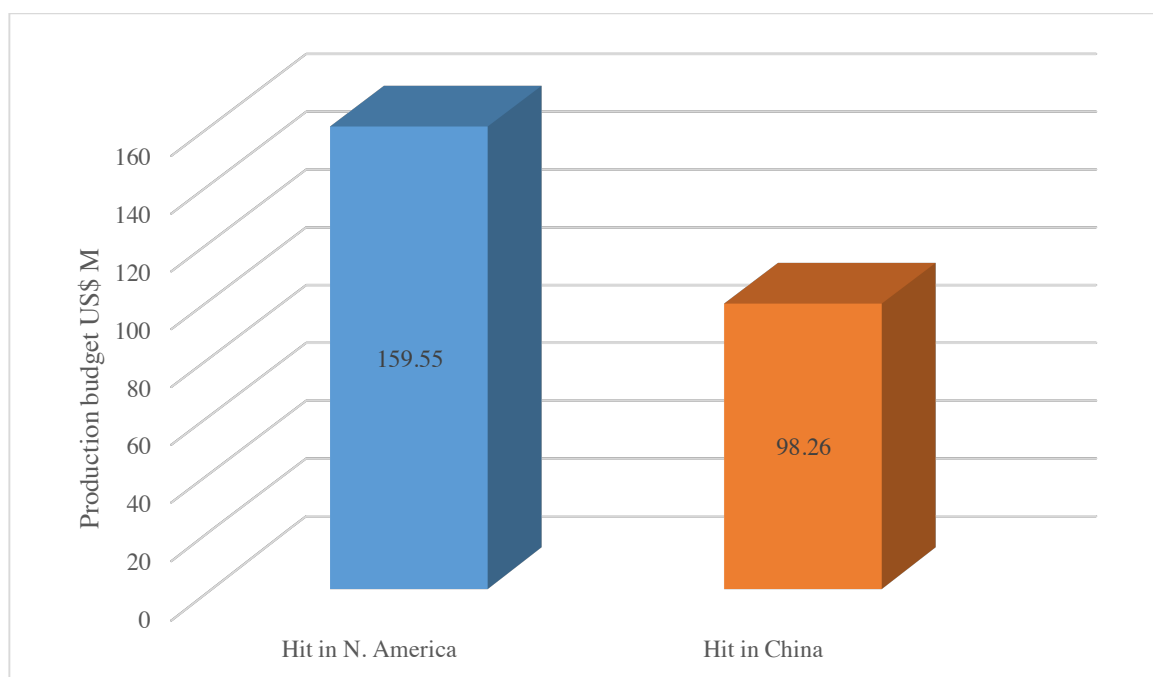


Figure 22: Mean production budgets for the top-ten ranking films released between 2009 and 2014, excluding 2011, at the North American and Chinese domestic box offices.

6.3.6 Protagonist roles by gender

As Figure 23 demonstrates, the majority of protagonists in recent, theatrically-released films in North America and China were male. In the sample films preferred by North American consumers 75.5% of the protagonists were male, compared to 81.0 % of the protagonists in the films preferred by Chinese consumers.

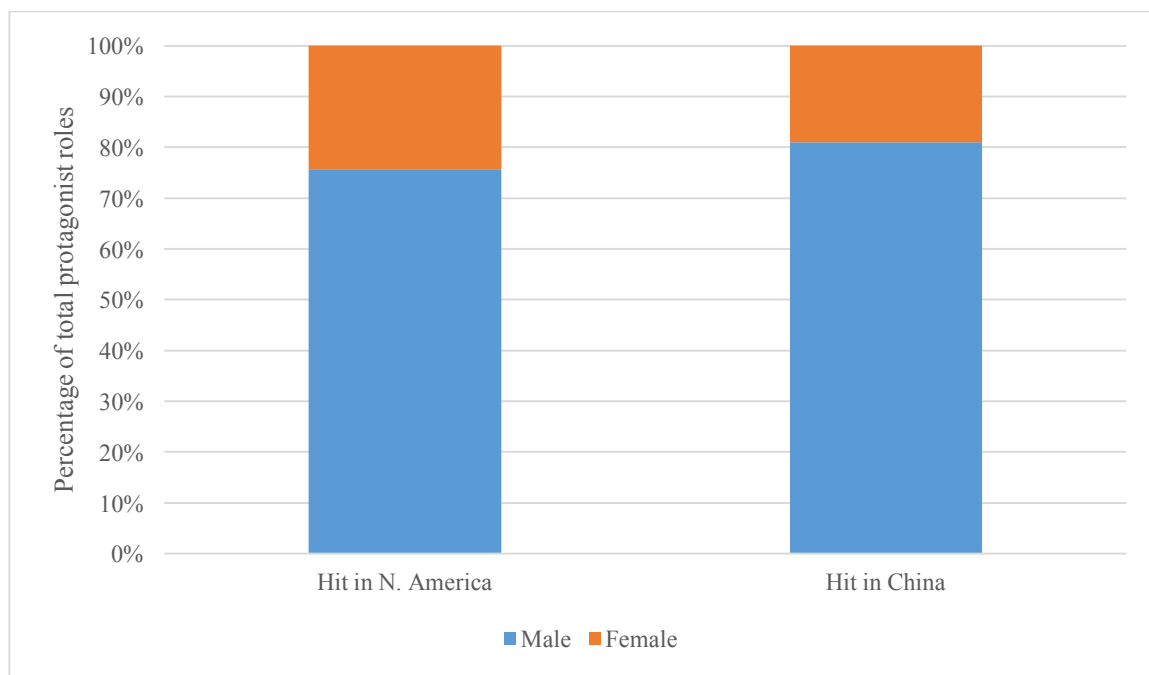


Figure 23: Distribution of protagonist roles by gender for the top-ten ranking films at the annual North American domestic box office, compared to the annual Chinese domestic box office, for films exhibited between 2009 and 2014, excluding 2011.

6.4 Study 2

The objective of this study was to determine whether ratings of protagonists' personality traits, emotions and motivations could be used in a binomial regression model in order to predict whether a recent top-ten ranking, North American or Chinese domestic box office film was more likely to have been produced by a US studio or by a Chinese studio.

6.4.1 Films

This study was based on the same sample of films and ratings as Study 1, but five films that were US-China co-productions were excluded. These films were *Iron Man 3* (2013), *Xi you ji: Da nao tian gong/The Monkey King* (2014), *Life of Pi* (2012), *Chi bi Part II: Jue zhan tian xia/Red Cliff II* (2009) and *Dragonball: Evolution* (2009). *Skyfall* (2012) was also excluded as it was primarily a British production. The film's country of production – either the US or China - was determined by the location of the major studio or production company that produced or “presented” the film, as listed under the film's production company credits on IMDb.

6.4.2 Films by genre

The distribution of the genre of films produced primarily by US studios for the years in question differed significantly from the genre of films produced primarily by Chinese studios. Excluding co-productions with China, the majority of recently exhibited, US-produced films were action, fantasy and animation films, as Figure 24 demonstrates. By contrast, the majority of recently exhibited, Chinese-produced films were distributed more evenly among the action, fantasy, comedy, romantic comedy, drama and comedy drama genres.

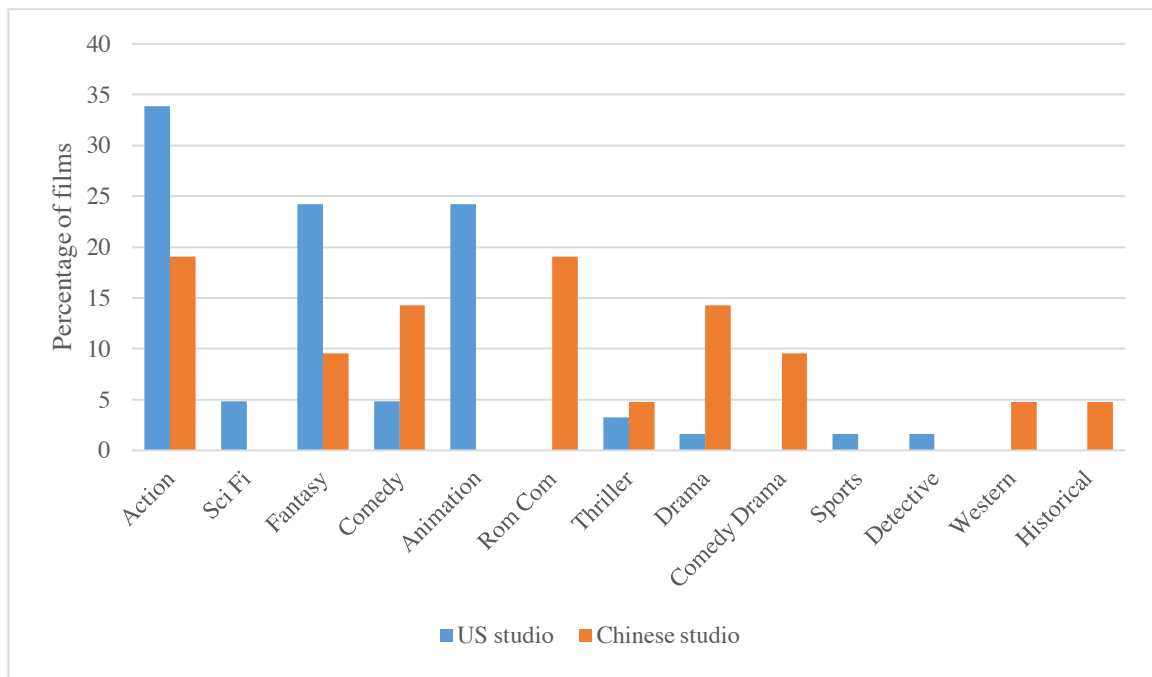


Figure 24: Genre distribution of top-ten ranking films produced by US studios compared to Chinese studios, for films exhibited between 2009 and 2014, excluding 2011.

6.4.3 Films by classification

As shown in Figure 25, overleaf, 89% of the top-ten grossing US-produced films at the annual North American and Chinese box offices for the years of study were classified PG and PG-13. Of the rest, 4% were G rated and 7% were R rated.

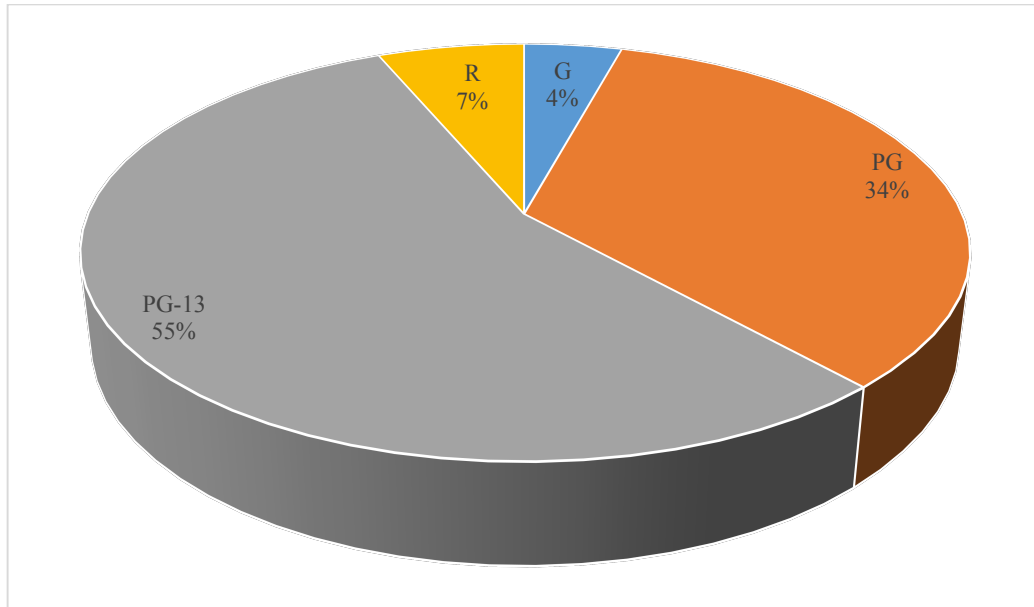


Figure 25: MPAA classifications of US-produced films exhibited between 2009 and 2014, excluding 2011, and ranking in the top ten of the annual Chinese or North American box offices.

6.4.4 Film ratings

The mean user ratings of the US-produced films in the sample were higher for both IMDb and Douban users. Douban users tended to give higher film ratings for both US- and Chinese-produced films than IMDb users. The mean user rating for US-produced films was 7.2 for IMDb users and 7.6 for Douban users. By comparison, the mean user rating for Chinese-produced films was over a point lower at 6.1 for IMDb users, and nearly a point lower at 6.7 for Douban users.

A strong positive correlation was found between the mean IMDb and Douban user ratings of the top ranking sample films produced by US studios ($r_s=0.663$, $p<0.0005$), and a moderate correlation was found between the mean IMDb and Douban user ratings for films produced by Chinese studios ($r_s=0.574$, $p<0.003$).

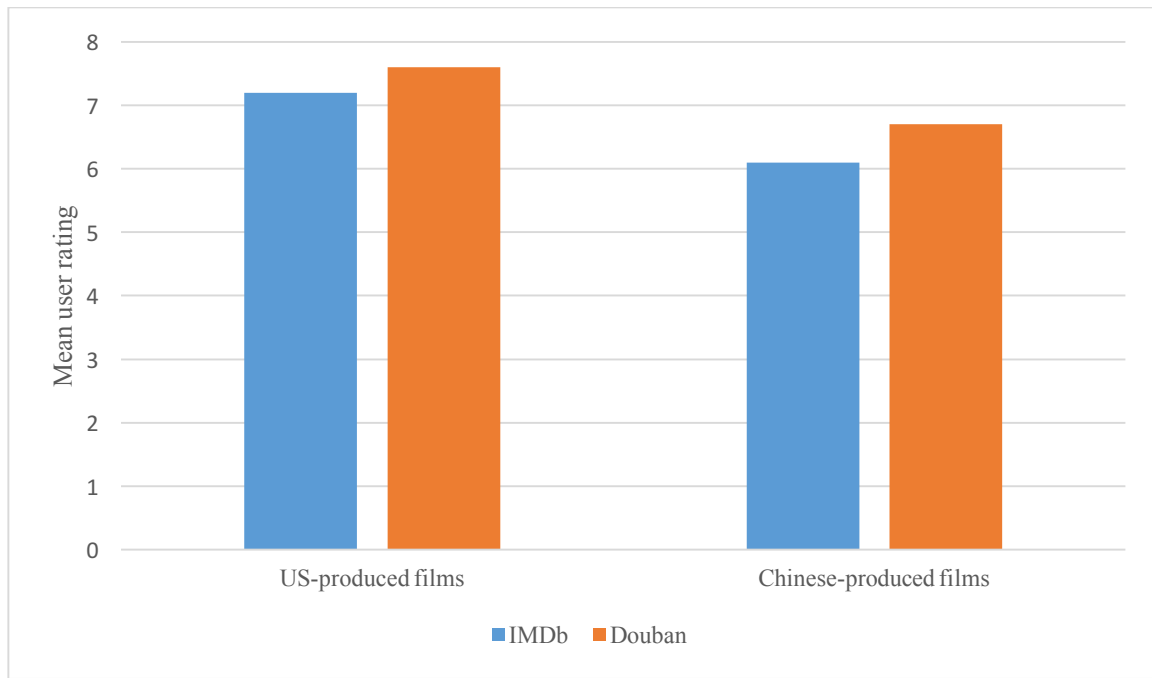


Figure 26: Mean IMDb and Douban user ratings for films ranking in the top ten at the annual North American or Chinese domestic box office, exhibited between 2009 and 2014, excluding 2011.

In contrast to the mean ratings by IMDb and Douban users, which scored US-produced films more highly, the mean ratings on the Rotten Tomatoes and Metacritic websites were higher for the Chinese-produced films. The mean critic rating for US-produced films was 71.1 for Rotten Tomatoes' critics, and 63.5 for Metacritic's critics, although it is important to note that the two sites measure critical success in different ways, as noted in Section: 6.3.4. By comparison, the mean user rating for Chinese-produced films was over 8 points higher at 79.7 for Rotten Tomatoes' critics, and nearly 2.5 points higher at 66.0 for Metacritic's critics. A strong positive correlation was found between the mean critic ratings by Rotten Tomatoes and Metacritic for the US-produced films ($r_s=0.858$, $p<0.0005$). A moderate positive correlation was found between mean critic ratings by Rotten Tomatoes and Metacritic for the Chinese-produced films ($r_s=0.717$, $p<0.05$).

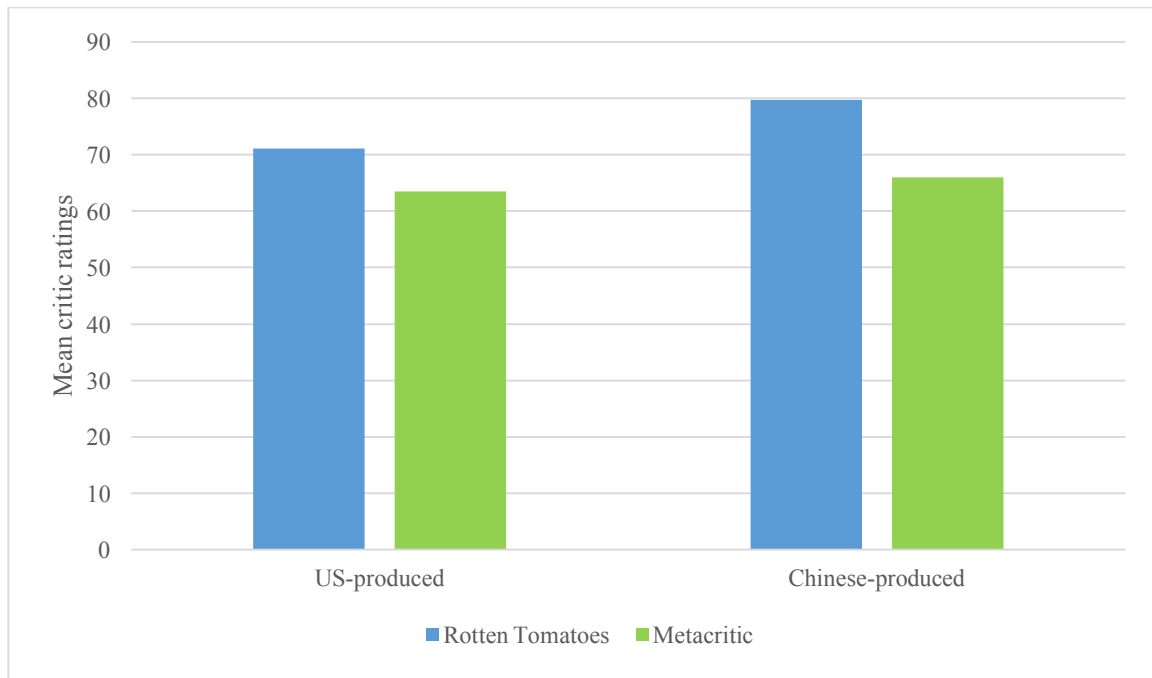


Figure 27: Mean Rotten Tomatoes and Metacritic ratings for films ranking in the top ten at the annual North American or Chinese domestic box office, exhibited between 2009 and 2014, excluding 2011.

6.4.5 Film budgets

Excluding marketing costs, the mean production budget of US-produced films ranking in the top ten at the annual domestic box office in North America or China between 2009 and 2014, excluding 2011, was US\$153 million. This is over the three times the mean budget of Chinese-produced films ranking in the top ten of the annual Chinese box office during the same period.¹⁰

¹⁰ Figures used for the budget calculations were primarily drawn from Box Office Mojo as well as film financial data site The Numbers. The budgets for Chinese productions were less frequently available, so in some instances these figures have been sourced from national newspapers including China Daily.

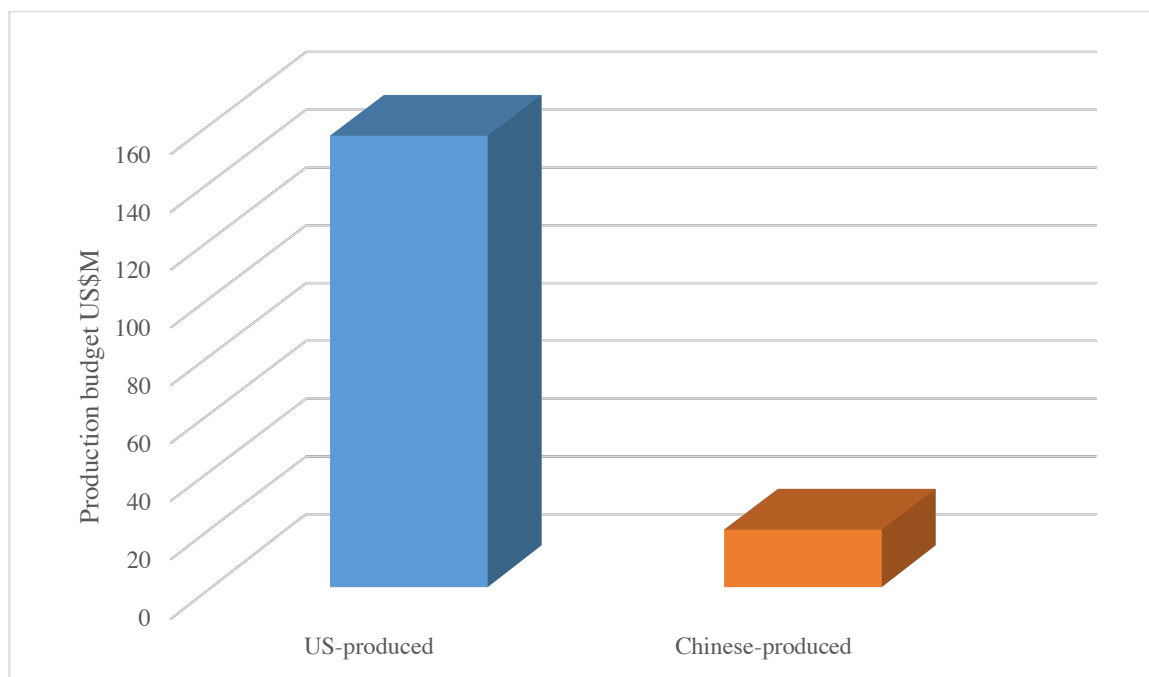


Figure 28: Mean production budget for films ranking in the top ten at the annual North American or Chinese domestic box office, exhibited between 2009 and 2014, excluding 2011.

Figure 29 shows the upward yearly trend in increasing film budgets. The average production budget rose for a US-produced top ten film rose from US\$120.9 million in 2009, to US\$174.9 million in 2014. The same trend is evident for top ten films produced by Chinese studios, for which production budgets almost doubled from their 2009 average of US\$44.1 million to an average of US\$82 million in 2014.¹¹

¹¹ The budgets for American-Chinese co-productions were counted as both American and Chinese. The unusually high budget for *Chi bi Part II: Jue zhan tian xia/Red Cliff II* (2009), a China-US co-production, significantly elevated the mean Chinese production budget for 2009, and likely contributes to the apparent dip in Chinese production budgets for 2010 and 2012.

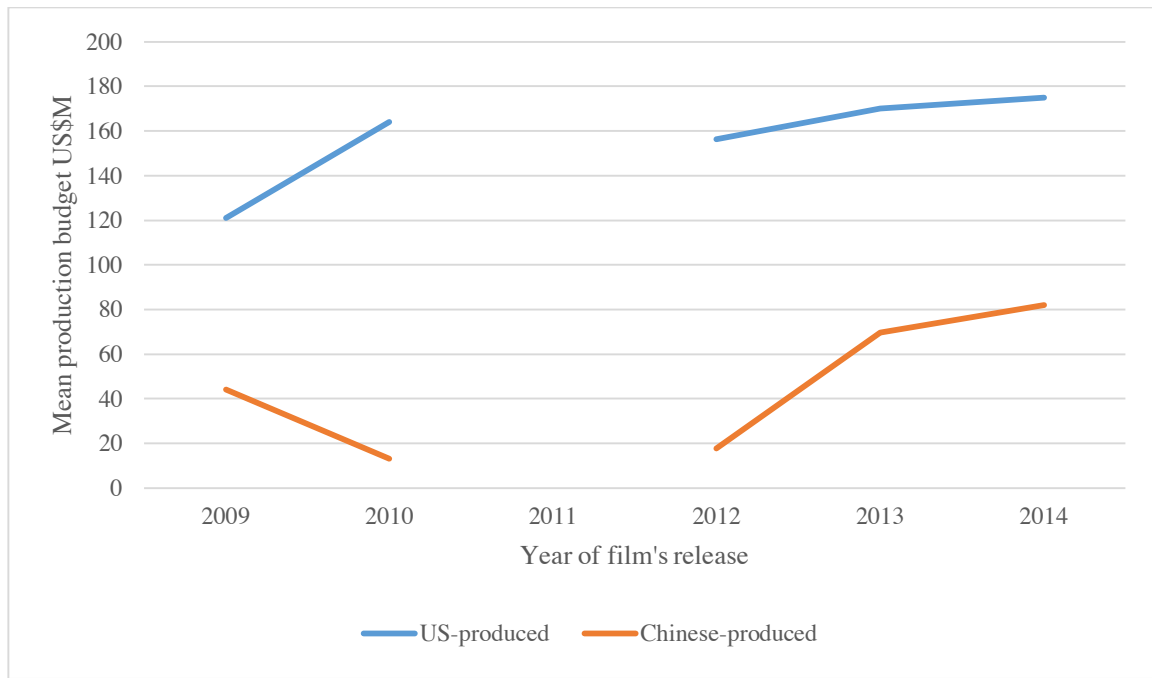


Figure 29: Mean annual production budgets (US\$M) of top-ten ranking films at the annual North American or Chinese box office between 2009 and 2014, excluding 2011, produced by Chinese studios compared with North American studios.

A similar upward trend was present for the domestic gross box office figures of the US- and Chinese-produced top ten films released during the same period. In 2009, US-produced top ten films made on average US\$223.8 million, which rose to US\$230.2 million by 2014. Chinese-produced films released over the same period almost doubled their box office takings, from US\$75.2 million in 2009 to US\$140.7 million in 2014.

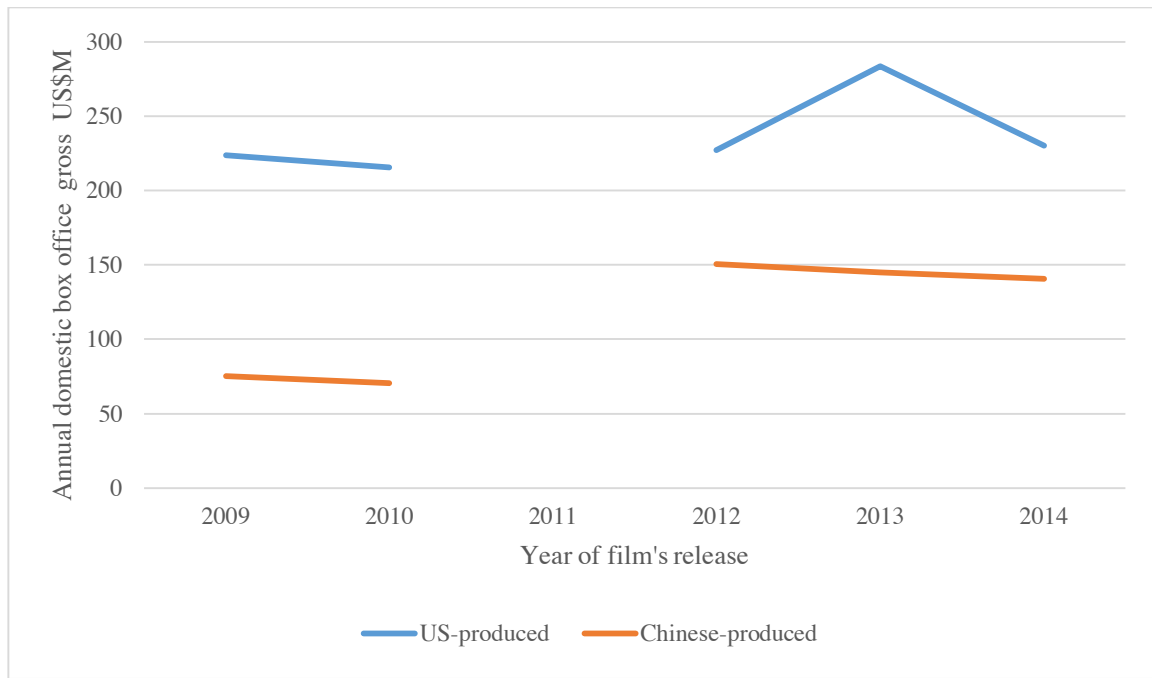


Figure 30: Mean annual domestic box office gross (US\$M) for top-ten ranking films at the annual North American or Chinese box office between 2009 and 2014, excluding 2011, produced by Chinese studios compared with North American studios.

6.4.6 Protagonist roles by gender

The majority of protagonists in the most popular recently-released, domestic box office films produced by US studios and Chinese studios were male. 80.6% of the protagonists of the sample films produced in the US were male, compared to 75% of the protagonists in the films produced in China.

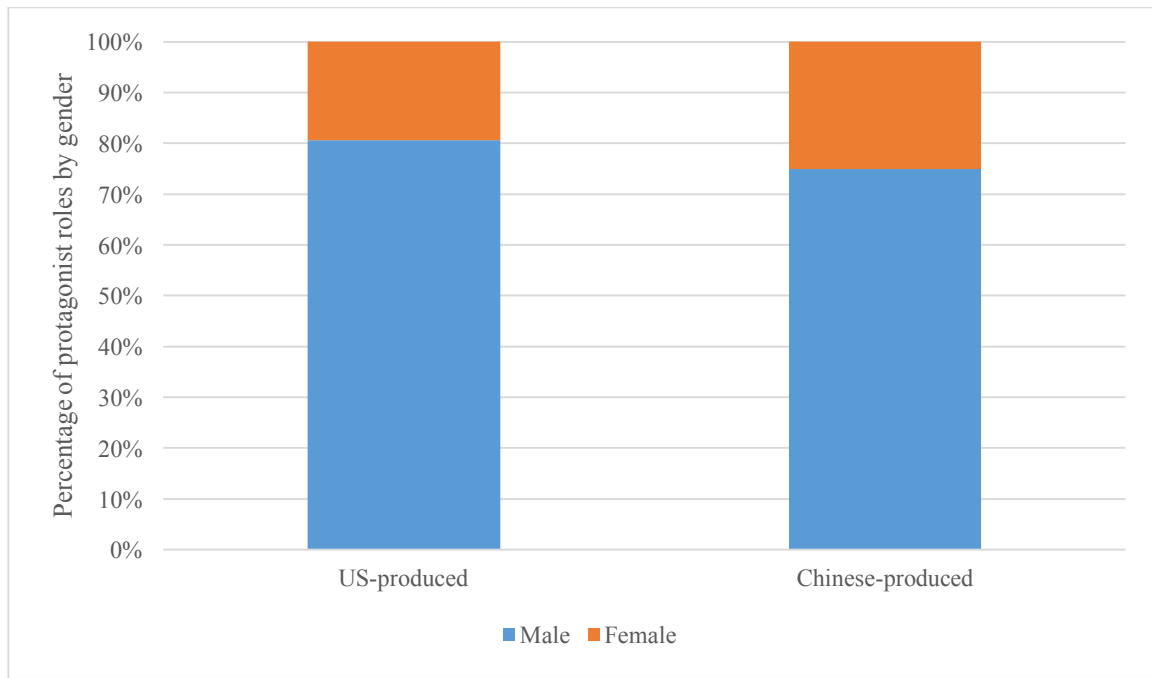


Figure 31: Distribution of protagonist roles by gender in top-ten ranking films produced in the US compared to China, for films exhibited between 2009 and 2014, excluding 2011.

6.5 Study 3

The objective of the third study was to determine whether ratings of a protagonist's personality traits, emotions and motivations could be used in a binomial regression model in order to predict whether a recent film ranks in the top ten or in places 91 to 100 at the annual North American box office. Ratings were based on my analyses of film protagonists using the APTEM-Q.

6.5.1 Films

Fifty additional films, ranking between 91 and 100 at the annual North American box office for the years 2009 to 2014, excluding 2011, were viewed for this study. The psychological attributes of these films' protagonists were analysed using the APTEM-Q and compared with the APTEM-Q ratings for protagonists in the fifty top-ten grossing films at the annual North American box office, taken from the data-set used in Study 1. Documentaries were excluded from the selection of films, and were replaced by the next highest-ranking film at the box office. The full list of films analysed in Study 2 is included in Appendix E.

6.5.2 Films by genre

Comedies, dramas, horrors and action films made up the majority of the films ranking in places 91 to 100 at the recent, annual North American box office. Other genres of film represented in the 91st to 100th box office rankings were music films, sports films, thrillers and science fiction films. In contrast with North America's recent top ten films, none of the films ranking between 91 and 100 were in the fantasy or animation genres.

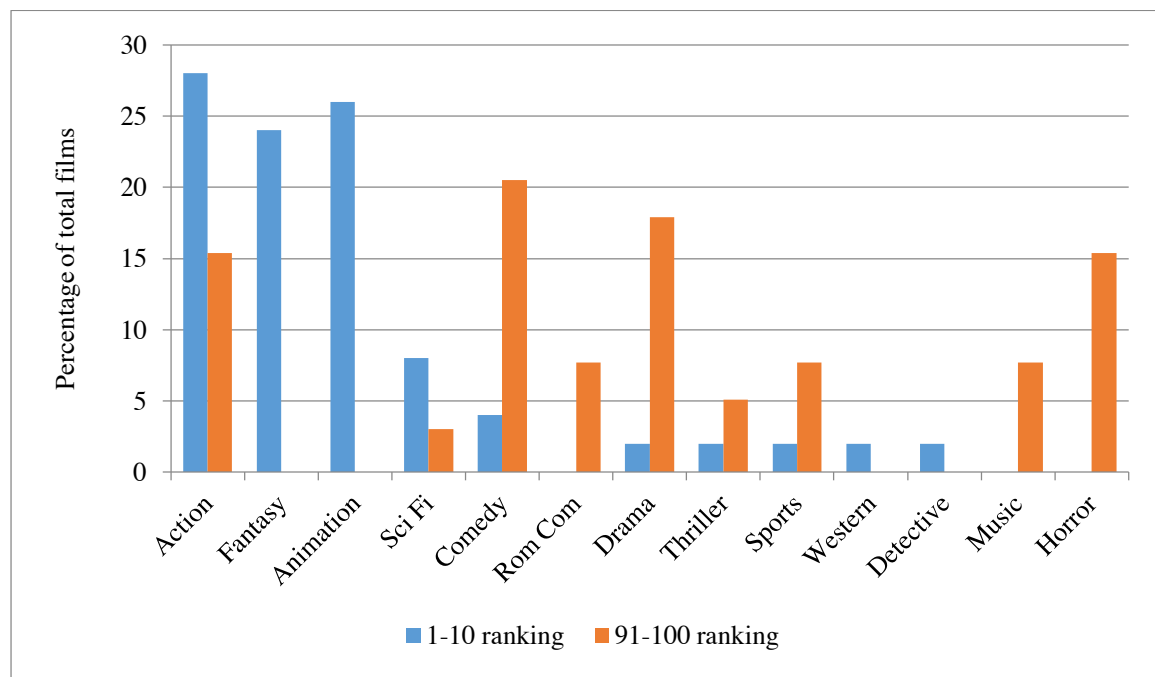


Figure 32: Distribution of films ranking 1-10 and 91-100 at the annual North American box office, exhibited between 2009 and 2014, excluding 2011, by genre.

6.5.3 Films by classification

Half the films ranking between 91 and 100 at the North American box office were classified as PG-13. In contrast with films ranking at the top of the box office, over a third of the lower-ranking films were classified as R. Figure 19, illustrated previously, shows the distribution of classifications for the films at the top of the box office, while Figure 33, overleaf, shows the classifications for the films ranking between 91 and 100 at the annual North American box office for the years under investigation. The major difference between the classifications of films ranking at the top of the annual North American domestic box office compared to those ranking towards the bottom of the box office was that only 6% of films in the top ten received an R rating, compared with 38% of films ranking between 91 to 100.

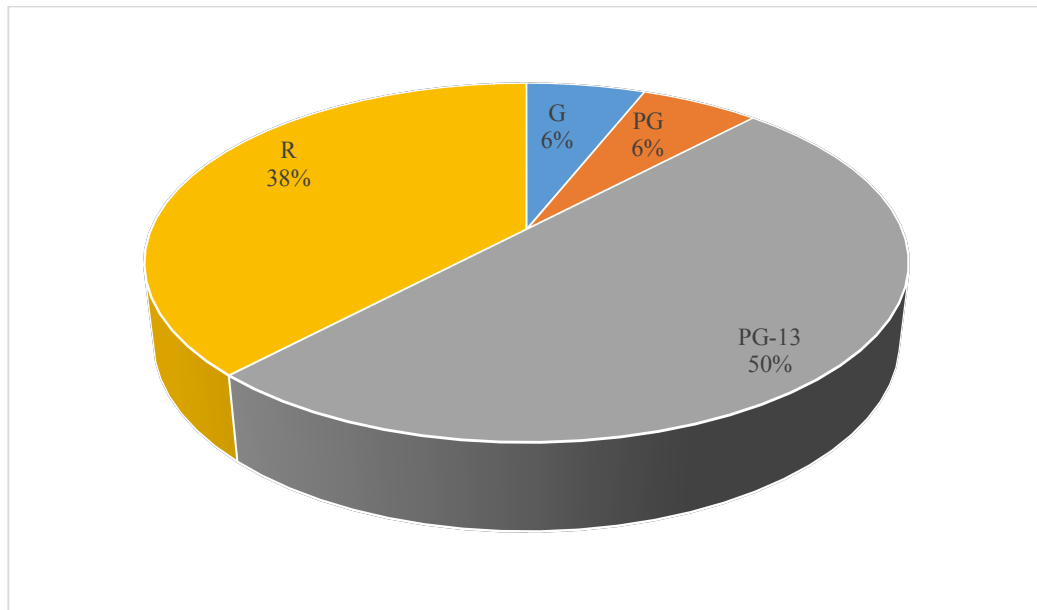


Figure 33: MPAA classification of films ranking 91-100 at the annual North American box office between 2009 and 2014, excluding 2011.

6.5.4 Film ratings

The mean US-user IMDb user ratings for films ranking between 91 and 100 at the annual North American box office for the years under study was 6.5, just under a point below films ranking in the top ten at the North American box office for the same years ($M=7.4$). There was a moderate positive correlation between US IMDb user rankings of films and gross North American domestic box office ($r_s=.419$, $p<0.0005$).

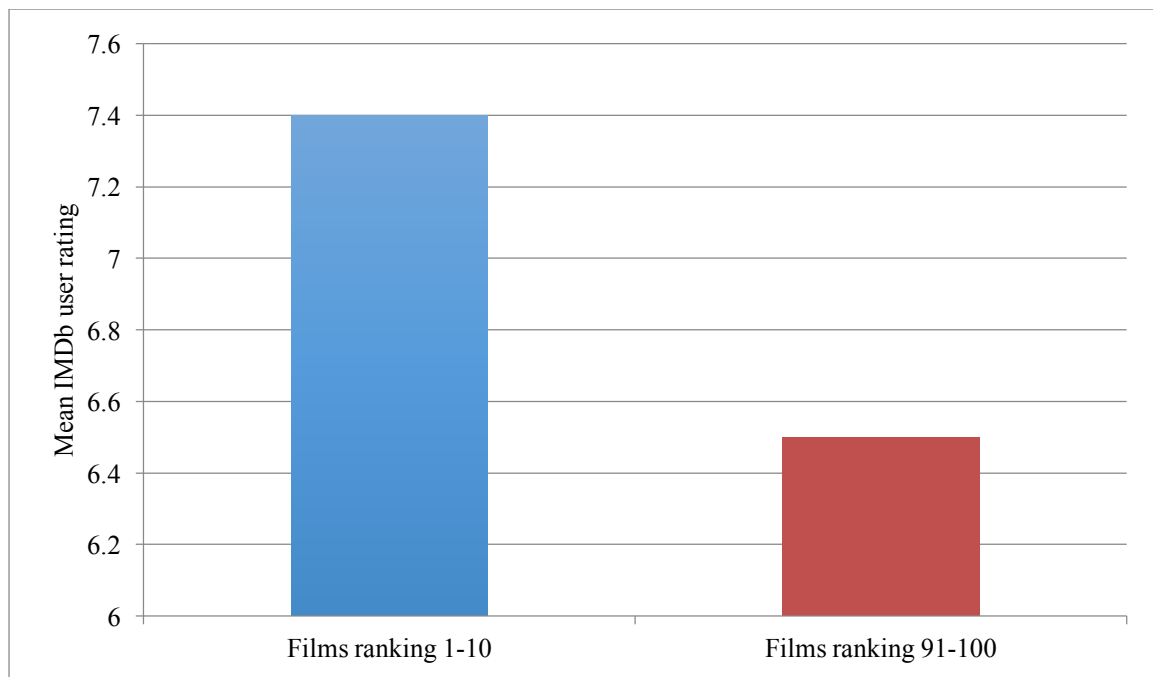


Figure 34: Mean IMDb user ratings for films ranking 1-10 and 91-100 at the annual North American box office between 2009 and 2014, excluding 2011.

The differences in the popularity of films ranking in the top ten, compared with films in ranks 91 to 100 at the annual US box office, were more pronounced in the mean critic ratings provided by aggregator film review sites. While the mean rating for the top-ten ranking box office films by Rotten Tomatoes critics was 74, films ranking at places 91 to 100 at the North American box office received a mean rating of 48. Similarly, the mean Metacritic rating for top ten films was 65, compared with 52 for films ranking between 91 and 100 at the North American box office. A strong positive correlation was found between Rotten Tomatoes and Metacritic ratings for films ranking 1 to 10 and 91 to 100 at the annual North American box office ($r_s=0.790$, $p<0.0005$). Furthermore, Rotten Tomatoes ratings were found to be more strongly correlated with these films' box office ($r_s=0.487$, $p<0.0005$) compared to Metacritic ratings ($r_s=0.353$, $p<0.0005$).

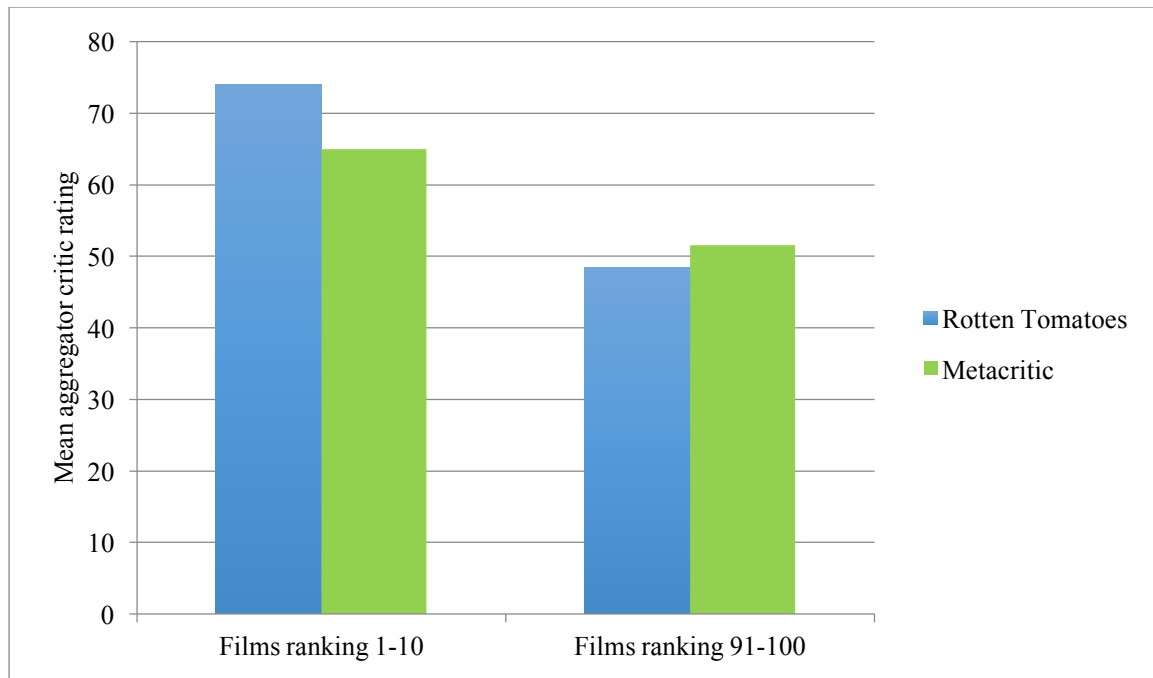


Figure 35: Mean Rotten Tomatoes and Metacritic ratings for films ranking 1-10 and 91-100 at the annual North American box office between 2009 and 2014, excluding 2011.

6.5.5 Film budgets and box office

The mean production budget of the sample films ranking in the top ten at the annual North American box office was US\$131.26 million, over four times the average budget of films ranking between 91 and 100 (M=US\$30.94 million). Furthermore, the annual top ten hits on average grossed over double their production budget at the North American domestic box office (M=US\$306.77 million), while films ranking between 91 and 100 typically failed to break even (M=US\$30 million) at the North American box office, as Figure 36 illustrates.

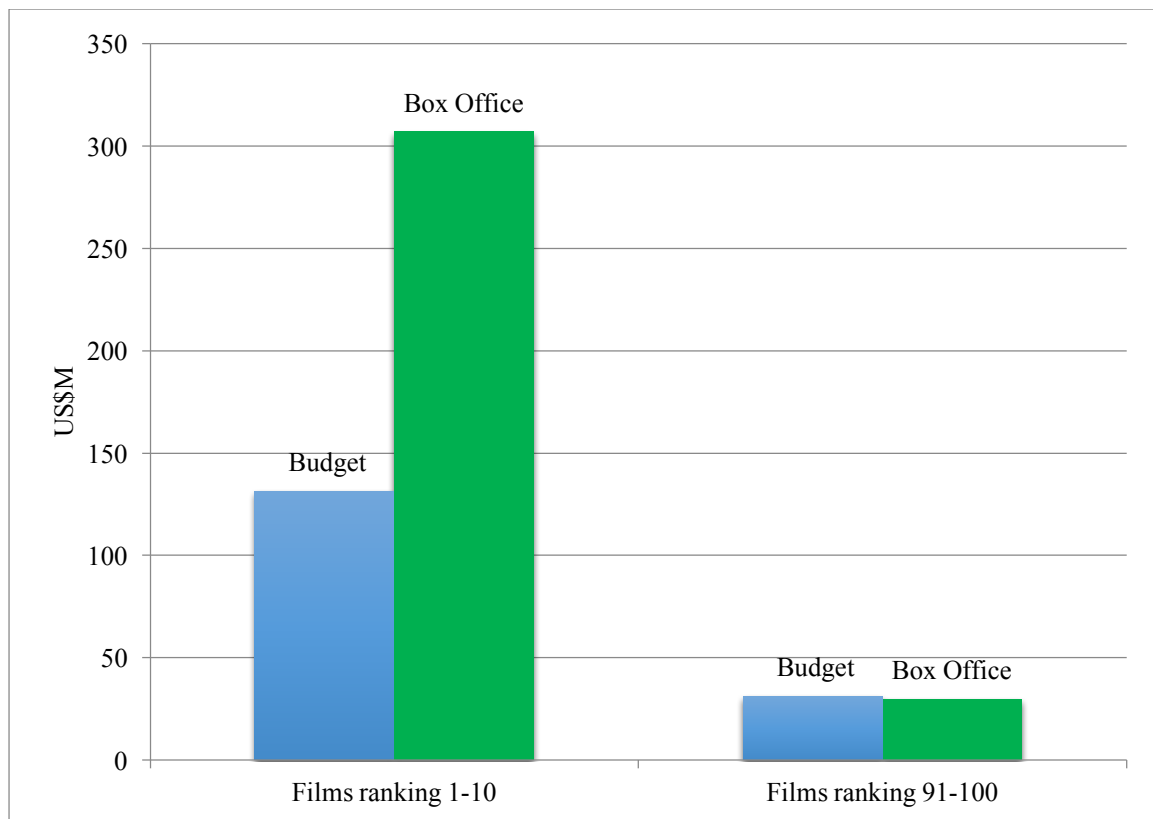


Figure 36: Mean production budget and North American box office gross for films ranking 1-10 and 91-100 at the annual North American box office between 2009 and 2014, excluding 2011.

6.5.6 Protagonist roles by gender

The distribution of protagonist roles by gender was identical for films at the top of the annual North American box office and films ranking in places 91 to 100. In both instances, 76% of the protagonists were male, and 24% were female.

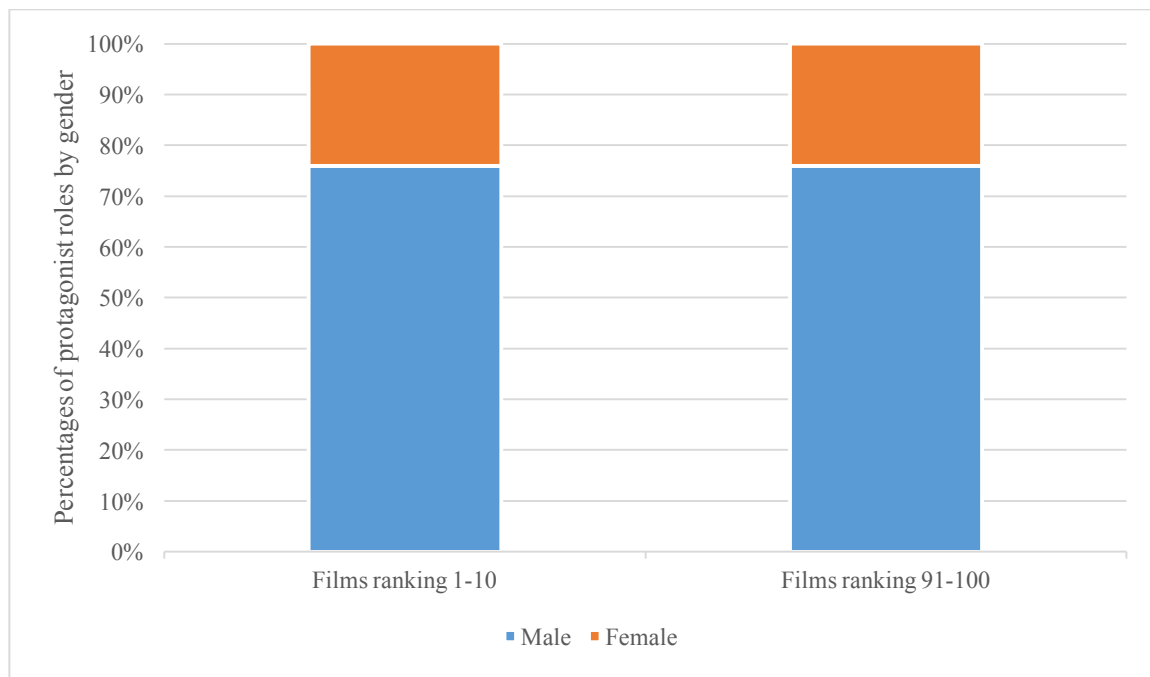


Figure 37: Distribution of protagonist roles, by gender, for films ranking 1-10 and 91-100 at the annual North American box office between 2009 and 2014, excluding 2011.

6.6 Study 4

The objective of this study was to determine whether ratings of protagonists’ traits, emotions and motivations could be used in a binomial regression model in order to predict whether a film that was recently exhibited in the US, with a production budget over \$110 million, was more likely to be a “blockbuster”, securing at least double the value of its production budget in worldwide ticket sales, or a “flopbuster”, failing to at least double the value of its production budget in worldwide ticket sales.

6.6.1 Films

The blockbuster films viewed in this study were the forty-two “tentpole” studio films exhibited in the US between 2009 and 2014, excluding 2011, with a production budget over US\$110 million, which secured at least twice the value of their production budget at the global box office. Forty of these films were primarily produced by US studios, and one film - *Skyfall* (2012) - was primarily produced by a British production company with US studio support. The flopbuster films viewed in this study were the nineteen tentpole studio films produced between 2009 and 2014, excluding 2011, for a production budget over US\$110

million, which failed to take more than double their production budget at the global box office (Box Office Mojo, 2015b). The complete list of these films is included in Appendix F.

6.6.2 Films by genre

Of the blockbusters, the majority were action films (26%), animation films (26%) and fantasy films (24%). The remaining films were distributed amongst science fiction, comedy, drama, thriller, sports, Western and the detective film genres. By contrast, 37% of the flopbusters were in the action genre, 16% were science fiction, 16% were comedies and 10% were fantasy films. Of the remaining films, one was a Western, and one was a horror film.

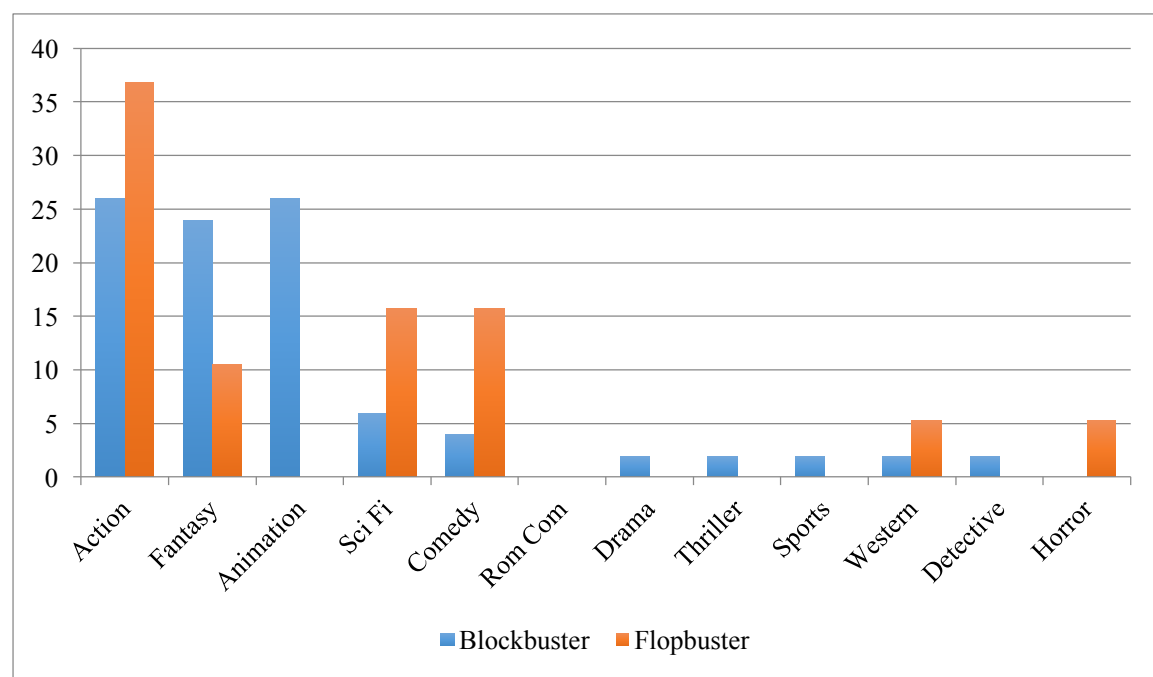


Figure 38: Distribution of films with a production budget over \$110million, exhibited between 2009 and 2014 excluding 2011, by genre.

6.6.3 Films by classification

63.2% of the blockbusters released between 2009 and 2014, excluding 2011, and 84.2% of the flopbusters received PG-13 MPAA ratings. 31.6% of the blockbusters and 5.3% of the flopbusters were rated PG. 5.3% of the blockbusters and none of the flopbusters were rated G. 10.5% of the flopbusters, and no blockbusters, were rated G.

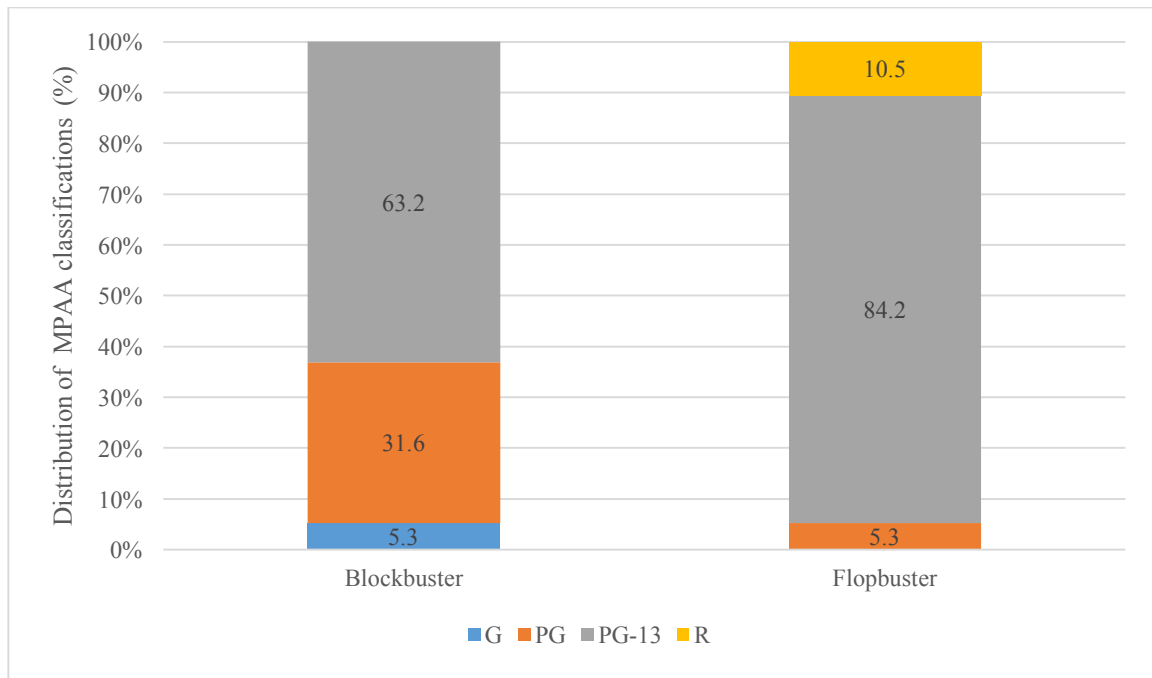


Figure 39: Distribution of MPAA classifications of blockbusters compared to flopbusters exhibited between 2009 and 2014, excluding 2011.

6.6.4 Film ratings

The nineteen flopbuster films that failed to double their production budgets at the worldwide box office were rated 6.2 on average by North American raters on IMDb. This compares with the 7.9 rating for the blockbuster films in this sample. A low positive correlation was found between the blockbuster and flopbuster IMDb ratings and the films' global box office performance ($r_s=0.256$, $p<0.05$), suggesting that much of the variance in the gross global box office is attributable to other factors.

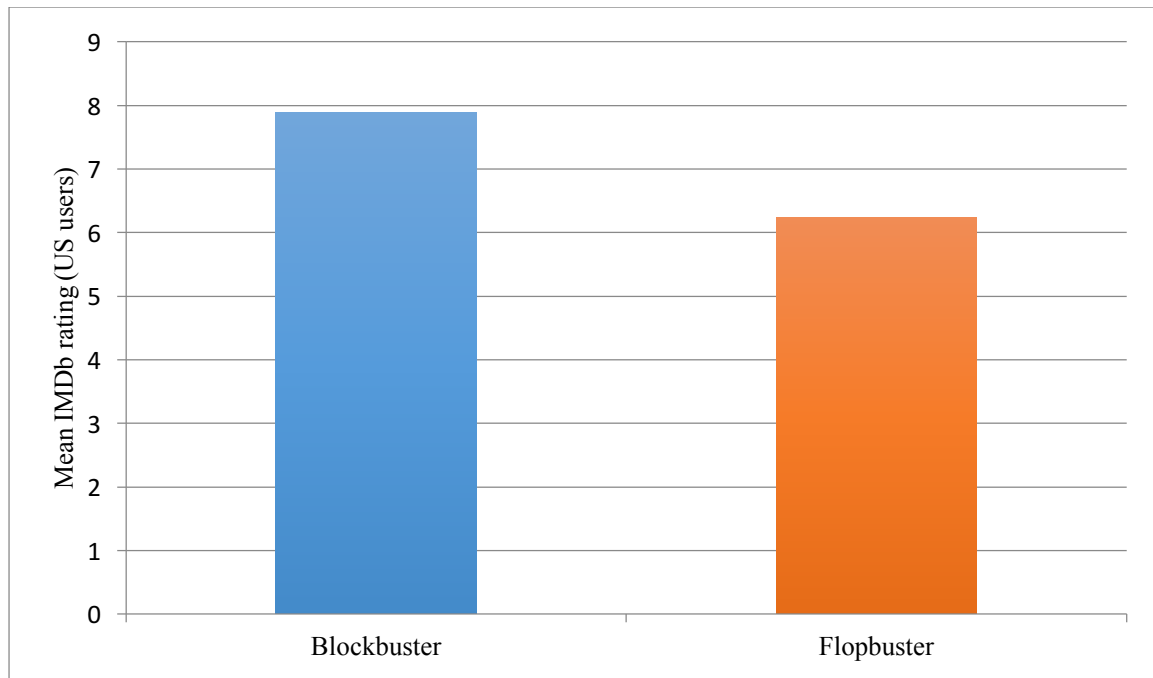


Figure 40: Mean US-user IMDb ratings of blockbusters compared to flopbusters exhibited between 2009 and 2014, excluding 2011.

By comparison, the aggregated film review site critic ratings were far lower for the flopbusters compared to the blockbusters. The mean rating of flopbuster films by Rotten Tomatoes critics was 38.4, compared with 74 for blockbusters released during the same period. Similarly, the mean rating of flopbuster films by critics reviewing for the Metacritic website was 46.2, compared with 65 for blockbusters. Thus, critics demonstrated a clear preference for the blockbuster films compared with the flopbusters. A very high positive correlation was found between the Rotten Tomatoes and Metacritic ratings for these films ($r_s=0.931$, $p<0.0005$) although it is important to remember that these measure critical approval in different ways. The Metacritic ratings were poorly but positively correlated with the films' box office gross ($r_s=0.332$, $p<0.05$), while the Rotten Tomatoes ratings were not correlated with the films' box office gross ($r_s=0.237$, $p>0.05$).

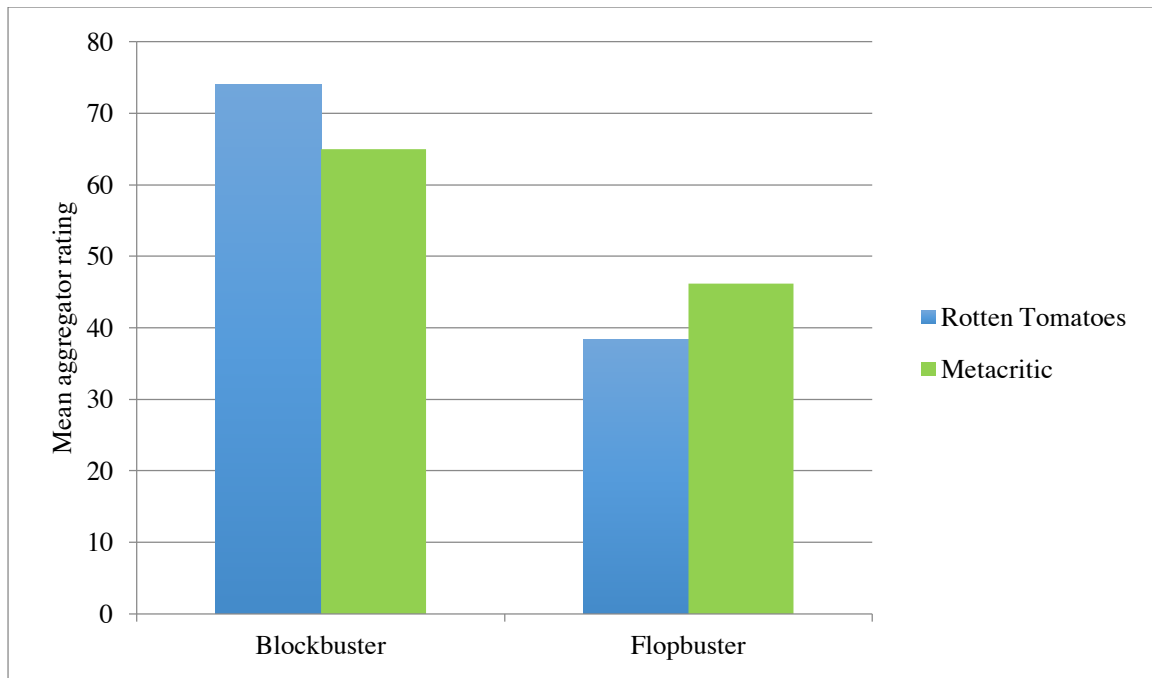


Figure 41: Mean critic ratings of blockbusters compared to flopbusters exhibited in North America between 2009 and 2014, excluding 2011.

6.6.5 Film budgets and box office

The mean production budget of the sample's blockbuster films was US\$191 million, compared with US\$161.47 million for the flopbusters. The marketing costs were not available for the majority of these films, preventing comparison. At the global box office the sample's blockbusters accumulated US\$889.22 million on average, compared to an average of \$US239.84 million by the sample flopbusters.

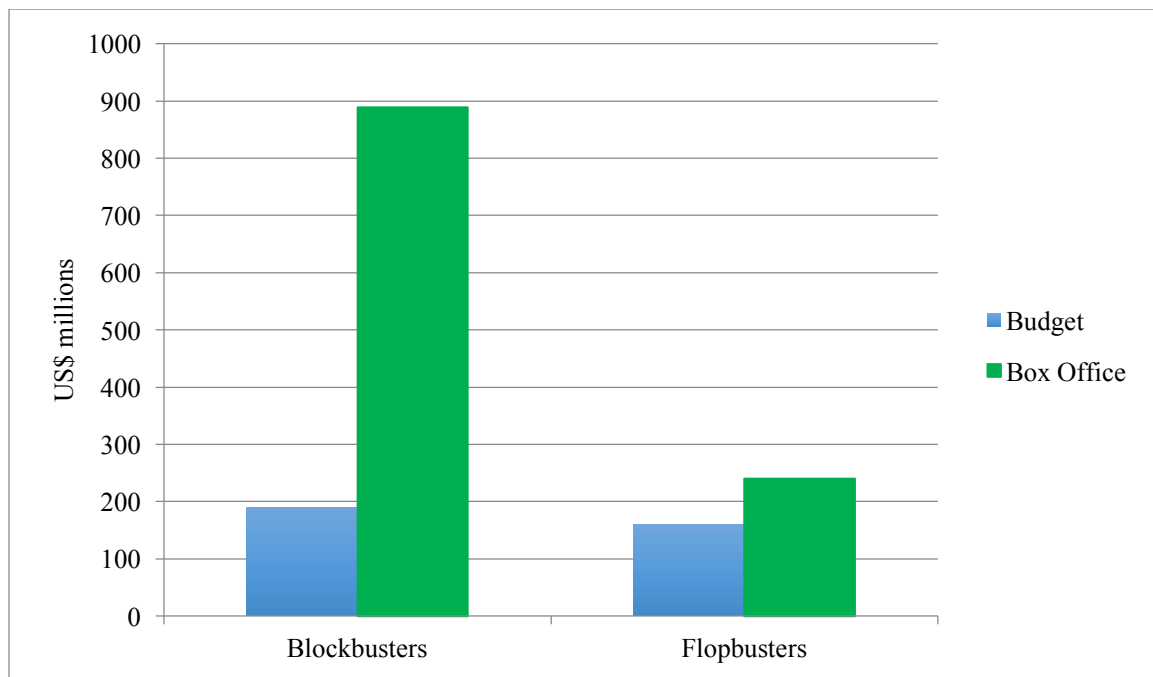


Figure 42: Mean production budget and global box office gross for blockbusters compared to flopbuster, released between 2009 and 2014, excluding 2011.

6.6.6 Protagonist roles by gender

76% of the protagonists in the sample's blockbusters were male, compared with 100% of the protagonists in the sample's flopbusters.

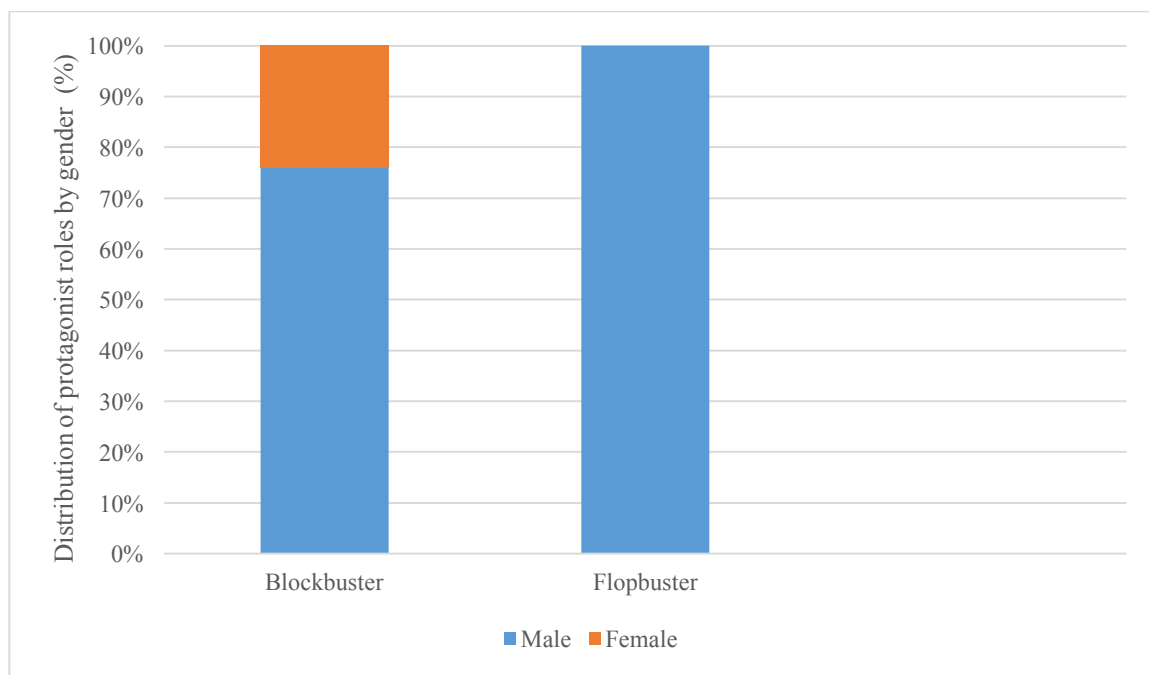


Figure 43: Distribution of protagonists' roles by gender in blockbusters compared to flopbusters released between 2009 and 2014, excluding 2011.

6.7 Study 5

There were two aims of this study. The first objective was to determine whether the protagonist traits, emotions and motivations that were identified in as significant predictors of North American and Chinese consumer preferences in Study 1, of North American and Chinese producer preferences in Study 2, and of global blockbusters and flopbusters in Study 4, could be used to predict whether a participant's cultural heritage was Chinese or British based on their ratings of the psychological attributes of protagonists in the top-five ranking US-produced films of all time, and the top-five ranking Chinese-produced films of all time at the global box office, in a general, linear, mixed-effects binomial regression analysis.

The second objective was to ascertain whether the protagonist attributes that were identified in as significant predictors of North American and Chinese consumer preferences in Study 1, of North American and Chinese producer preferences in Study 2, of North American top-ten ranking films in Study 3, and of global blockbusters and flopbusters in Study 4, could be used to differentiate between British participants' ratings and my own ratings of the psychological attributes of protagonists of the same sample of films, in a general, linear, mixed-effects binomial regression analysis.

6.7.1 Participants

The sample consisted of N=40 participants, ranging in age from 19 to 68 years old (M=40.7; SD=15.5). Of these, 15 participants were British (M=40 years; SD=13.3; 8 females). The other 25 participants were of Chinese heritage (age M=45; SD=17.6; 22 females). All the culturally Chinese participants had either been studying in the UK for up to two years, or were actively involved in Chinese cultural activities on at least a weekly basis, spoke primarily Cantonese and had lived in the UK for up to thirty years.

The participants were initially recruited from staff and students at the Met Film School in London, which has a large international student base. However, because attendance at the screening events was low (N=10), further participants were recruited through letters to the parents of the R1 class at St Johns C.E. School, Buckhurst Hill, Essex (N=7), a voluntary-controlled state school. Additional Chinese participants were recruited from members of the Chinese Opera group at the Waltham Forest Chinese Association (N=18). These participants were actively involved in Chinese cultural activities on at least a weekly basis, spoke primarily Cantonese and had lived in the UK for up to thirty years. A second group of Chinese participants were recruited from the population of Chinese-national, undergraduate and postgraduate students at Bangor University, who had been studying in the UK for up to two years (N=5). The participants were paid £3 for every questionnaire they completed.

6.7.2 Films

The films screened in this study were the top-five ranking US-produced films of all time at the global box office, and the top-five ranking Chinese-produced films of all time at the global box office as of October 2014 (Box Office Mojo, 2014). The US films were: *Avatar* (2009), *Titanic* (1997), *The Avengers* (2012), *The Dark Knight* (2008) and *Star Wars: Episode I – The Phantom Menace* (1999). The Chinese films were *Ren zai jiong tu: Tai jiong/Lost in Thailand* (2013), *Xi you xiang mo pian/Journey to the West* (2013), *Sap ji sang ciu/Chinese Zodiac* (2012), *Hua pi 2/Painted Skin: The Resurrection* (2012) and *Rang zi dan fei/Let the Bullets Fly* (2010). These films are also listed in Appendix G.

Cantonese audio or traditional Chinese subtitled versions of the films were provided for the Chinese-heritage participants. In some instances, the Chinese version DVDs were a different edit to the UK DVD releases. For example, the UK DVD version of *Titanic* (1997) runs at 186 minutes and is not provided with Chinese subtitles. A Chinese-subtitled NTSC version of the film runs at 194 minutes, and a Hong-Kong Region 3 version of the film runs

at 195 minutes. Some of the Chinese-version DVDs in this sample bear the marks of SARFT censorship. In the Chinese-subtitled version of *Titanic* (1997), for example, the nude scene depicting Rose, the main character, has been cropped to show her only from the neck up. Despite these differences in the film versions screened to participants, I felt that the distinctions were not significant enough to result in different APTM-Q ratings of the protagonists' traits, emotions or motivations.

The films were either viewed at screenings, or on DVDs at the participants' homes. Projected film screenings were held for students and staff at the Met Film School, and for members of the Chinese Opera group at the Waltham Forest Chinese Association. Participants recruited from Bangor University and parents from St John's C.E. School were loaned DVD copies of the films to watch in their own time. One potential concern in allowing participants to watch films unsupervised at home, was that they might not watch the full film, or that they might not pay full attention to the narrative. However, the statistical techniques employed in the analysis have the strength to detect outliers amongst the participants. Furthermore, the £3 payment for participation was most likely not a sufficiently strong incentive to encourage participants to lie about watching films that they had not viewed.

6.7.3 Films by genre

Four of the films in the sample were action films, two were fantasy, two were science fiction, one was a romance, and one was a comedy as illustrated in Figure 44, overleaf.

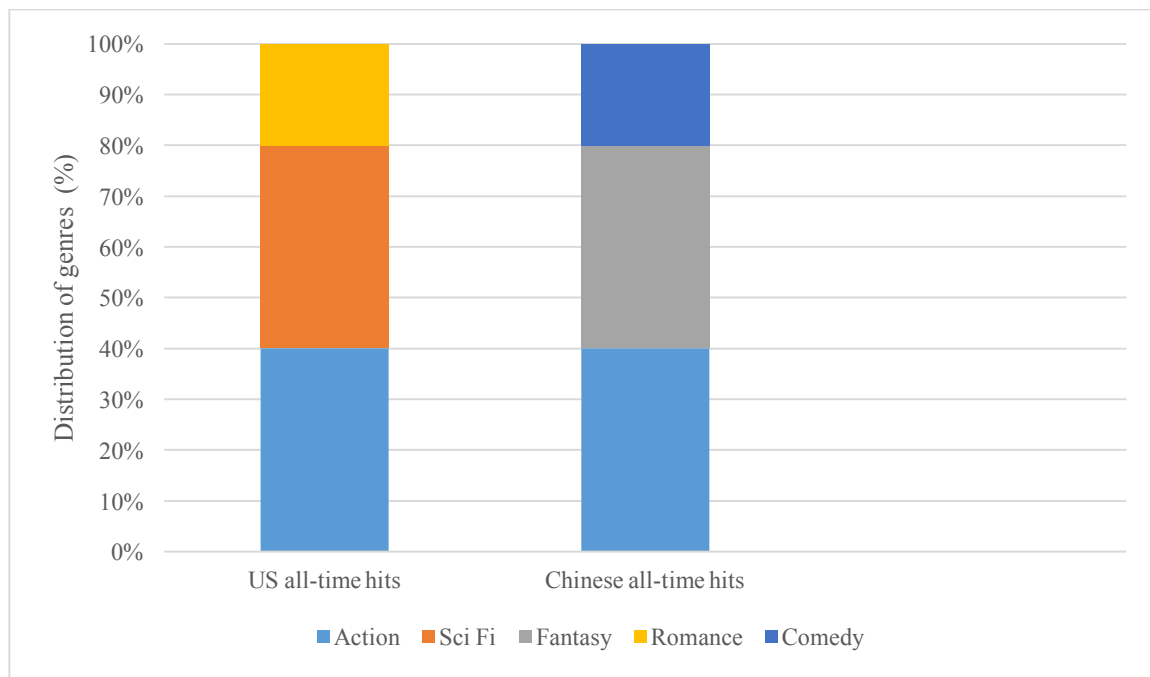


Figure 44: Distribution of genres among the top-five grossing US-produced films of all time compared to the top-five grossing Chinese-produced films of all time.

Half the films in the sample were based on original screenplays (*Avatar* (2009), *Titanic* (1997), *Ren zai jiong tu: Tai jiong/Lost in Thailand* (2013), *Sap ji sang ciu/Chinese Zodiac* (2012) and *Rang zi dan fei/Let the Bullets Fly* (2010)). Three of the films were adaptations of existing properties, including comic book characters (*The Avengers* (2012), *The Dark Knight* (2008) and *Xi you xiang mo pian/Journey to the West* (2013)). The remaining films were prequels or sequels to existing film series (*Star Wars: Episode I – The Phantom Menace* (1999) and *Hua pi 2/Painted Skin: The Resurrection* (2012)).

Consideration was given as to whether participants needed to have watched every episode of a film series to fully understand and engage with the film, but I felt that the narratives of both *Star Wars: Episode I – The Phantom Menace* (1999) and *Hua pi 2/Painted Skin: The Resurrection* (2012) were self-contained enough to ensure that prior watching of the earlier series episodes was not a necessity. I gave similar consideration to whether pre-existing knowledge of the comic book characters of *The Avengers* (2012) and *The Dark Knight* (2008), or of the Chinese literary classic on which *Xi you xiang mo pian/Journey to the West* (2013) is based, would facilitate film viewing, and concluded that this additional knowledge was neither a pre-requisite nor essential for understanding the films' narratives.

6.7.4 Films by classification

Four of the top-five grossing US-produced films of all time were rated PG-13 by the MPAA. The other film was classified PG. Two of the top-five grossing Chinese-produced films of all time were classified for release in the US, and these received PG-13 certificates.

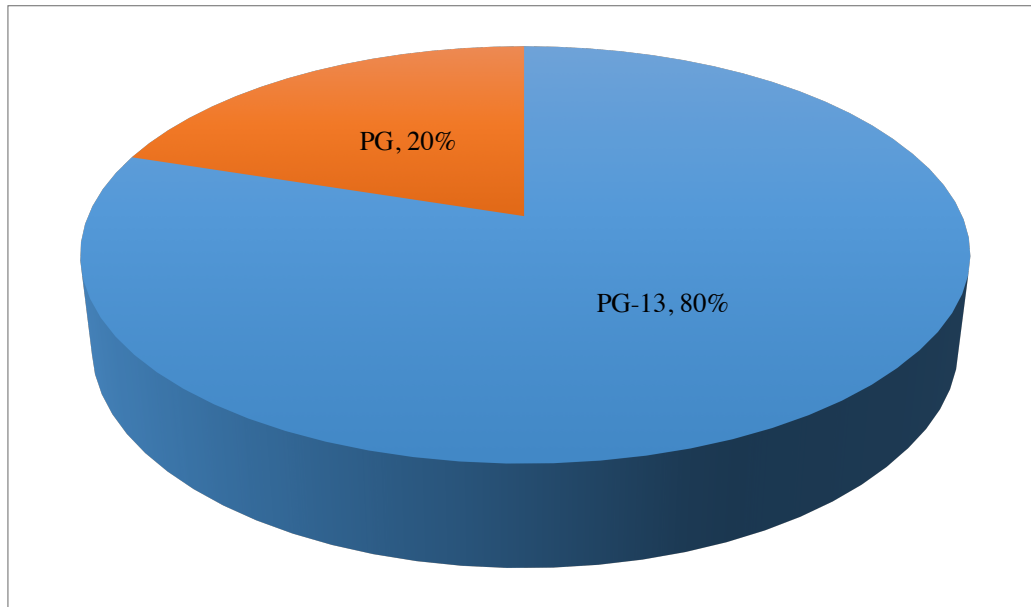


Figure 45: MPAA classifications amongst the top-five grossing US-produced films of all time.

6.7.5 Film ratings

As Figure 46 illustrates, the ten highest-grossing films produced in China and North America scored, on average, over 7 on Douban user ratings (U.S M=8.5; China M=7.2), which can be taken as a confirmation of their audience popularity (Koh, Hu & Clemons, 2010). The American-user IMDb ratings were, as expected, a little lower than Douban's mean ratings (US M=7.9; China M=6.6), but the strong positive valence of these ratings confirmed that these films were generally popular.

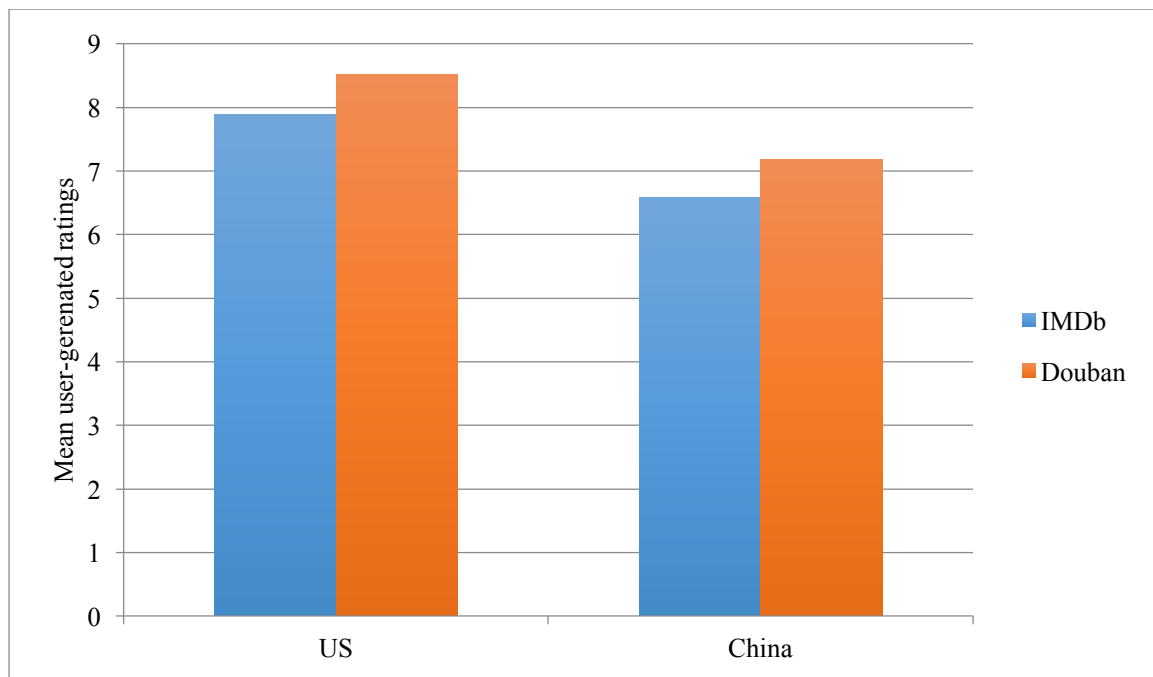


Figure 46: Mean US-user IMDb ratings compared to Douban user ratings of the top-five grossing US-produced films of all time compared with the top-five grossing Chinese-produced films of all time.

There was consensus between Rotten Tomatoes and Metacritic ratings, rating the ten highest-grossing box office hits produced in the US over 70% on average. By comparison, the mean ratings for the five highest-grossing Chinese-produced films were at least 10% lower. However, the Metacritic ratings were based on a very small number of critic reviews (in some instances <5), and are therefore unreliable. See Figure 47.

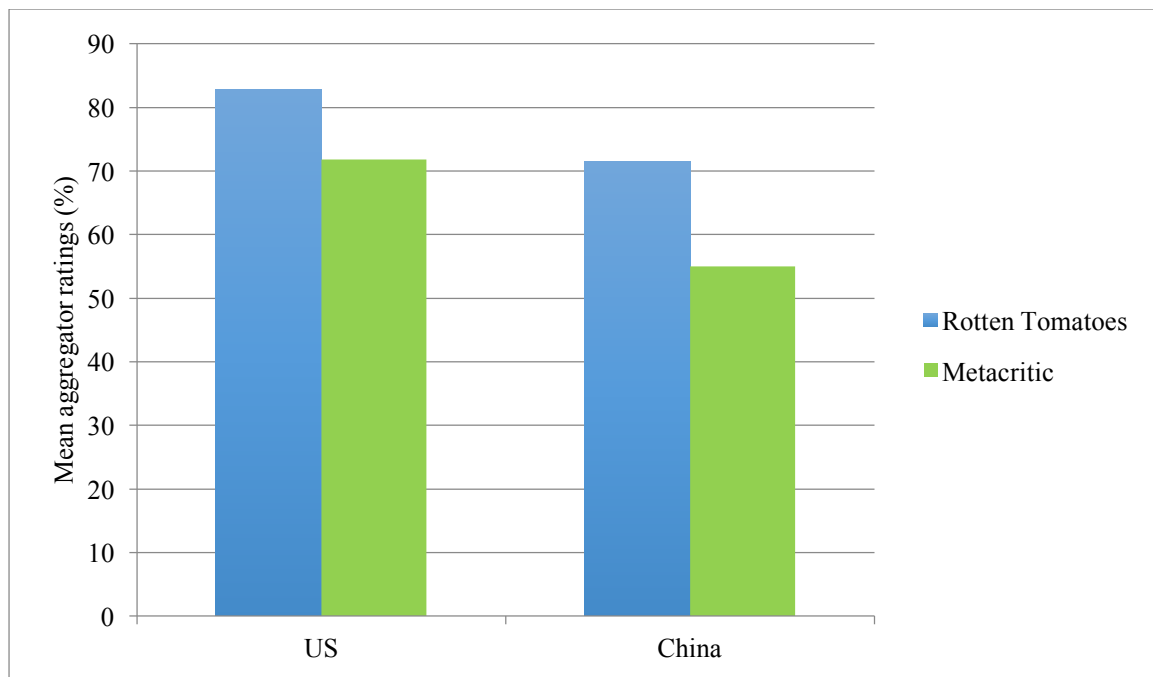


Figure 47: Mean Rotten Tomatoes versus Metacritic ratings for the top-five grossing US produced films of all time compared with the top-five grossing Chinese-produced films of all time.

6.7.6 Film budgets and box office

The mean budget of the five highest-grossing US-produced films of all time (M=US\$191.4 million) was over seven times greater than the mean budget of the five highest-grossing Chinese-produced films of all time (M=US\$27 million). An even greater difference was found between the mean global ticket sales of the five highest-grossing, US-produced films of all time, which made nearly ten times their production budget through worldwide ticket sales (M=US\$1.705 billion), compared with the mean global ticket sales of the five highest-grossing Chinese-produced films of all time, which recouped just under six times their production budgets (M=US\$157.8 million) on average.¹²

¹² Global box office data was not available for *Xi you xiang mo pian/Journey to the West* (2013) or *Hua pi 2/Painted Skin: The Resurrection* (2012), so these films were excluded from the analysis of means.

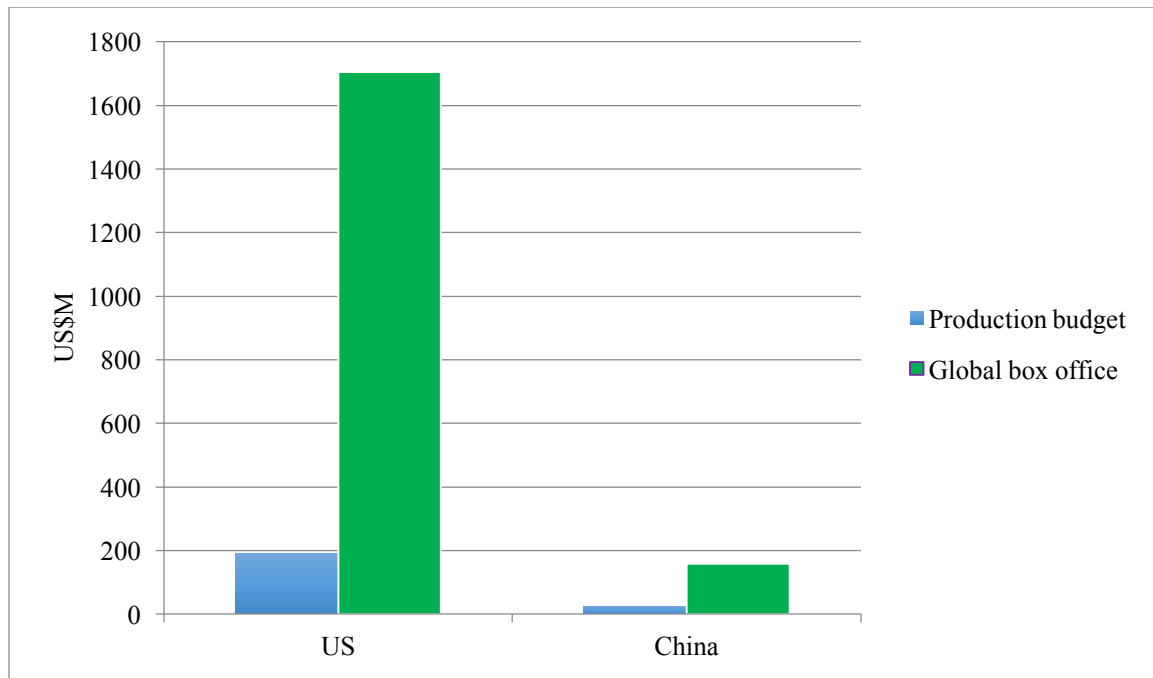


Figure 48: Mean production budget and gross global box office for the five highest-grossing US-produced films of all time and the five highest-grossing films Chinese-produced films of all time.

6.7.7 Protagonist roles by gender

Protagonists' film roles by gender were identically distributed across the five highest-grossing US- and Chinese-produced films of all time. In both nations four out of the five protagonists' roles were male as illustrated in Figure 49, overleaf.

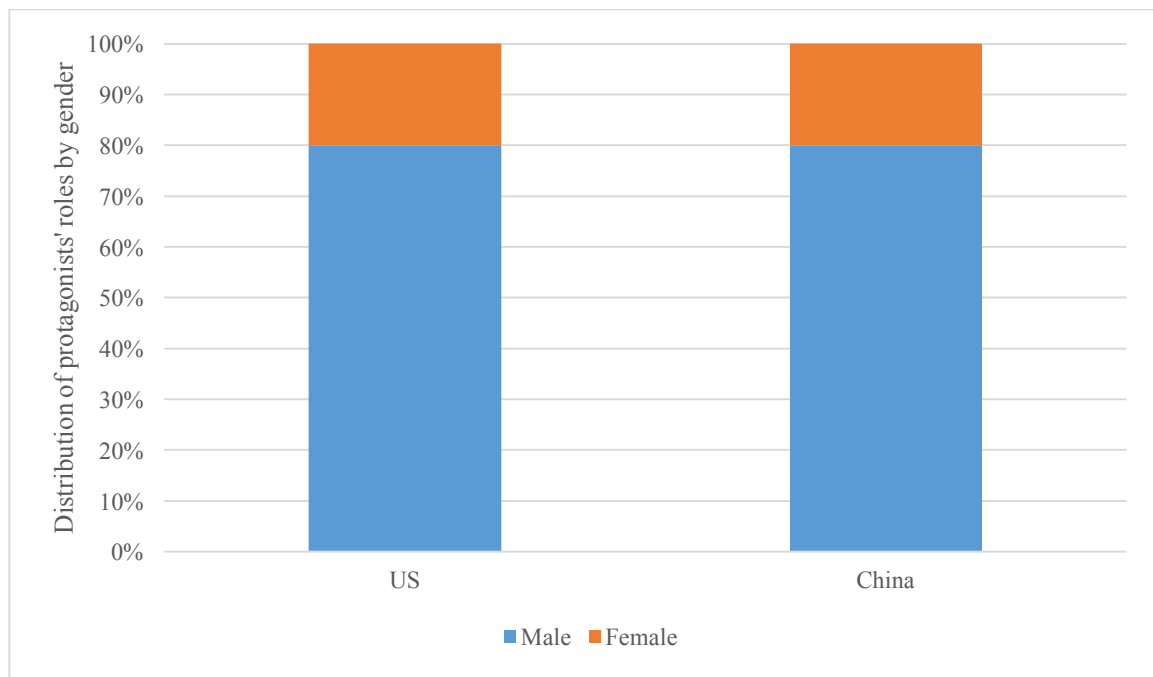


Figure 49: Distribution of protagonists' roles by gender in the five highest-grossing US-produced films of all time and the five highest-grossing Chinese-produced films of all time.

6.7.8 Instrument

The APTEM-Q was translated into traditional Chinese for Chinese participants whose primary language was Cantonese.

6.7.9 Procedure

In the two screening groups (students and staff at the Met Film School and members of the Waltham Forest Chinese Opera group), participants were first briefed about the procedure. In the Chinese group, the Director of the Waltham Forest Chinese Opera group provided the Cantonese translation.

All participants were then shown neutral, digital headshots of the main character in the film they were about to watch, and asked to rate the corresponding items using the APTEM-Q. The film was then screened either on a large-screen TV to the Chinese Opera group, or via overhead projector to the Met Film School group. For the Chinese group, both the American films and Chinese films with Mandarin audio were screened with traditional Chinese subtitles. Participants were asked to complete the remaining items in the questionnaire immediately after watching the film.

In the DVD-watching groups, participants were required to watch the films at home at their own convenience. They first read their briefing sheets, which fully explained the procedure. They then viewed a digital version of the headshot, and rated these items on their questionnaires. Once completed, they screened their DVDs and were asked to complete the remaining items in the questionnaire immediately afterwards. Traditional Chinese subtitled DVDs were provided for the Chinese participants.

7 Results

There were six main findings. First, I found the questionnaire items to be comprehensive as a means of analysing fictional feature film protagonists' personality traits, emotions and motivations. Each of the traits, emotions and motivations surveyed by the APTEM-Q was displayed by protagonists in the North American and Chinese box office sample films. Furthermore, every personality trait, emotion and motivation displayed by the 170 protagonists, analysed across the five studies, could be described by one or more of the items in the questionnaire. This is not to say that culturally-specific motivations do not exist, but these were not motives of the protagonists in the films at the top and towards the bottom of the box office in North America and China. However, there were a few films whose protagonists displayed emotions or motivations which were harder to categorize using the stated criteria.

Second, a four-factor binomial regression model correctly classified whether films exhibited between 2009 and 2014, excluding 2011, were more likely to be top-ten domestic box office hits in North America or China on the basis of perceived protagonist qualities. Films in which the protagonist was perceived to display greater Fear, demonstration of Physical Skills and Helping Others were more likely to be popular at the North American box office, while films in which the protagonist draws greater Meaning from the events of the narrative were more likely to be popular in China.

Third, a three-factor binomial regression model predicted whether popular films exhibited between 2009 and 2014, excluding 2011, were more likely to be produced in the US or China. Films in which the protagonist was perceived to display greater Fear and Physical Skills were more likely to be produced in the US, while films in which the leading actor was female, or rated as more feminine, were more likely to be produced in China.

Fourth, a three-factor binomial regression model predicted whether films exhibited between 2009 and 2014, excluding 2011, were more likely to rank in the top ten at the annual North American domestic box office, or at ranks 91 to 100. Films in which the main character was perceived to display greater Compassion, Physical Skills and Impulsiveness were more likely to rank at the very top of the North American box office.

Fifth, another three-factor binomial regression model was found to predict whether films produced for budgets of US\$110 million or over were more likely to become "blockbusters", returning at least twice the value of their investment at the worldwide box

office, or “flopbusters”, failing to double the value of their production budget in worldwide ticket sales. Films in which the leading actor was perceived to display less Anxiety, and in which the protagonist was rated as displaying less Physical Skills but greater Mental Skills, were more likely to be blockbusters.

Finally, the British and Chinese participants in the study rated the four protagonist attributes in the model derived from Study 1 in similar ways, and my own ratings of these four items – Fear, Physical Skills, Helping Others and Meaning – were typical of the British participants. In other words, the four-factor model derived from Study 1 could *not* be used to predict whether a participant’s cultural heritage was Chinese or British. The British and Chinese participants in the study also rated the three protagonist attributes in the model derived from Study 2 in very similar ways, and my own ratings of these three attributes – Fear, Physical Skills and Actor’s Gender – were typical of the British participants. Again, this means that the three-factor model derived from Study 2 could *not* be used to predict whether a participant’s cultural heritage was Chinese or British.

When considered together as a three-factor model, the British participants’ ratings of protagonists’ Compassion, Physical Skills and Impulsiveness did not significantly differ from my own. In other words, the three-factor model derived from Study 3 could *not* be used to predict whether I had rated these three protagonist attributes or whether they were rated by the British participants.

A similar result was also found for Study 4; the British and Chinese participants in the study rated the three protagonist attributes in the model derived from Study 4 in similar ways, and my own ratings of these four items – Actors’ Anxiety and the protagonists’ Physical Skills and Mental Skills – were typical of the British participants. In other words, the three-factor model derived from Study 4 could *not* be used to predict whether a participant’s cultural heritage was Chinese or British.

7.1 Challenging cases

In a handful of films, protagonists displayed emotions or motivations which were harder to categorize using the stated criteria. These included assessing opaque characters. For example, because the protagonist of the Chinese-produced fantasy film *Hua pi 2/Painted Skin: The Resurrection* (2012) displays and expresses very little emotion, her emotions are difficult to rate and it is sometimes hard to identify her motivations.

Avoiding the inference of emotions or motivations when rating protagonists' actions was a problem in many of the films. For example, at the beginning of the US-produced fantasy film *Avatar* (2009), protagonist Jake Sully explains, in a somewhat melancholy tone, that his brother was killed a week before he was due to "ship out" to Pandora. In a flashback Sully takes one last look at his brother's body in the morgue, with a face devoid of emotion. In the subsequent sequence the viewer learns that Sully has taken his identical twin brother's place. From the melancholic tone of Sully's voiceover, and the fact that he so readily escapes Earth to take over his brother's mission, I concluded that he is at least in part motivated by Familial Love. Arguably, however, this is not stated; it is inferred. Furthermore, *Avatar's* shooting script offers no additional clues as to whether Sully is motivated by Familial Love (Cameron, 2009a).

Assessing the personality traits of dual personality superheroes was also difficult. For example, in the superhero crime thriller *The Dark Knight* (2008), the protagonist Bruce Wayne is far more Sociable and Optimistic than his alter ego, Batman, but less Impulsive and Aggressive. Similarly, in the superhero action films *Iron Man 2* and *3* (2010; 2013), the protagonist Tony Stark is more Sociable, less Impulsive and less Aggressive than his alter ego Iron Man. When rating these dual personality superheroes, I was guided by the dominant impression of the protagonist and advised my participants that they should also be guided by protagonists' dominant impressions.

Characters who were "shape-shifters" presented similar problems when attempting to assess protagonists' personality traits. In the Chinese fantasy film *Hua pi 2/Painted Skin: The Resurrection* (2012), the enchanted protagonist Xiaowei swaps appearances with a friend, so that she may seduce the man that she loves. From this point in the narrative the two characters display far more similar personality traits and eventually merge as one at the climax of the film. By contrast, in *Avatar* (2009), shape-shifting results in a change in the protagonist's biology. For the majority of the film Jake Sully is human, controlling his human/Na'vi hybrid avatar on the world of Pandora. Without Jake's operation, it is clear that his avatar cannot exist. Furthermore, because their personalities, emotions and motivations are identical, they appear to be the same character – Sully is merely driving his biological avatar. At this point Jake's motive for helping the Pandoran Na'vi tribe, a race of humanoid extra-terrestrials, is best classified as Helping Unrelated Others. This position becomes less clear when the Na'vi invite Jake to take hold of their Tree of Souls during a ceremony in which they declare him now to be a Na'vi. Soon after this ceremony, Jake becomes Neytiri's

“mate for life”. These actions are best interpreted as welcoming gestures from unrelated others, since Jake’s avatar still cannot exist without his human form. However, at the film’s climax Sully transfers permanently into his avatar in order to avoid human death. At this stage he shares their biology and may even have become their biological kin. From here on, therefore, Jake’s motive to help the Na’vi should either be classified as Helping Unrelated Others or possibly even Helping Relatives. In my analysis of these shape-shifters, I once again was guided by the protagonists’ dominant impression, and rated the personality traits, emotions and motivations that the protagonist displayed for the longest duration in the film.

In some of the sample films, analysing how best to interpret the protagonist’s changing relationship with others was challenging. For example, in many of the films in the sample the protagonist initially helped a stranger or unrelated other, which would be rated as an instance of Helping Others. When this relationship with a stranger evolved into friendship, as was typical in many of the sample films, the protagonist’s helpful behaviour would then be classified as Helping Friends. In order to clarify this analysis, I merged all ratings of Helping Friends together with Helping Others, and used the mean rating of both attributes for data analysis – reclassifying this as Helping Others. Other instances in which the protagonist’s changing relationship with others proved challenging for analysis were when the protagonist began to court a sexual partner. For example, in *Avatar* (2009), Jake Sully was initially motivated by Helping Others when he first met Neytiri. As their relationship became more intimate, Sully’s motives evolved to Having Sex/Dating, and then finally to Helping Life Partner when he is declared to be her “mate for life”.

Rating the item Avoiding Danger was another challenge, as prosocial behaviour in films often involves taking risks, while simultaneously mitigating for them. In the action thriller *Skyfall* (2012), for example, the protagonist James Bond frequently exposes himself to danger while armed with a handgun. In other words, he is at once confronting dangerous situations while protecting himself. Similarly, in *Iron Man 2* (2010) and *Iron Man 3* (2013) Tony Stark generally enters dangerous situations fully clad by protective armour.

Finally, a few of the US-produced sample films had multiple protagonists, which raised the question of whether a single protagonist needed to be identified among them. Although multiple protagonists typically shared the same primary motivations, the frequencies and intensities of secondary motivations always varied among groups of protagonists. Because of

this, I selected the character played by the actor with the highest billing in the film, who played a slightly larger role, for analysis. Taking the example of the popular US-produced comedy *The Hangover* (2009), the film is driven by a group of friends, who are all the protagonists and whose journeys are followed throughout the course of the narrative. However, Bradley Cooper's character Phil took a slightly larger role in the film, and as the leader of the "Wolfpack" he had the most active role. For this reason, his character was selected for analysis.

7.2 Study 1

Ratings of the protagonists' attributes for this study are included in Appendix J. Eleven US-produced films, which were hits in both North America and China, were excluded from the study so as to avoid duplication across the two groups. These films were *Captain America: The Winter Soldier* (2014), *X Men: Days of Future Past* (2014), *Transformers: Age of Extinction* (2014), *Iron Man 3* (2013), *The Avengers* (2012), *Alice in Wonderland* (2010), *Inception* (2010), *Harry Potter and the Deathly Hallows: Part 1* (2010), *Avatar* (2009), *Transformers: Revenge of the Fallen* (2009) and *Star Trek* (2009).

Several preliminary analyses were first performed in order to determine whether factor analysis should be conducted on the data prior to binomial logistic regression analysis. Using SPSS version 22 (IBM Corp, 2013), a principal axis factor analysis with oblique rotation was conducted on the 43 variables measured with the APTEM-Q (leading actor's visually-assessed personality traits, protagonist's emotions, protagonist's motivations and protagonist's personality traits). The Kaiser-Meyer-Olkin (KMO) measure verified the sampling adequacy for the analysis (KMO=0.605), which was found to be "mediocre" as described by Hutchinson and Sofroniou (1999). However, the determinant of the correlation matrix was unacceptably low (<0.00001), suggesting high collinearity between some variables. Because of this high collinearity between some variables, a low number of correlations greater than 0.3 for other variables, and low KMO values for other individual variables (<0.5) (see Field, 2013, pp. 694–695), the following variables were eliminated: Actor's Aggression (correlation coefficient with Actor's Gender=-0.69), Actor's Activity (correlation coefficient with Actor's Impulsiveness=0.65), Actor's Gender (correlation coefficient with Character's Gender=0.89), Actor's Attractiveness (correlation coefficient with Character's Attractiveness=0.74), Assertive Behaviour (correlation coefficient with

Aggression=0.76), and Familial Love (correlation coefficient with Helping Relatives=0.70). With these variables eliminated, a further principal axis factor analysis with oblique rotation was conducted on the remaining 37 variables. The KMO measure was found to be “miserable” (KMO=0.596) as described by Hutcheson and Sofroniou (1999), indicating inadequate sampling adequacy for the analysis. Additional analyses were performed by eliminating other variations of these variables, but in every analysis the KMO measure did not rise above “miserable”. For this reason it was concluded that the sample size was inadequate to proceed with factor analysis.

Using SPSS version 22 (IBM Corp, 2013), a binomial logistic regression was then performed on the ratings of protagonists’ attributes from the remaining 78 films in order to ascertain the odds ratio of a film being a Chinese hit from the protagonist’s personality traits, emotions and motivations – the dependent (predictor) variables. Although Cook’s distances for the remaining films were all <0.5, suggesting that none of the cases exerted undue influence on the model (Cook & Weisberg, 1982), the leverage value for *Xin hua lu fang/Breakup Buddies* (2014) was over three times the average (>0.192 for this dataset). Following Stevens’ (2012) recommendations that cases with three times the average leverage values should be considered as having undue influence over the model, *Xin hua lu fang/Breakup Buddies* (2014) was excluded from the regression analysis. Since just over 2% of the films had standardised residuals that lay outside ± 1.96 , as would be expected within a normal population (Field, 2013), none of the films were considered to be outliers.

Only significant predictor variables, which all had $p < 0.05$, were included in the regression model, using the forced entry method recommended by Studenmund and Cassidy (1987). A four-item binomial regression model was found to be statistically significant: $X^2(4) = 31.37$; $p < 0.0005$. The model explained 44.6% of the variance in whether a film was preferred in North America or China, and correctly classified 75.3% of the films. Sensitivity was 73.7% and specificity was 76.9%. Positive predictive value was 75.7% and negative predictive value was 75.0%. The four statistically significant items were Fear, displaying Physical Skills, Helping Others and Meaning. For each unit increase in the ratings of the degree to which the protagonist displays Fear, the odds of the film being a hit in China are lowered by a factor of 0.505. Similarly, for each unit increase in the ratings of the degree to which the protagonist displays Physical Skills, the odds of the film being a Chinese hit are lowered by a factor of 0.731, and for each unit increase in the ratings of the degree to which the protagonist Helps

Others, the odds of the film being a Chinese hit are lowered by a factor of 0.453. Conversely, for each unit increase in the ratings of the degree to which the protagonist creates Meaning from the course of the narrative, the odds of the film being a Chinese hit are raised by a factor of 1.797. All these findings were significant with $p < 0.05$, as shown in Table 2.

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Fear	-.683	.220	9.673	1	.002	.505	.329	.777
Helping Others	-.793	.300	7.003	1	.008	.453	.252	.814
Physical Skills	-.313	.182	2.964	1	.050	.731	.512	1.044
Meaning	.586	.189	9.646	1	.002	1.797	1.241	2.600
Constant	3.844	1.421	7.321	1	.007	46.706		

Table 2: Binomial ordinal regression results predicting the odds ratios of whether a film ranking in the top ten of the North American or Chinese annual domestic box office between 2009 and 2014, excluding 2011, is a hit in China from attributes of the film's protagonist.

To confirm the reliability of the analysis, the data was then split randomly into two halves. For both split files the same four-factor regression model was found to be statistically significant. In split file 1 ($N=38$), $X^2(4)=13.77$; $p < 0.01$. The model explained 40.6% of the variance and correctly classified 68.4% of the films. The sensitivity was 70.0% and the specificity was 66.7%. Positive predictive value was 70.0% and negative predictive value was 66.7%. Split file 2 ($N=39$) produced fairly similar results: $X^2(4)=25.59$; $p < 0.0005$. The model explained 62.5% of the variance in whether a film was preferred in North America or China and correctly classified 76.9% of the films. The sensitivity was 72.2% and the specificity was 81.0%. Positive predictive value was 76.4% and negative predictive value was 77.3%.

Five additional analyses were then performed in order to further confirm the reliability of the model. In each of these analyses, protagonist ratings from films released during each of the years of the full data set were excluded in turn. The results confirmed that the same four-factor model was statistically significant ($p < 0.0005$) in all five analyses, in each instance correctly classifying at least 71.9% of the films.

Excluding ratings from films released in 2014 ($N=64$), the same four-factor regression model was found to be statistically significant: $X^2(4)=29.45$; $p < 0.0005$. The model explained

49.2% of the variance in whether a film was preferred in North America or China and correctly classified 76.6% of the films. The sensitivity was 81.3% and the specificity was 71.9%. Positive predictive value was 74.3% and negative predictive value was 79.3%.

Excluding ratings from films released in 2013 (N=59), the same four-factor regression model was again found to be statistically significant: $X^2(4)=24.71$; $p<0.0005$. The model explained 45.6% of the variance in whether a film was preferred in North America or China and correctly classified 78.0% of the films. The sensitivity was 75.9% and the specificity was 80.0%. Positive predictive value was 78.6% and negative predictive value was 77.4%.

Excluding ratings from films released in 2012 (N=59) confirmed the same four-factor regression model as statistically significant: $X^2(4)=21.53$; $p<0.0005$. The model explained 40.8% of the variance in whether a film was preferred in North America or China and correctly classified 76.3% of the films. The sensitivity was 72.4% and the specificity was 80.0%. Positive predictive value was 77.8% and negative predictive value was 75.0%.

Excluding ratings from films released in 2010 (N=64) also confirmed the same four-factor regression model as statistically significant: $X^2(4)=26.16$; $p<0.0005$. The model explained 44.7% of the variance in whether a film was preferred in North America or China and correctly classified 71.9% of the films. The sensitivity, specificity, positive and negative predictive values were all 71.9%.

Finally, excluding ratings from films released in 2009 (N=62) confirmed the same four-factor regression model as statistically significant: $X^2(4)=27.64$; $p<0.0005$. The model explained 48.0% of the variance in whether a film was preferred in North America or China and correctly classified 74.2% of the films. The sensitivity was 76.7% and the specificity was 71.9%. Positive predictive value was 71.9% and negative predictive value was 76.7%.

As an additional check, the same four-factor model was run with all 78 films, including the influential case *Xin hua lu fang/Breakup Buddies* (2014). The results once again confirmed the model is statistically significant with $X^2(4)=30.83$; $p<0.0005$, explaining 43.5% of the variance and classifying 75.6% of the films. The sensitivity was 76.9% and the specificity was 74.4%. Positive predictive value was 76.3% and negative predictive value was 75.0%.

7.3 Study 2

The full set of protagonist ratings for this study is included in Appendix J. Protagonist ratings from 94 films, primarily produced either by US studios or Chinese studios, were included in

the analysis. The ratings from five films that were US-China co-productions were excluded. These were: *Iron Man 3* (2013), *Xi you ji: Da nao tian gong/The Monkey King* (2014), *Life of Pi* (2012), *Chi bi Part II: Jue zhan tian xia/Red Cliff II* (2009) and *Dragonball: Evolution* (2009). *Skyfall* (2012) was also excluded as it was a UK production.

Maleficent (2014) had a leverage value of 0.189, greater than three times the average leverage value $(3(k+1)/n)$ recommended by Stevens (2012) as a cutoff for cases having too high an influence over prediction in regression models. Since *Maleficent* (2014) also had the highest Cook's distance at 0.390, even though this was lower than 1, the value proposed by Cook and Weisberg (1982) over which cases may be a cause for concern, this film was excluded from further analysis within the binomial regression model. Cook's distances for the remaining films were all <0.39 , indicating that none of the cases exerted undue influence on the model (1982). This was supported by the fact that DF Beta values for the Constants were less than 1 for all samples (Stevens, 2012). Finally, inspection of the sample's standardized residuals demonstrated that the sample was normal, with no outliers.

With *Maleficent* (2014) excluded from the sample, a binomial logistic regression was then performed on the remaining films ($N=93$) in order to ascertain the odds ratio of a film being a Chinese production, based on the protagonist's personality traits, emotions and motivations – the dependent (predictor) variables.

Only significant dependent variables which had $p < 0.05$ were included in the model. A three-factor binomial regression model was found to be statistically significant: $X^2(3)=35.17$; $p < 0.0005$. The model explained 46.8% of the variance in the film's primary nation of production, and correctly classified 83.9% of the films. Sensitivity was 52.2% and specificity was 94.3%. Positive predictive value was 75.0% and negative predictive value was 85.7%. The three statistically significant items were Fear, displaying Physical Skills and Actor's Gender. For each unit increase in the ratings of the degree to which the protagonist displays Fear, the odds of the film being a Chinese-production are lowered by a factor of 0.394. Similarly, for each unit increase in the ratings of the degree to which the protagonist displays Physical Skills, the odds of the film being a Chinese-production are lowered by a factor of 0.529. Conversely for each unit increase in the ratings of the degree to which the Gender of the leading actor is female, the odds of the film being a Chinese-production are raised by a factor of 1.653. All these findings were significant with $p < 0.05$, as shown in Table 3.

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Gender	.503	.208	5.847	1	.016	1.653	1.100	2.484
Fear	-.932	.271	11.777	1	.001	.394	.231	.671
Physical	-.636	.191	11.105	1	.001	.529	.364	.770
Constant	1.835	.944	3.780	1	.052	6.263		

Table 3: Binomial ordinal regression results predicting the odds ratios of whether a film ranking in the top ten of the North American or Chinese annual domestic box office between 2009 and 2014, excluding 2011, is a Chinese production from attributes of the film's protagonist.

To confirm the reliability of the analysis, the data was then split randomly into two halves. For both split files, the same three-factor regression model was found to be statistically significant. In split file 1 (N=47), $X^2(3)=14.33$; $p<0.005$. The model explained 37.3% of the variance and correctly classified 80.9% of the films. The sensitivity was 50.0% and the specificity was 93.9%. Positive predictive value was 77.8% and negative predictive value was 81.6%. Split file 2 (N=46) produced similar results: $X^2(3)=28.92$; $p<0.0005$. The model explained 74.3% of the variance in the film's primary nation of production and correctly classified 95.7% of the films. The sensitivity was 77.8% and the specificity was 100.0%. Positive predictive value was 100.0% and negative predictive value was 94.8%.

Five additional analyses were then performed in order to further confirm the reliability of the model. In each of these analyses, protagonist ratings from films released during each of the years of the full data set were excluded in turn. The results confirmed that the same three-factor model was statistically significant ($p<0.0005$) in all five analyses, in each instance correctly classifying at least 82.7% of the films.

Excluding ratings from films released in 2014 (N=75), the same three-factor regression model was found to be statistically significant: $X^2(3)=23.59$; $p<0.0005$. The model explained 39.8% of the variance in the film's primary nation of production and correctly classified 85.3% of the films. The sensitivity was 52.6% and the specificity was 96.4%. Positive predictive value was 83.3% and negative predictive value was 87.7%.

Excluding ratings from films released in 2013 (N=75), the same three-factor regression model was again found to be statistically significant: $X^2(3)=35.85$; $p<0.0005$. The model explained 60.1% of the variance in the film's primary nation of production and

correctly classified 88.0% of the films. The sensitivity was 53.3% and the specificity was 96.7%. Positive predictive value was 80.0% and negative predictive value was 89.2%.

Excluding ratings from films released in 2012 (N=74) confirmed the same three-factor regression model as statistically significant: $X^2(3)=33.27$; $p<0.0005$. The model explained 52.6% of the variance in the film's primary nation of production and correctly classified 83.8% of the films. The sensitivity was 60.0% and the specificity was 92.6%. Positive predictive value was 75.0% and negative predictive value was 86.2%.

Excluding ratings from films released in 2010 (N=73) also confirmed the same three-factor regression model as statistically significant: $X^2(3)=24.9$; $p<0.0005$. The model explained 43.0% of the variance in the film's primary nation of production and correctly classified 83.6% of the films. The sensitivity was 50.0% and the specificity was 94.5%. Positive predictive value was 75.0% and negative predictive value was 85.2%.

Finally, excluding ratings from films released in 2009 (N=75) confirmed the same three-factor regression model as statistically significant: $X^2(3)=26.43$; $p<0.0005$. The model explained 43.3% of the variance in the film's primary nation of production and correctly classified 82.7% of the films. The sensitivity was 55.0% and the specificity was 92.7%. Positive predictive value was 73.3% and negative predictive value was 85.0%.

7.4 Study 3

The ratings of protagonists' attributes for this study are included in Appendix K. A binomial logistic regression was performed on protagonists' ratings of films ranking 1 to 10 and also 91 to 100 at the annual North American box office between 2009 and 2014, excluding 2011, in order to ascertain the odds ratio of a film being a top ten hit based on the protagonist's personality traits, emotions and motivations. 5% of the cases' standardized residuals were ± 1.96 and 1% were ± 2.58 as would be expected in a normal population (Field, 2013), so none of the films were considered to be outliers.

While the Cook's distances for all the cases were <0.8 , suggesting that none of the cases exerted undue influence on the model (Cook & Weisberg, 1982), the leverage values for *Brave* (2012) and *Ted* (2012) were greater than three times the average leverage value of 0.12 ($3(k+1)/n$, in which k is the number of predictors in the model and n is the number of participants). Since Stevens (2012) recommends using values that are three times the average as an indicator of a case having undue influence, both these films were excluded from the

regression model. The standardized DFBeta values for all the cases were <1, suggesting that none of the cases exerted substantial influence on the model.

The binomial logistic regression model was then conducted on the remaining 98 cases. Only significant predictors which all had $p < 0.05$ were included in the model. A three-item binomial regression model was found to be statistically significant: $X^2(3) = 44.32$; $p < 0.0005$. The model explained 48.5% of the variance in North American box office performance, and correctly classified 84.7% of the films. Sensitivity was 83.3% and specificity was 86.0%. Positive predictive value was 85.1% and negative predictive value was 84.3%. The three statistically significant items were Compassion, displaying Physical Skills and character's Impulsiveness. For each unit increase in the ratings of the degree to which the protagonist displays Compassion, the odds of the film being a top ten North American box office hit are raised by a factor of 2.189. Similarly, for each unit increase in the ratings of the degree to which the protagonist displays Physical Skills, the odds of the film being a top-ten ranking North American box office hit are raised by a factor of 1.848, and for each unit increase in the ratings of the degree to which the protagonist displays Impulsiveness, the odds of the film being a top ten North American box office hit are raised by a factor of 1.766. All these findings were significant with $p < 0.005$, as shown in Table 4.

	B	S.E.	Wald	df	Sig.	Odds ratio	95% C.I. for EXP(B)	
							Lower	Upper
Compassion	.784	.248	10.004	1	.002	2.189	1.347	3.558
Physical	.614	.188	10.685	1	.001	1.848	1.279	2.671
Impulsiveness	.569	.206	7.592	1	.006	1.766	1.178	2.646
Constant	-6.252	1.368	20.896	1	.000	.002		

Table 4: Binomial ordinal regression results predicting the odds ratios of whether a film exhibited in North America between 2009 and 2014, excluding 2011, is more likely to rank at 1–10 or 91–100 at the annual US box office, from attributes of the film's protagonist.

To confirm the reliability of the analysis, the data was then split randomly into two files with an equal number of cases. For both split files the same three-factor regression model was found to be statistically significant. In split file 1 ($N=49$), $X^2(3) = 25.19$; $p < 0.0005$. The model explained 53.6% of the variance and correctly classified 83.7% of the films. The sensitivity was 84.0% and the specificity was 83.3%. Positive predictive value was 84.0% and negative

predictive value was 83.3%. Split file 2 (N=49) produced similar results: $X^2(3)=19.37$; $p<0.0005$. The model explained 44.2% of the variance in North American box office performance and correctly classified 81.6% of the films. The sensitivity was 78.3% and the specificity was 84.6%. Positive predictive value was 81.8% and negative predictive value was 81.5%.

Five additional analyses were then performed in order to further confirm the reliability of the model. In each of these analyses, protagonist ratings from films released during each of the years of the full data set were excluded in turn. The results confirmed that the same three-factor model was statistically significant ($p<0.0005$) in all five analyses, in each instance correctly classifying at least 82.5% of the films.

Excluding ratings from films released in 2014 (N=78), the same three-factor regression model was found to be statistically significant: $X^2(3)=29.49$; $p<0.0005$. The model explained 42.0% of the variance in North American box office performance and correctly classified 83.3% of the films. The sensitivity was 84.2% and the specificity was 82.5%. Positive predictive value was 82.1% and negative predictive value was 84.6%.

Excluding ratings from films released in 2013 (N=78), the same three-factor regression model was again found to be statistically significant: $X^2(3)=50.66$; $p<0.0005$. The model explained 63.7% of the variance in North American box office performance and correctly classified 88.5% of the films. The sensitivity was 86.8% and the specificity was 90.0%. Positive predictive value was 89.1% and negative predictive value was 87.8%.

Excluding ratings from films released in 2012 (N=80) confirmed the same three-factor regression model as statistically significant: $X^2(3)=32.46$; $p<0.0005$. The model explained 44.5% of the variance in North American box office performance and correctly classified 82.5% of the films. The sensitivity and specificity were both 82.5%, as were the positive and negative predictive values.

Excluding ratings from films released in 2010 (N=78) also confirmed the same three-factor regression model as statistically significant: $X^2(3)=33.99$; $p<0.0005$. The model explained 47.1% of the variance in North American box office performance and correctly classified 83.3% of the films. The sensitivity was 81.6% and the specificity was 85.0%. Positive predictive value was 83.8% and negative predictive value was 82.9%.

Finally, excluding ratings from films released in 2009 (N=78) confirmed the same three-factor regression model as statistically significant: $X^2(3)=35.97$; $p<0.0005$. The model explained 49.3% of the variance in North American box office performance and correctly

classified 83.3% of the films. The sensitivity was 81.6% and the specificity was 85.0%. Positive predictive value was 83.8% and negative predictive value was 82.9%.

7.5 Study 4

The full set of ratings of protagonists' attributes is included in Appendix L. A binomial logistic regression was performed on the ratings of protagonists' attributes for the forty-two "blockbuster" films and nineteen "flopbuster" films, in order to ascertain the odds ratio of a film being a blockbuster, based on the protagonist's personality traits, emotions and motivations - the dependent (predictor) variables. The films selected for this study were exhibited in North America between the years 2009 and 2014, excluding 2011, and had a production budget of \$110 million or over. Blockbusters were defined as having taken at least twice the value of their production budget in worldwide ticket sales, while flopbusters were defined as films which failed to double their production budget in global ticket sales.

3% of the cases' standardized residuals were ± 1.96 and 1.6% were ± 2.58 , which is slightly lower than would be expected in a normal population (Field, 2013) but unsurprising given the low sample size of flopbuster films. This slightly higher than expected occurrence of standardized residuals suggests that the regression model is an adequate but not a particularly good representation of the actual data.

More reassuring of the model's fit is the Cook's distances which for all cases except two were < 0.5 , suggesting that the vast majority of cases exerted no undue influence on the model (Cook & Weisberg, 1982). Since the Cook's distance for *Gravity* (2013) was unusually high at 4.83, this film was removed from the sample. Despite having a Cook's distance of 0.60, the film *Shrek Forever After* (2010) was left in the final regression model as this was the only indicator of possible undue influence, and it was considered to be more important to include the case than disregard it due to any possible undue influence that it might have. Furthermore, the standardized DFBeta values for all cases and all the predictors was < 1 , suggesting that none of the cases exerted substantial influence on the model (Stevens, 2012). For these reasons, despite the leverage values for three of the films being greater than three times the average leverage value of $0.197 (3(k+1)/n)$, in which k is the number of predictors in the model and n is the number of participants), a factor which Stevens (2012) suggests points towards these cases having undue influence, these films were included in the regression model. The three films were *Gravity* (2013), *The Dark Knight Rises* (2012) and *Inception* (2010).

After *Gravity* (2013) was removed, a binomial logistic regression model was run on the sixty remaining cases. Only significant predictors which all had $p < 0.01$ were included in the model. A three-item binomial regression model was found to be statistically significant: $X^2(3) = 21.33$; $p < 0.0005$. The model explained 42.0% of the variance in global box office performance, and correctly classified 80% of the films. The sensitivity was 85.4% and specificity was 68.4%. The positive predictive value was 85.4% and negative predictive value was 68.4%. The three statistically significant items were Actor's Anxiety, Physical Skills and Mental Skills. For each unit increase in the ratings of the degree to which the actor's headshot was rated as displaying Anxiety, the odds of the film being a global blockbuster are decreased by a factor of 0.247. Similarly, for each unit increase in the ratings of the protagonist's display of Mental Skills, the odds of the film being a global blockbuster are raised by a factor of 4.736, and for each unit increase in the ratings of the protagonist's display of Physical Skills, the odds of the film being a global blockbuster are decreased by a factor of 0.279. All these findings were significant with $p < 0.01$, as shown in Table 5 below.

Variables in the Equation								
	B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Anxiety	-1.400	.519	7.272	1	.007	.247	.089	.682
Mental	1.555	.570	7.450	1	.006	4.736	1.550	14.469
Physical	-1.277	.492	6.745	1	.009	.279	.106	.731
Constant	4.196	2.594	2.617	1	.106	66.406		

a. Variable(s) entered on step 1: Anxiety, Mental, Physical.

Table 5: Binomial ordinal regression results predicting the odds ratios of whether a film that is either a global blockbuster or a global flopbuster released between 2009 and 2014 is more likely to be a global blockbuster from psychological attributes of the film's protagonist.

To confirm the reliability of the analysis, the data was then split randomly into two files with an equal number of cases. For both split files the same three-factor regression model was found to be statistically significant. In split file 1 ($N=30$): $X^2(3) = 7.08$; $p < 0.01$; the model explained 31.7% of the variance and correctly classified 76.7% of the films. The sensitivity was 95.7% and the specificity was 14.3%. The positive predictive value was 73.3% and negative predictive value was 50%. Split file 2 ($N=30$) produced similar results: $X^2(3) = 14.94$;

$p < 0.005$. Here the model explained 53.0% of the variance in global box office performance and correctly classified 83.3% of the films. The sensitivity was 88.9% and the specificity was 75.0%. Positive predictive value was 84.2% and negative predictive value was 81.8%.

7.6 Study 5

The full set of ratings of protagonists' attributes is included in Appendix M. A series of general linear mixed models were conducted on the data, using the statistical packages R (R Core Team, 2015) and lme4 (Bates et al., 2015), in order to ascertain whether a participant's heritage (Chinese or British) affected their ratings of popular American and Chinese protagonists' personality traits, emotions and motivations. The fixed effects were the protagonist's traits, emotions and/or motivations, and intercepts were added for the participants and films as random effects. The general linear mixed models were fit by maximum likelihood t-tests using Satterthwaite approximations. Likelihood ratio tests of the full model with the effect in question against the model without the effect in question were run, in order to obtain p-values. Consideration was given to whether differences between the ratings of all 43 of the variables measured by the APTEM-Q should be included in this analysis, but since this would be likely to result in a couple of false positives at $p < 0.05$, the decision was made to instead examine whether the regression models derived from Studies 1 and 2 could be used to predict viewers' cultural heritage. In instances where participants had omitted to answer some of the APTEM-Q questions, these missing values were ignored. On a few occasions some of the participants of the Waltham Forest Chinese group left the film screenings early in order to pursue other cultural activities at the centre, leaving some of the questionnaire items incomplete.

First, to ascertain whether the four-factor model derived from Study 1 could be used to predict whether a participant's cultural heritage is Chinese or British, I included participants' ratings of protagonists' Fear, Physical Skills, Helping Others and Meaning as fixed effects and intercepts for participants and films as random effects within a general linear mixed-effects binomial regression analysis. A likelihood ratio test of the full four-factor model against a model containing only the random effects was run in order to obtain p-values. When considered together as a four-factor model, the results demonstrate that ratings of a protagonist's Fear, Physical Skills, Helping Others and Meaning did not significantly differ between the Chinese and British participants: $\chi^2(4) = 0.118$; $p > 0.5$.

I then ran a further general linear mixed-effects binomial model using the British participants' ratings together with my own ratings for the sample films in Study 1, in order to determine whether the four-factor model from Study 1 could be used to differentiate British participants' ratings from my own. In other words, I was interested in whether my ratings were typical of British audiences. Following the technique developed by Huber et al. (2015) to compare a single case with a control group, I coded the data with a new Researcher/Participant binary dependent variable. As before, I included participants' ratings of protagonists' Fear, Physical Skills, Helping Others and Meaning as fixed effects, and intercepts for participants and films as random effects. For each of these four dependent variables, my ratings were compared with the British participants' ratings, and p-values were calculated using the Satterthwaite approximation method for the Researcher/Participant variable. A likelihood ratio test of the full four-factor model against a model containing only the random effects was run in order to obtain p-values. When considered together as a four-factor model, ratings of a protagonist's Fear, Physical Skills, Helping Others and Meaning did not significantly differ between my ratings and the study's British participants: $\chi^2(4)=0.004$; $p>0.5$.

Second, in order to ascertain whether the three-factor model derived from Study 2 could be used to predict whether a participant's cultural heritage is Chinese or British, I included participants' ratings of protagonists' Fear, Physical Skills and Actor's Gender as fixed effects, and intercepts for participants and films as random effects within a general linear mixed-effects binomial regression analysis. A likelihood ratio test of the full three-factor model against a model containing only the random effects was run in order to obtain p-values. When considered together as a three-factor model, the results demonstrate that ratings of a protagonist's Fear, Physical Skills and Actor's Gender did not significantly differ between the Chinese and British participants: $\chi^2(3)=0.056$; $p>0.5$.

I then ran a further general linear mixed-effects binomial model using the British participants' ratings together with my own ratings for the sample films in Study 2, in order to determine whether the three-factor model from Study 2 could be used to differentiate British participants' ratings from my own. After coding the data with a new Researcher/Participant binary dependent variable, I included participants' ratings of the Actors' Gender together with ratings of the protagonists' Fear and Physical Skills as fixed effects, and intercepts for participants and films as random effects. For each of these three dependent variables, my ratings were compared with the British participants' ratings, and p-values were calculated

using the Satterthwaite approximation method for the Researcher/Participant variable. A likelihood ratio test of the full three-factor model against a model containing only the random effects was run in order to obtain p -values. When considered together as a three-factor model, ratings of the Actors' Gender together with ratings of the protagonists' Fear and Physical Skills did not significantly differ between my ratings and the study's British participants: $\chi^2(3)=0.0006$; $p>0.5$.

Third, I ran a further general linear mixed-effects binomial model using the British participants' ratings together with my own ratings for the sample films in Study 3, in order to determine whether the three-factor model from Study 3 could be used to differentiate British participants' ratings from my own. After coding the data with a new Researcher/Participant binary dependent variable, I included participants' ratings of protagonists' Compassion, Physical Skills and Impulsiveness as fixed effects, and intercepts for participants and films as random effects. For each of these three dependent variables, my ratings were compared with the British participants' ratings, and p -values were calculated using the Satterthwaite approximation method for the Researcher/Participant variable. A likelihood ratio test of the full three-factor model against a model containing only the random effects was run in order to obtain p -values. When considered together as a three-factor model, ratings of a protagonist's Compassion, Physical Skills and Impulsiveness did not significantly differ between my ratings and the study's British participants: $\chi^2(3)=0.004$; $p>0.5$. Since Study 3 examined the preferences of US domestic audiences it was not necessary to investigate whether this three-factor model would predict whether a viewer's cultural heritage was British or Chinese.

Fourth, in order to ascertain whether the three-factor model derived from Study 4 could be used to predict whether a participant's cultural heritage is Chinese or British, I included participants' ratings of Actors' Anxiety and protagonists' Physical Skills and Mental Skills as fixed effects, and intercepts for participants and films as random effects within a general linear mixed-effects binomial regression analysis. A likelihood ratio test of the full three-factor model against a model containing only the random effects was run in order to obtain p -values. When considered together as a three-factor model, the results demonstrate that ratings of Actors' Anxiety and protagonists' Physical Skills and Mental Skills did not significantly differ between the Chinese and British participants: $\chi^2(3)=0.046$; $p>0.5$.

I ran a further general linear mixed-effects binomial model using the British participants' ratings together with my own ratings for the sample films in Study 4, in order to determine

whether the three-factor model from Study 4 could be used to differentiate British participants' ratings from my own, again following the technique developed by Huber et al. (2015) to compare a single case with a control group. I included participants' ratings of Actors' Anxiety and protagonists' Physical Skills and Mental Skills as fixed effects, with intercepts for participants and films as random effects. For each of these three dependent variables, my ratings were compared with the British participants' ratings, and *p*-values were calculated using the Satterthwaite approximation method for the Researcher/Participant variable. A likelihood ratio test of the full three-factor model against a model containing only the random effects was run in order to obtain *p*-values. When considered together as a three-factor model, ratings of Actors' Anxiety and protagonists' Physical Skills and Mental Skills did not significantly differ between my ratings and the study's British participants: $\chi^2(3)=0.002$; $p>0.5$.

8 Discussion

The main question of interest for members of the “Hollywood Creative Panel: Screenwriting for a Global Audience” was how they can go about creating film and television content with the best chances of worldwide audience appeal (Screen Craft, 2016). The panel members concluded that at the heart of the most compelling film narratives are protagonists who are motivated by primal urges and who express universally-experienced emotions, since these characters allow audiences from across the world to receive films in similar ways. This widely-received idea is echoed by the bestselling screenwriting manual author Blake Snyder when he argues that by giving a film character primal motivations, the film’s narrative becomes “something that every caveman (and his brother) will get” (Snyder, 2005, pp. 54–56). This thesis set out to examine those claims.

Focusing on film protagonists’ motivations, personality traits and emotions, first I asked whether evolutionary theories provide a useful framework when attempting to quantify the contribution of these psychological character attributes towards films’ box office success. On the basis of my research findings, I conclude that a psycho-evolutionary framework offers an ideal paradigm for the analysis of screen characters, since it reconciles biological explanations of narrative universals with cultural levels of explanation that provide insight into cross-cultural differences in audiences’ preferences for films in which characters behave in culturally-particularistic ways. An evolutionary analysis of film narratives accounts for the variety of behaviours displayed by fictional screen characters and the contexts in which such variations in behaviour would be expected to arise. It also explains why audiences from different cultures enjoy films in which characters display certain traits, motivations and emotions over others. Through understanding film characters’ traits, motivations and emotions as writers’ emulations of universal adaptations to evolutionary selection pressures, reshaped through aesthetic and cultural processes, I propose that researchers, film producers, financiers, development executives and screenwriters will gain valuable insights into the psychological depictions of screen characters and how these are associated with their films’ cross-cultural audience appeal.

In this discussion, I first address the question of whether giving a film protagonist primal motivations is sufficient for that film’s box office success. I then examine the differences between the psychological attributes typically portrayed by the protagonists of recently-

released films ranking within the top ten at the annual domestic box offices of North America compared with China. Having found that films preferred by North American audiences tend to be driven by main characters who are perceived to exhibit greater fear, physical skills and altruistic behaviour but who display a lower tendency to draw meaning from the events of the narrative, I account for these cross-cultural differences through evolutionary and cultural levels of analysis. These explanations range from the adaptive function of high-risk altruism to conceptions of heroism in post 9/11 America, interdependent notions of “self” in China and the recent rise in Confucianist beliefs among Chinese nationals. Next, I offer an explanation for why audience’s perceptions of protagonists’ fear, display of physical skills and a more feminine or female leading actor predict whether a recently-released film, ranking in the top ten at the North American or Chinese box office, is more likely to have been produced by a US studio or a Chinese studio.

Turning my attention to why North American audiences tend to prefer films with protagonists who are perceived to demonstrate greater compassion, physical skills and impulsiveness over films in which protagonists are perceived to display these attributes to lesser degrees, I suggest that the higher budgets afforded by top-ranking box office films, and the highest evolutionary fitness stakes faced by heroic protagonists contribute towards this preference. Next, I advance several explanations for my finding that three protagonist qualities predict whether a film produced for a budget of at least US\$110 million is more likely to be a global hit or a flop, failing to at least double the value of its production budget at the worldwide ticket office. I propose that films in which the protagonist is perceived to display greater intelligence – or at least a certain level of intelligence – tend to perform better at the worldwide box office because intelligence is a universally-appealing attribute that may have been sexually selected. I suggest that the look of an actor may also be important in audiences’ preferences for certain films because an audience’s engagement with a film character is influenced by the match between an actor’s visual characteristics and demeanour, with the role they are playing. I account for audiences’ preferences for films in which protagonists are perceived to demonstrate fewer physical skills through the wider variety of film genres and protagonist types present among the sample’s blockbuster films, compared with the flopbusters.

I argue that the results of the research findings based on my own analyses of protagonists’ traits, motivations and emotions may be *cautiously* extended to the populations of North America and China. First, no significant difference was found in the way that the culturally Chinese participants in Study 5 viewed the protagonist attributes used in the

predictive models derived from Studies 1, 2 and 4, compared with the British participants. Second, no significant difference was found between my own ratings of the protagonist attributes used in the predictive models derived from Studies 1 to 4 and those of the British participants. I observe that further research is required in order to replicate and validate this conclusion.

In light of these research findings, I recommend an evolutionary framework for the analysis of screenplays and film narratives, with three levels of explanation: the bio-evolutionary level of analysis, which attempts to explain narrative universals; the cultural level of analysis, which seeks to account for cross-cultural differences in the portrayal of narrative attributes and the reception of these attributes; and the individual level of analysis, which attempts to explain individual differences in screenwriters' approaches to aesthetics, characterisation and the narrative form, as well as individual differences in viewers' preferences for certain films, protagonists or elements of narratives. I apply some of these approaches when attempting to account for the popularity of *Avatar* (2009), the most successful film of all time at the worldwide box office. This enables me to resolve one of the main questions of this thesis, which asks whether giving protagonists "primal urges" is sufficient to provide a film with universal appeal. Next, I move on to discuss the specific implications of my research findings for screenplay development within the film industry as well as how my findings potentially impact on screenwriting pedagogy. Finally, I outline the limitations of my research, provide some directions for future research and summarise my main conclusions.

8.1 Is a protagonist with primal motivations sufficient to give a film universal appeal?

As David U. Lee and Zack Estrin observed during their panel session at the 19th Shanghai International Film Festival, creating an appealing protagonist is just one factor among many that contribute towards a film's box office success. These include, but are not limited to, the genre of the film, the production budget, the talent attached to the film, the distributor, critics' reviews, word of mouth "buzz", the number of screens the film is released on and the distribution date. In Study 4 I found that the protagonist's attributes explain only 42% of the variance in the performance of a high budget film at the global box, so it is evident that there is much more to making a film with worldwide appeal than giving the main character certain psychological qualities. As I also note in Section 8:6, the relationship between certain

character attributes and a film's worldwide appeal cannot be concluded to be causal in nature – there may instead be a correlation between films in which protagonists demonstrate certain attributes and worldwide ticket sales through their association with other factors, for example a well-written screenplay, an untroubled screenplay development process and an experienced director.

My research also suggests that all film characters are motivated by primal concerns, and that having “primal urges” is not a quality limited to the protagonists of the most appealing films. In the 170 films that I viewed for this research, every protagonist was motivated by evolutionary goals. Every protagonist also demonstrated instances of universally-recognisable emotions, and behaved in ways that could be classified along psychobiological dimensions of personality. However, by proposing that universally-appealing protagonists are motivated by primal concerns, which are recognized across cultures and throughout history, the panellists at the Shanghai International Film Festival and the authors of many popular screenwriting manuals may be excluding “cultural” motivations from their understanding of evolutionary goals. Since the clear majority of human behaviours are expressed in culturally-appropriated ways, there is no hard delineation between primal and cultural motivations. Instead, I propose that deeper insights into the relationship between the protagonist's motivations and a film's box office performance may be gained through three levels of evolutionary analysis, which first examine biological explanations of behaviour before considering cultural and individual explanations. Through these levels of analysis, it may be determined that some motivations of film protagonists are less culturally appropriated than others, or it may be that this cultural appropriation is less overt.

For example, in *Frozen* (2013) Princess Anna is primarily motivated by the evolutionary goal of familial love. The cultural expression of this love enables it to “trump all” – she abandons her duties as the acting monarch after Princess Elsa has fled, in order to find her sister and bring her home. The success of the film at the worldwide box office demonstrates that this cultural expression of Anna's evolutionary goal was not only understood but received very well by audiences across the world. By contrast, in the Chinese-produced historical epic *Jian dang wei ye/Beginning of the Great Revival* (2011) the protagonist is primarily motivated by the evolutionary goals of acquiring status through displays of intelligence, altruism, conscience, legacy-building and drawing meaning from life's events. The cultural expression of these goals was through his formation of the Chinese Communist Party. It would be fair to assume that because of the particular way in which the writers and producers of the film communicated this intention, the film was perceived by

many audiences and critics to be cultural and political propaganda, and as a result the film was widely disliked within China and failed to receive international release (Lee, 2011). Further research is needed to determine whether some motivations tend to be more culturally-appropriated in their expression than others. For example, well-written films in which protagonists display many instances of basic survival motivations may have more global appeal – all other factors being equal – because these motivations trigger urgent adaptive responses without accessing consciousness and therefore cannot be culturally appropriated. Thus, audiences in every culture very likely understand protagonists, who act on impulse so as to survive, in identical ways. By contrast, films in which protagonists demonstrate motivations based on more distant goals may have less global appeal, since these motivations are more likely to be expressed in culturally particular ways.

My research also suggests that audiences from across the world may have preferences for the kinds of motivations, emotions and personality traits that film protagonists demonstrate, or at least for the kinds of films in which protagonists display certain attributes. In the sections that follow, I examine the differences between North American and Chinese audiences' preferences for films with certain types of protagonist.

8.2 Differences in the psychological attributes of protagonists in films preferred in North America and China

One of the major outcomes of my research was the demonstration of significant cross-cultural differences in the psychological attributes of protagonists in the films preferred by contemporary audiences in North America compared with China. While audiences in North America prefer films in which protagonists are perceived to show a greater tendency to help others, display physical skills and show fear, Chinese audiences prefer films in which protagonists are perceived as drawing meaning from their experiences. One explanation for this variation is that protagonist qualities are very important to an audience's engagement with a film, and that audiences may generally favour films in which protagonists behave in ways that are culturally idealised by their society. Thus, North American audiences may prefer films in which protagonists behave in ways that are highly regarded within North America, while Chinese audiences prefer films in which protagonists act in ways that are most valued within China.

Alternatively, since the correlation of certain protagonist qualities with domestic box office success does not mean that these qualities are the cause of domestic box office success,

cross-cultural differences in film preferences may be due other factors entirely. Accordingly, the North American preference for films in which protagonists show a greater tendency to help others, display physical skills and fear may be explained through the association of these attributes with the action, science fiction or fantasy genres, high production and marketing budgets, favourable dates of release, and wide theatrical releases, all of which are known correlates of a film's success at the annual North American domestic box office. Creating a protagonist who frequently demonstrates great physical skills, and helps others in fear-inducing situations, may locate that screenplay's narrative in the action genre, which, by way of costly action and visual effects sequences, requires a high production budget when the film is produced. In order to stand the best chance of recouping this budget, studios may be required to invest in a high advertising spend, and then release the film widely on the most favourable release dates. Thus, it may be the combination of these factors that contribute towards the North American box office success of films in which protagonists demonstrate a greater tendency to help others, display physical skills and show fear, rather than because North American audiences have any particular preference for protagonists who demonstrate these attributes.

Similarly, films favoured by Chinese audiences may be preferred for reasons beyond the tendency of these films' protagonists to draw meaning from the course of the narrative. For example, one explanation could be that Chinese state protectionism results in Chinese-produced films being awarded more favourable distribution factors compared with foreign productions. If Chinese-produced films tended to feature protagonists who demonstrate greater predispositions towards drawing meaning from the events of the narrative compared with the protagonists of US-produced films, then Chinese state protectionism could account for the preference of Chinese audiences to watch films with protagonists who display behaviour consistent with drawing greater meaning from their lives. However, the results of Study 2 demonstrate that Chinese-produced films are no more likely than US-produced films to have protagonists who display greater tendencies to draw meaning. Despite state control, the Chinese film industry is still a commercial industry in which consumer preferences play a major role in a film's box office performance. Chinese audiences are always offered a choice of films to view, even if that choice is more restricted than in North America. The strong positive correlations between the top-ten ranking films in North America and China, their mean IMDb and Douban ratings, and mean RottenTomatoes and Metacritic ratings indicate a consensus between these films' domestic box office success, audience ratings on film sites and critics' ratings. Given these factors, Chinese audiences' preference for films in which

protagonists draw more meaning from the events of the narrative are highly likely to contribute towards these films' success at the Chinese domestic box office.

With this contribution in mind, what are the most likely explanations for the cross-cultural differences in audiences' preferences for films with certain types of protagonists? The North American preference for films in which protagonists display greater physical skills, fear and altruistic behaviour may be understood as a preference for films in which the main character acts in ways that are typical of male-pattern heroism. Evolutionary psychologists tend to consider heroism as a special case of reciprocal altruism, involving physical displays of strength and daring, which often take place in public. If heroism is sexually selected, as a number of scholars argue (Miller, 2007; Rusch, Leunissen & Vugt, 2015), humans would be naturally interested in films about heroic activities, and would find heroism an attractive and admirable quality in these films' protagonists. In addition to their appealing main characters, films with heroic protagonists tend to have themes relating to the highest evolutionary stakes, placing the protagonist in situations where they face life-threatening challenges. When viewers identify with heroic protagonists who respond to such environmental threats in adaptive ways, they experience the vicarious thrill of reward.

For example, in a sequence towards the end of the US-produced superhero film *Iron Man 3* (2013), viewers engaging with the protagonist Tony Stark first experience the excitement of fear, followed by hedonistic thrill when Stark saves several members of the Air Force One crew in a daring, public mid-air rescue. Psycho-evolutionary explanations of audiences' enjoyment of this sequence would note that the main character's actions appeal to the highest evolutionary stakes and are therefore highly compelling. Also, they offer the audience the chance to enjoy the dramatic tension associated with fear, followed by joy when vicariously being rewarded for responding to the threat of death in an adaptive fashion. In addition, this sequence offers audiences the possibility of continuing their engagement with a protagonist whose actions are attractive and admirable. Thus, an evolutionary framework offers several credible explanations for why audiences should prefer films with heroic protagonists. Nevertheless, two questions remain. Why is it that recently-released films preferred by North American audiences typically depict the form of heroism associated with *male* altruistic behaviour? Moreover, since evolutionary theory would predict that heroic qualities should be *universally* popular, why are films with heroic protagonists more popular with North American audiences, compared with Chinese audiences?

In addressing the first question, I propose that three factors contribute towards an explanation for the preference for male pattern heroism among contemporary North

American cinema audiences. First, high-budget action films with heroic male protagonists dominate the entertainment choices offered by the biggest screens at North American multiplexes and other cinemas. 76% of the protagonists in films ranking in the top ten at the annual North American box office in the years of my study were male, and the vast majority of these played heroic roles. Since these headlining films will have also had the highest marketing budgets and the largest press and advertising campaigns, they are the films that audiences will be most aware of, and therefore will be most likely to see.

Second, audiences may have become accustomed to narratives about male heroism since narratives throughout history have been co-opted and sanctioned by patriarchal leaders (Brin, 1999), and the US film industry has tended to perpetuate this historical practise. Thus, North American viewers may have come to expect blockbusters to be about male heroic activities and these expectations reflect their choices of films to view.

Third, in post 9/11 America, heroism has become associated with extreme displays of physical strength and bravery, military action, American exceptionalism and America's duty to "save the world" from evil forces (Dittmer, 2011; Gray, 2011; Rojecki, 2008), which are some of the most commonly-occurring themes among the US-produced films in my sample. Male heroic acts are also valued more highly in the US, for example through celebration with civic awards (Becker & Eagly, 2004; Eagly, 2009). In other words, North American audiences likely prefer films which extol male heroic values because these films reflect values that are idealised in their contemporary culture.

Thus, this North American cultural preference for films in which protagonists are perceived to display greater fear, physical skills and the tendency to behave altruistically, compared with protagonists in films preferred by Chinese audiences, is most likely due to the geopolitical differences in conceptions of heroism between North American and China. Rather than emphasising individualistic behaviour, military power and a duty to save the world, throughout much of China's literary and cultural history the "martial spirit" has been repudiated from ideas about heroism (Wang, 2009). Moreover, individuals within Chinese cultures have traditionally viewed their self-worth as being interdependent with the cultural group, rather than dependent on demonstrations of their individual prowess. This is reflected in several of the studies' top ten films, which feature multiple protagonists who work together to find answers to their challenges.

For example, in *Zhōngguó héhuǒ rén/American Dreams in China* (2013), the four main characters Cheng Dongqing, Meng Xiaojun and Wang Yang set out together to make money by opening an English language teaching school. While Meng plays the slightly larger

role, the three friends are interdependent and work to overcome their main challenges collectively, reflecting the traditional Chinese view of self. With recent Western influence, however, many Chinese nationals appear to have developed “bicultural” notions of self, through which interdependent and independent notions of subjective wellbeing may be drawn upon at different times (Lu, 2008). These changes in the construction of identity from a traditionally Eastern way of viewing one’s relationship with society to a more Western schema, may explain why films in which protagonists demonstrate greater fear, physical skills and altruistic behaviour appear to have become more popular in China over the last decade.

In *Transformers: Age of Extinction* (2014), the highest-grossing box office film in China in 2014, the protagonist Cade Yeager works together with the group of Autobot robots in order to save the world from an invading alien race. While Cade is not the most physically skilled protagonist, he is certainly heroic and uses the strength and power of the Autobots in place of his own. Part of the Chinese success of this US-produced franchise film may be due to the way that the narrative combines sequences in which the protagonist behaves in an individualistic and self-reliant fashion, with others in which he works together with his daughter and the Autobots in order to save the world, thereby appealing to “bicultural” notions of self.

Another factor which may contribute towards explanations of why North American audiences prefer films in which protagonists display greater fear, physical skills and altruistic behaviour compared with Chinese audiences is the culture of fear that has been argued to have developed in the US and other Western nations since the Second World War (Glassner, 1999; Furedi, 2007; Skoll & Korstanje, 2013), and which appears to have heightened recently in the US since the election of President Donald Trump (Ball, 2016; Gelfand & Jackson, 2017). In the majority of recently-released US-produced blockbusters, protagonists encounter increasingly dangerous situations until they face great peril at the film’s climax. Some protagonists, for example Bilbo Baggins in *The Hobbit: An Unexpected Journey* (2012), display intense fear when confronted with dangerous situations. Other protagonists display behaviour that is consistent with being more emotionally stable and open to experience. For example in the action-thriller *Skyfall* (2012) the protagonist James Bond displays very little fear when faced with dangerous situations. I propose that in these films, viewers experience the thrill of facing a life-challenging situation despite the protagonist’s lack of fear, through a momentary distancing mechanism. From an evolutionary perspective, exposure to fear

induces feelings of threat and prompts an adaptive response (Pichon, de Gelder & Grèzes, 2009), which is rewarded by the pleasurable feeling of relief. Thus, through audience identification with a film's protagonist, films featuring more incidents in which the protagonist is placed in dangerous situations, or in which the protagonist experiences more intense fear, tend to be more thrilling.

At the climax of a blockbuster the protagonist typically resolves an intensely fear-inducing situation in an adaptive manner, allowing the audience to vicariously reap the benefits of the human evolutionary reward system through the joyous experience of relief at the film's ending. Since excitation-transfer theory predicts that heightened episodes of fear in films would produce residual excitation in audiences, which would be transferred over to subsequent experiences of relief and joy (Zillmann, 1983), films in which audiences experience more intense fear or a greater number episodes of fear may also be associated with greater pleasurable feelings for audiences at the films' endings. These pleasurable feelings may also contribute towards "word of mouth" marketing for these films, drawing in more audiences. In other words, if audiences leave a film feeling more satisfied, they are more likely to discuss the film in a positive way, contributing towards "word of mouth" marketing, which is linked with box office success (Duan, Gu & Whinston, 2008b).

For the years of study, Chinese audiences preferred films in which protagonists were perceived to display a greater tendency to draw meaning from the course of the narrative, or in which protagonists demonstrate that they have constructed a personal philosophy through which to explain their motivations. For example, in the Chinese-produced animated fantasy adaptation *Xi you ji: Da nao tian gong/The Monkey King* (2014), Monkey is driven by his desire to become an immortal. Throughout the film, Monkey's journey has spiritual overtones. Ideas relating to his personal philosophy including enlightenment, fate and destiny are frequently discussed. Another recent domestic box office hit in China in which the protagonists were depicted as drawing meaning from their narrative journeys is *Zhōngguó héhuǒ rén/American Dreams in China* (2013). In this film the main protagonist Meng Xiaojun is driven by his belief that courage will bring financial success in an era of change. Ten minutes into the film, Xiaojun states this underlying philosophy (translated from Chinese):

So I think the most important thing in our generation is change. Everyone around us changes. Everything around us changes. And the only one thing that won't

change is our courage. If we can have courage, we will change the world. (Chan, 2013)

While the philosophies of the Monkey character in *Xi you ji: Da nao tian gong/The Monkey King* (2014) and the character Xiaojun in *Zhōngguó héhuǒ rén/American Dreams in China* (2013) could not be further apart, the protagonists of these films are depicted as having strong belief systems, convictions and personal philosophies that guide their actions through their narrative journeys from beginning to end. Both characters are also shown to be much more self-aware than most protagonists in recent box office hits in North America – they tend to explain and rationalize their actions through dialogue and references to their personal belief systems, further emphasizing their desire to find and construct meaning from the events of the narrative.

I propose that the influence of Confucianism and Taoism within contemporary Chinese culture may contribute to this Chinese preference for films in which protagonists demonstrate a greater motivation to find meaning in their lives, by priming contemporary Chinese audiences to appreciate protagonists who are more philosophical about the events of the narrative. Both Confucianism and Taoism lay out philosophies for life, and so are examples of behaviour motivated by a search for meaning. After political backlashes against Confucianism in the 1920s, and during the Cultural Revolution (1966–1976), there has been a renewed interest in Confucian values in China since the 1989 Tiananmen Square demonstration. In recent years, slogans linked with Confucianism have become prevalent in Chinese education, academia, television and elsewhere (Leng & Salzman, 2016).

Some scholars have noted that China's recent rapid economic growth and transformation has led to general feelings of anxiety in the population (Osburg, 2013) which I suggest may also be linked with Chinese audiences' preferences for films in which protagonists display more "meaning-seeking" behaviour. According to Terror Management Theory, anxiety about environmental change results in greater "mortality salience", which may be reduced through seeking out cultural meaning (Greenberg, Pyszczynski & Solomon, 1986). Thus, in order to appease their fears about environmental change, Chinese audiences may seek greater meaning in their personal philosophies (Leng & Salzman, 2016). Terror Management Theory would therefore predict the contemporary preference of Chinese audiences for films in which protagonists demonstrate more "meaning-seeking" behaviour. The application of Terror Management Theory has been argued to be consistent with evolutionary theory (Landau et al., 2007).

One further factor which needs consideration is that these contrasting preferences of North American and Chinese audiences may reflect the unique preferences of cinemagoers, rather than all film viewers. Thus, audiences watching films at the cinema may have different preferences for the types of films that they view, and the types of protagonists in these films, compared with viewers watching films online or on DVDs in their own homes. Further research is needed to establish whether the North American cinema audience preference for films with heroic protagonists extends to all North American viewers, regardless of where and how they watch films. Similarly, additional research is also needed to confirm whether the Chinese cinema audience preference for films in which the protagonists are perceived to demonstrate a greater search for meaning may be generalized to all Chinese film viewers.

8.3 Protagonist qualities preferred by US producers and Chinese producers

Another research finding was that US-produced films ranking in the top ten at the North American or Chinese annual domestic box offices between 2009 and 2014, excluding 2011, tended to have protagonists who were perceived to display greater physical skills and fear than top-ten ranking films produced primarily by Chinese studios. Conversely, Chinese-produced films tended to have protagonists who were more likely to be played by a female actor or rated as more feminine compared with US-produced films. Comparing this result with the findings from Study 1, which examined audiences' preferences for films with certain protagonist types, it appears that US producers target the protagonists of their films towards the preferences of their domestic market, where consumers prefer films in which protagonists display greater physical skills, fear and the tendency to help others. The omission of 'Helping Others' from the regression model predicting producer preferences indicates that films produced by US and Chinese studios have protagonists who display similar tendencies towards altruistic behaviour. This suggests that Hollywood studios may be making films in which protagonists do not act as altruistically as their audiences would like. Alternatively, Chinese studios may be producing more films in which protagonists display a greater tendency to help others than in the films preferred by their national audiences. Thus, Chinese producers may be able to improve their films' chances of domestic Chinese box office success by reducing displays of this motivation in the protagonists of their films. A combination of both these explanations is also possible.

In addition to targeting their films' narratives towards the preferences of their own market, I propose six further explanations for why US-producers tend to produce films in which the protagonists are perceived to display greater physical skills and fear, and in which the leading actor is either male or perceived to behave in a more masculine fashion than in films produced by Chinese studios. First, the "comps" method of box office forecasting that is used in the majority of Hollywood film studios relies on retrospective analysis of films' ticket sales. Since high-budget films with protagonists demonstrating greater physical skills and fear, and with leading actors who either are male or who are perceived to behave in a more masculine fashion have tended to perform well in the past, films with protagonists demonstrating similar attributes are viewed as having lower financial risk than alternatives, and are thus more likely to be green-lit for production. Second, the Mythological School of screenwriting, which is based upon an androcentric hero pattern, is highly influential in North America. Screenwriters or development executives working consciously or subconsciously with this biographical pattern in mind will be more likely to create narratives that reflect life stories that are more typical of heroic men, rather than women and this is reflected in the protagonist roles that US-producers most frequently greenlight for production. Third, since female heroism tends to be occur in more private situations, instances of female heroism are less well-known and are therefore less likely to become the inspiration for producers or writers wishing to adapt narratives based on real-life events.

Fourth, the physical skills, bravery and public nature of typically male heroic acts mean that these may have been seen as a natural fit for spectacular "event films" and thus play well with US studios' strategies to draw cinema audiences to films that are marketed as events that must be seen on the "big screen". Furthermore, rapid developments in computing power over the last twenty years have enabled the visual effects industry to produce ever-more spectacular scenes, another factor which has contributed towards an increase in production of superhero films (Dittmer, 2011). Thus, the rise in the production of and interest in spectacular action genre films featuring male-pattern heroism may be viewed as the product of a convergence of Hollywood studio strategy with geopolitical and technological developments in the US. Since the Chinese visual effects industry is catching up fast with Hollywood, and Chinese production budgets are rising, we may expect a similar growth in spectacular Chinese-produced event films over the next decade.

Fifth, the systematic bias against the hiring of women in senior roles within the US film industry, and particularly as writers and directors likely contributes towards the creation of gender disparity in protagonist roles. Since US-produced films with at least one female

writer attached are likely to have a greater number of female characters (Smith, Choueti & Pieper, 2015), it is essential that more female screenwriters are hired in order to create equality in the gender balance of leading roles in films. No similar research has been conducted into the impact of gender on Chinese film industry hiring practices, nor on the influence of the gender of the leading actor on ticket sales at the Chinese box office.

Sixth, romantic comedies, which generally have female leads, are very popular in China but far less popular in North America. 19% of the top-ten ranking Chinese-produced films in the sample were romantic comedies, while no US-produced romantic comedies were liked enough to rank in the top ten at the Chinese or North American box office.

In order to capitalize on perceived audience preferences for films with brave, strong and physically-skilled heroic protagonists, female action heroes in recent US-produced blockbusters have generally been crafted in the mold of the prototypical male hero. For example, *The Hunger Games* film series (2012; 2013; 2014; 2015) portrays protagonist Katniss Everdeen as an accomplished archer, who uses her physical skills to help others in situations which involve confronting great fear. Recently, however, US studios have found new ways to conceptualise female heroism in spectacular ways that fit the event film strategy. For example, in *Frozen* (2013) the heroic actions of the protagonist Princess Anna are performed in private and involve the display of love, rather than physical strength, in order to help others in a situation that requires facing fear. Despite the private nature of these actions being a less obvious match for an event film, by endowing Anna's sister Elsa with magical powers, creating a ferocious ice monster as an antagonist, adding a fairytale setting and staging the film as a musical, Disney created a new version of the spectacular event film that was immensely popular across the world and which now ranks ninth at the all-time global box office (Box Office Mojo, 2015c).

8.4 Protagonist qualities in films preferred by North American consumers

Within the North American market, three psychological attributes predicted whether a film is more likely to rank in the top ten or at ranks 91 to 100 at the annual North American box office and explained 48.5% of the variance in box office performance. In top-ten ranking films protagonists were perceived to demonstrate greater compassion, impulsiveness and physical skills than in films ranking lower at the box office. Since displays of compassion, impulsiveness and physical skills are often related to North American conceptions of

heroism, these results are consistent with the findings of the first two studies. As noted previously, these results may be interpreted in one of two ways. First, it is possible that heroic qualities in a protagonist contribute towards a film's theatrical ticket sales because North American audiences prefer to watch heroic protagonists and the kinds of narratives they are associated with. Alternatively, the correlation between box office success and a heroic protagonist may be caused by an additional factor, or more likely, several factors. These factors could include the action, science fiction, fantasy or thriller genres, high production and marketing budgets, G, PG or PG-13 ratings, a wide cinema release by a major distributor and a favourable release date, all of which may be by-products of giving a film a heroic protagonist and which are known to be positive correlates of a film's North American box office success. However, given that audiences engage with films through identification with their protagonists (Zillmann & Cantor, 1977; Zillmann, 1996; Tsay & Krakowiak, 2011), it is likely that heroic protagonist qualities contribute towards the success of films at the North American box office.

In the previous sections I outlined some of the reasons why films in which protagonists' display of greater physical skills may be favoured by North American audiences. However, the link between compassion or feelings of sympathy towards others and heroic behaviour is not as clear cut as it may at first appear. For example, in the biographical war-drama *American Sniper* (2014), the protagonist Chris Kyle is depicted as a family man who also cares deeply for his friends and his country. The character states that it is for these reasons that he fights in Iraq. By contrast, some cases of heroism are associated with individuals who are coldly dispassionate (Smith et al., 2013). For example, in *Skyfall* (2012) James Bond only displays compassion when his boss M dies, and it could be argued that this is as much related to his own fear of death as it is motivated by his friendship with her. Rather than being driven by compassion or empathy for others, Bond's heroic behaviour appears instead to be motivated by his commitment to his work, his sense of duty and national pride, and his enjoyment of new experiences and risky activities, as well as the status endowed upon him by his role and heroic actions. Personality research still has much to understand in the relationship between personality traits, emotions and heroism.

Impulsivity is another interesting attribute to consider in relation to its link with the protagonists of films that are most likely to achieve North American box office success. A high disposition towards impulsivity has been connected to heroic behaviour, since heroic actions usually require rapid responses to an emotional trigger (Harvey, Erdos & Turnbull, 2009), and acting on impulse is the adaptive response to situations that engender feelings of

threat, stress or pain (Bernard et al., 2005). The rapid responses of impulsive protagonists add energy, momentum and urgency to a film, creating the more sensational and thrilling view which is required by the action genre and its subgenres. Therefore, the heroic protagonist is a character who acts altruistically, on impulse, in response to situational threats. For North American audiences, identification with impulsive protagonists may also represent a way of escaping from the constraints of rational, considered thought that are the cultural norm.

Having considered why a protagonist's demonstration of greater physical skills, compassion and impulsivity predicts that a film is more likely to rank in the top ten at the annual North American box office, it is equally useful to consider why the inverse predicts that a film is more likely to receive a low box office ranking in North America. Films that rank in positions 91 to 100 at the annual, North American domestic box office tend to be in the horror genre, romantic comedies, comedies or dramas. Generally produced for low budgets, horror films often make high returns on their investment but have limited appeal because of their genre and R rating. Protagonists in these horror films need to display fewer physical skills, to ensure that they cannot defeat the source of the film's horror. Furthermore, since horror film protagonists are primarily focused on their own survival, they have few remaining resources with which to spend on demonstrating compassion towards others. The main characters of horror films are not heroic types, prepared to risk their lives to save others, but everyman or -woman placed in a terrifying situation in which they are struggling to save themselves. Because of this, the evolutionary theories of reciprocal altruism and sexual selection would predict that horror film protagonists are less attractive to their audiences, which may contribute towards these films poorer performance at the box office. Instead, the more limited appeal of horror film protagonists may be instructional. Horror films provide accounts of strategies which are more and less effective when trying to escape from life or death situations when the protagonist faces the unknown. Even though these fictional situations are generally vastly exaggerated, or may include supernatural elements, they still provide information about how an individual might escape extreme danger. The actions of horror film protagonists also provide their audiences with excitement and stimulation through vicarious engagement with the protagonist's fear-adaptive behaviour-reward cycle, as I have previously outlined.

Taking for example the R-rated horror film *Oculus* (2013), the film's protagonist Tim is driven by the desire to understand the supernatural horror within his world. He has virtually no physical skills, which means that the threat of the supernatural overcoming him is

much greater. While Tim occasionally acts in an impulsive fashion, he also spends much of his time avoiding action and instead deliberating about the nature of the supernatural horror, which adds to the film's suspense. Because Tim is focused on his own survival, he is left with no time or energy to spend demonstrating compassion towards unrelated others. Thus, Tim is neither a good candidate for reciprocal altruism, nor attractive as a potential mate. Instead, the typical viewer of the film enjoys the thrill of the narrative as Tim faces intensely frightening situations from which he escapes – providing the audience with vicariously-reaped rewards. For many viewers, however, the prospect of the horror genre film is too frightening and the horror film's protagonist is unappealing.

Comedy films often find humour in their protagonists' lack of skills, and particularly in their lack of heroic skills (Kaplan, 2016). Since narratives within the comedy genre are often set within the social domains of kin and close non-kin, romantic relationships and friendships are generally more important to comedy protagonists than demonstrations of altruism towards people who they have never met. The comedy protagonist tends to spend more time deliberating over their actions than acting impulsively, and comedy ensues in situations where the audience wishes that the protagonist would act more impulsively, but they either fail to act on impulse or instead act on impulses that prove to be adaptively unrewarding. Thus, the comedy protagonist reminds the audience of what happens when we act in a *non*-adaptive fashion.

For example, in the poorly-performing romantic comedy *The Switch* (2010), the protagonist is depicted as a neurotic, self-absorbed, deliberative thinker with no physical skills, and the main actor's performance was panned by several film critics who described the character as unengaging (e.g. Cabin, 2011). By contrast, the protagonist of the top-ten ranking romantic comedy *Ted* (2012) is also depicted as being physically unskilled, but is also compassionate and impulsive. The problem for Ted's protagonist is that his impulses are initially wrong, but when he learns to channel them correctly, he is shown to be a good mate and the audience enjoy the rewards of his adaptive behaviour. While Ted owes its financial success to the coincidence of many factors, several of the film's critics referenced the likeability of the protagonist in their reviews, and I suggest that the main character's compassion and impulsivity likely contributed towards the film's commercial success. In *The Hangover* (2009), another top-ten ranking comedy, Phil, the protagonist of the ensemble cast, is also shown to be compassionate and impulsive, qualities which I suggest contributed towards the film's box office success for similar reasons that they contributed towards the

success of *Ted*. This raises interesting questions about the contribution of these comedy protagonists' personalities towards their films' box office performance. It also raises questions about the degree to which genre mediates audiences' preferences for the psychological attributes of protagonists, and how the interaction between these factors is further mediated by culture. While my research sample sizes were too small to examine the impact of genre on audiences' preferences, in further research it would be useful to investigate whether protagonists who are physically skilled, impulsive and compassionate are preferred by North Americans across all genre films, or whether these attributes are only preferred in protagonists in films in the action genre and its related sub genres.

Nearly one fifth of the films ranking between 91 and 100 at the annual North American box office, within my sample, were dramas. These included critically-acclaimed and award-winning dramas, as well as sports dramas, music dramas and comedy dramas. Taking as an example the critically-acclaimed drama, *Her* (2013), the film's protagonist, played by Joaquin Phoenix, is depicted as having very few physical skills, little compassion for others, and as moderately impulsive. Despite this, Phoenix's performances and characterization were widely praised by film critics (McCarthy, 2013), and the film was nominated for Best Picture at the 86th Academy Awards, where it won the Best Original Screenplay Award. This critical enthusiasm for the film only resulted in modest performance at the box office, and very low returns in revenue once marketing and distribution costs were taken into account. Does this suggest that the film's performance could have been improved by making the protagonist more compassionate and impulsive? Changing the main character's psychological attributes would have entirely changed the narrative of the film, and therefore the film itself, and so this question is impossible to answer. In order to change audiences' perceptions about a character's attributes, scenes would need to be rewritten and the overall narrative changed. Furthermore, stories about certain themes require certain kinds of characters, and an impulsive, physically skilled and compassionate film protagonist could never work well in a narrative that deals with isolation and the projection of the human desire for love on artificially-intelligent technology. The narrative of *Her* requires the viewer to identify with its protagonist, and since audiences identify more readily with characters who they feel are more like themselves (Tsay & Krakowiak, 2011), identification may be greater with more flawed protagonists than heroic types. As well as being more flawed, these typical drama protagonists tend to have personality traits that fall in the middle of the spectrum, like most people. In contrast, heroic protagonists tend to have one or more extreme personality traits.

They are likely to be extremely conscientious, going beyond the call of duty to complete their work; they tend to be open to experience and they are generally very emotionally stable. For many viewers, these traits allow escape from their everyday selves into a heroic world of adventure where everything is possible. By contrast, the viewing of *Her* requires that the audience engages far more intimately with the film's protagonist so as to understand and forgive his flaws.

In addition to the non-heroic protagonist of *Her* (2012), another narrative factor that almost certainly limited the film's domestic and global appeal is the culturally particularistic setting of the story. Although the primary motivation of the film's protagonist is to find love, *Her* also poses questions about the relationship between the industrialised world and urban isolation, whether humans can have meaningful relationships with machines, and how individuals project their desires upon others. Since these ideas exist within the memetic cultural domain, the film's greatest appeal is for urban technophiles who are familiar with the ideas under debate. As a critically-acclaimed film based on a multiple-award winning screenplay, *Her* (2012) must be recognized as being a "good film". Nevertheless, its limited financial success once again raises the question of whether some protagonist motivations have greater universal appeal than others. Could this be because film narratives with higher evolutionary-fitness stakes gain the attention of larger audiences? In the next section, I argue that this is probably the case.

8.5 Evolutionary fitness stakes and the race for box office success

While I did not set out to investigate whether the ranking of films at the box office reflects a hierarchy of evolutionary motivations, the question is certainly worthy of further attention. Within the action, fantasy, science fiction and family animation genres that dominated the top-ten ranking films at the North American box office within my sample, the most typical primary protagonist motivations are self-protection, aggression and exploration, with romantic pursuit as the most frequently-occurring motivation in the sub-plot (sometimes known as the "B plot"). For example, in the North American top-ten ranking film *The Hunger Games: Mockingjay – Part 1* (2014) the protagonist Katniss Everdeen is primarily motivated by her desires to survive, to save her love interest Peeta, to assert herself when leading a rebellion against the corrupt government, and to explore Districts 8 and 13 in order to obtain information that will help her quest. Similarly, within the action, fantasy, science fiction and romantic comedy genres that dominated the top-ten ranking films at the Chinese

box office within my sample, the most typical primary protagonist motivations are self-protection, aggression, curiosity and the desire to find love. In the Chinese top-ten ranking fantasy film *Xi you ji: Da nao tian gong/The Monkey King* (2014), Monkey's main desire is to become immortal, which I propose is a "heightened" version of survival. He is also motivated to explore the world for information that may help him achieve immortality.

Motivations relating to self-protection, aggression, curiosity and sex are examples of nonconscious processes that are central to the regulation of life. Together with core affects, these motivations are often described as primary or primal by psychologists, and lie at the base of the hierarchical structure of evolutionary motivations (Bernard et al., 2005), on which my research was based. When film protagonists are unsuccessful in achieving these primal motivations, death may result. Thus, if the human propensity towards creating fiction has evolved in order to instruct individuals about potential scenarios they may encounter in their lives, then films dealing with the highest fitness stakes should be the most compelling for the majority of viewers. If the human propensity towards creating fiction also provides individuals with entertainment through hijacking the human motivational system that provides rewards when an individual acts in an adaptive manner (Pinker, 2007) then the action, fantasy, science fiction, family animation and romantic comedy blockbusters that have sold most cinema tickets in recent years in North America and China, can be thought of as reward-rich super-stimuli, providing hedonistic thrill after thrill.

However, a number of the sample films that ranked towards the bottom of the annual North American domestic box office remind us that there is much more to making a financially successful film than simply creating high evolutionary-fitness stakes for the film's protagonist. Action films that performed poorly at the North American domestic box office, including *3 Days to Kill* (2014), may have achieved limited success because they had poor scripts, ineffective casting, or for a multitude of other reasons. The appearance of horror films at the lower end of the box office is interesting, since they also deal with the most extreme fitness stakes. One explanation is that these horror films may have achieved limited box office success for reasons unrelated to their fitness stakes. For example, their R classification in North America limits the size of their potential audience. Alternatively, films depicting too many life-threatening situations, or films that are too frightening or too gory may have less audience appeal. In other words, there may be optimum levels for the portrayal of situations which depict extreme fitness stakes in films, and exceeding or falling short of these levels may result in a reduction in audience numbers.

The protagonists of films within the drama genre, which is typically associated with lower theatrical sales (Deniz and Hasbrouck, 2012), demonstrate a variety of motivations which are most typically linked with a desire to build or display status: through the acquisition of wealth, for example in *The Dallas Buyers Club* (2013); via the demonstration of physical skills, for example in *Rush* (2013); and by the demonstration of mental skills through the production of a high-culture play in *Birdman* (2014). Protagonists in dramas performing at this level at the box office are typically motivated by memetic concerns or have distant goals that are highly appropriated by cultural concerns, which I propose further limits their appeal. *The Dallas Buyers Club* examines early AIDS-era homophobia, while *Birdman* investigates the relationship between commercial and critical success, and how these factors impact status and artistic freedom in the contemporary film and theatrical industries. The lower evolutionary stakes found in these films are consistent with the prediction that the evolutionary fitness ranking of a protagonist's primary motivation in a narrative contributes towards the film's box office success. However, given that this was not a research question that I set out to investigate, and given also that my sample films were confined to those ranking at the top and bottom ends of the North American box office, no firm conclusions can be drawn. However, this is an interesting area for future research.

8.6 Blockbuster or “flopbuster”?

Understanding why some high production budget action, science fiction or fantasy genre films go on to become global blockbusters when others fail to even recoup the value of their production budget in worldwide ticket sales is of great financial importance to the Hollywood film industry, since billions of dollars in theatrical ticket sales are lost every year through the production of “ten-ton turkeys” (Caves, 2000, p. 138). Three protagonist attributes were found to predict whether a film produced for a budget of US\$110 million or over, and exhibited in the US between 2009 and 2014, is more likely to be a global box office hit, recouping at least the value of its production budget in worldwide ticket sales, or a flop, failing to return at least the value of its production budget in worldwide ticket sales. Films in which the leading actor visually appears to be less anxious, and in which the protagonist is perceived to demonstrate greater mental skills but lower physical skills, were significantly more likely to be blockbusters. These findings explained 42% of the variance in a film's global box office takings and if replicated and validated by other studies, would have several industrially important implications for writers, producers and casting directors.

One explanation of these results is that my ratings reflect my own cultural and individual biases. That is to say, I might have subconsciously rated the flopbuster films' protagonists as demonstrating less mental skills and more physical skills than protagonists of the blockbusters, while also rating images of the flopbusters' leading actors as appearing to be less anxious than those in the blockbuster set. However, having established in Study 5 that my ratings of protagonists' physical skills, mental skills and actor's anxiety are very similar to those of the British and Chinese-British participants, my results suggest that this is not the case. Still, it is essential to remember that this study set out to examine global trends in audiences' preferences for films with certain types of protagonist. While Study 5 provides no evidence of significant cross-cultural differences in the perception of protagonists' physical skills, mental skills and actor's anxiety by British and Chinese audiences, there is a possibility that other cultures perceive these attributes in different ways, which could complicate the interpretation of these findings. For this reason, future studies examining the relationship between protagonist attributes and films' performance at the global box office should also investigate cross-cultural differences in audiences' reception of these attributes in all the leading cinema markets, including North America, China, the UK, Japan, South Korea, India, France and Germany.

Once again, the research findings may be interpreted in several different ways. One possibility is that films in which protagonists display greater mental skills and fewer physical skills, and in which the leading actor looks less anxious, are popular for reasons entirely unrelated to their protagonists' and actors' qualities. Alternatively, audiences across the world may prefer protagonists who display greater mental skills and fewer physical skills when played by actors who look less anxious, and it may be this preference that explains 42% of the variance of these films' global box office success. The third and most likely possibility is that global blockbusters owe their success to a complex series of factors, which also include protagonist and actor qualities.

Considering first the finding that audiences prefer high-budget films in which the leading actor looks more emotionally stable, this is a trait that is associated with self-confidence, the ability to make confident decisions, and a lack of sensitivity to criticism (Zuckerman, 2002). Given that the US-produced action, science fiction and fantasy genres which dominate the world's most financially successful films tend to feature heroic protagonists, it makes sense that audiences may prefer these characters to look as though they are able to make confident

and deliberate decisions under pressure. In other words, in order for a film to be successful, characters may need to look the part.

Taking the example of the action adventure blockbuster *Guardians of the Galaxy* (2014), both the leading actor, Chris Pratt, and the heroic character that he plays are rated as displaying very low anxiety. Therefore, there is a good fit between the actor and the role that he plays on this dimension of personality. This fit between actor and role on this dimension may contribute towards the degree to which audiences believe Chris Pratt in the role of the protagonist, which would in turn impact the degree to which audiences are transported by the film and enjoy it. By contrast, in the action film *47 Ronin* (2013), which failed to return the value of its production budget in worldwide ticket sales, there is a very poor fit between viewers' ratings of anxiety for the leading actor, Keanu Reeves, and their ratings of anxiety in the role that he plays. This poor fit between the actor's naturally anxious demeanour and his emotionally stable performance in the role may well have been detected consciously or subconsciously by the audience, leading to viewer disengagement and rejection of the character as psychologically implausible. Ultimately, these factors may have contributed towards the film's lack of popularity and poor ticket sales. Given that the leading actor's visual display of anxiety is just one of three factors that were found to predict – in combination – whether a high-budget film would be a blockbuster or flop, and since there are many other factors contributing to a film's success or failure, I do not mean to suggest that the match between Chris Pratt's look and his role in *Guardians of the Galaxy* (2014) and mismatch between Keanu Reeves look and role in *47 Ronin* (2013) were entirely responsible for the respective success and failure of these two films. Instead, my research indicates that, together with these characters' displays of physical and mental skills, the visual look of the films' leading actors contributes towards their worldwide ticket sales.

This finding poses two interesting questions. First, is this preference for films in which actors display low dispositions towards anxiety mediated by genre? Second, if certain evolved personality traits, including agreeableness and anxiety are signalled by the face (Jones, Kramer & Ward, 2010) and “read” by viewers, what implications does this have for the casting of actors “with” and “against type”? If traits that are read on the face, or through an actor's natural demeanour, are harder to act convincingly, there is a case to be made for matching actors' natural dispositions towards anxiety, and also agreeableness, with the roles they play - in other words, casting “with type” for these personality traits.

When considering the contribution of protagonists' displays of physical skills towards high budget films' box office success, it is first important to note that blockbuster protagonists range more widely in the degree to which they display physical skills ($M=4.18$, $SD=1.25$), compared with protagonists within the flopbuster group ($M=4.53$, $SD=0.51$) and also that this was a small effect (for every unit increase in the ratings of a protagonist's physical skills, the odds of a film being a global blockbuster were decreased by a factor of 0.28). Thus, although the blockbuster protagonists demonstrated lower levels of physical skills on average, this is most likely attributable to the greater variety of "types" of main characters within blockbusters compared to flopbusters. Within the blockbuster group, protagonists ranged from highly physically skilled heroic types, for example Katniss Everdeen in *The Hunger Games: Mockingjay – Part 1* (2014), to physically unskilled unheroic protagonists, including John Bennett in *Ted* (2012). By contrast, among recent flopbusters every protagonist was highly physically skilled. I propose that this variety of protagonist types within the blockbuster group explains why lower physical skills were found to predict that a film would more likely be a blockbuster than a flopbuster. In future research with larger sample sizes it would be useful to control for film genre, since this may well eliminate the significance of displays of lower physical skills in contributing towards high budget films' box office success.

When accounting for the finding that a protagonist's display of greater mental skills plays a contribution towards determining whether a film is more likely to be a blockbuster than flopbuster, the most straightforward explanation is that viewers across the world prefer films in which protagonists display more intelligence. Since humans are particularly good at assessing the intelligence of others through verbal interactions, creative intelligence and humour, it has been argued that displays of intelligence may have evolved through sexual selection (Miller, 2000). High intelligence is therefore an attractive feature to other individuals, so audiences would be expected to prefer more intelligent protagonists – and indeed, this is consistent with my findings. More intelligent protagonists would be expected to display their intellectual capacity through sharper dialogue, humour and creativity, while the protagonists of flopbusters would be expected to demonstrate the inverse. One frequent criticism of flopbusters is that they contain poorly-written dialogue that demonstrates a lack of intelligence. For example, in a review of the action flopbuster *47 Ronin* (2013), one critic remarks: "[t]his dialogue appears to have leapt, fully formed, off the nearest idiot board" (Brooks, 2013). In order to account for why flopbuster protagonists are perceived as

displaying less intelligence than protagonists of blockbusters, a few possibilities are worth considering. For some high-budget films that have failed to recoup their investment at the worldwide box office, issues during the screenplay development process appear to have contributed towards unintelligent dialogue and characterization. During the development of *47 Ronin*, for example, the screenplay was changed numerous times while the first-time director Carl Rinsch tried to find the balance between the classic Eastern fable, on which the narrative was based, and Western fantasy elements. The first draft, written by Chris Morgan, who also wrote seven *Fast and Furious* movies, was regarded highly enough by Hollywood studio and production company executives to be included on the Black List industry survey of the best unproduced screenplays written in 2008 (Leonard, 2008). However, under Rinsch's direction, subsequent drafts of the screenplay are reported to have become more confused in tone throughout the development process. When Keanu Reeves expressed concern about the characterization of the role he was to play, screenwriter Hossein Amini was brought into the project for further rewrites. He is also reported to have simplified other dialogue in order to make it more manageable for some of the Japanese actors who were struggling with their lines. The narrative continued to change in post-production, at which point the studio ordered a major re-edit and reshoots in order to include Reeves more in the final sequence (Setoodeh & Foundas, 2013). Thus, in the case of *47 Ronin* the lower displays of intelligence by the main character likely came about through the input of multiple writers, the actor playing the role and the film's editor, all under the confused direction of a first-time feature film director.

Characters in films are most engaging for their audiences when they are believed to be psychologically credible, since humans are extremely good at identifying when others behave in ways that do not "ring true". I suggest that this process most likely draws on the evolved cognitive processes which allow individuals to identify cheaters. Since acting is a form of deception, the more obvious it is to an audience that an actor is performing a role that is not true to themselves, the more likely the audience is to feel "cheated" by the process. Thus, in films in which the director has been unable to convincingly marry the different conceptions of character by the screenwriter(s), the casting director and the actor playing the role, audiences readily spot these problems and disengage with the film. Confused and difficult development processes, spawning characters who are not psychologically credible, probably contributed towards the failure of many of the flopbusters within my sample.

8.7 Cultural variance in audiences' reception

As I have noted previously, the findings of Studies 1 to 4 were based on analyses of my own ratings of film protagonists' psychological attributes. As such, these ratings may reflect my British cultural background, my socioeconomic status and gender, my film literacy and various other cultural and individual differences that are unique to my view of the world. That is to say, my ratings of the protagonists in Studies 1 to 4 may have been very different from those of other British viewers, North American viewers and Chinese viewers. In order to ascertain whether this was the case, or whether the findings of Studies 1 to 4 could be cautiously generalized to the wider British population, and whether the findings of Studies 1, 2 and 4 could be cautiously generalized to the Chinese population, in Study 5 I set out to examine whether the psychological attributes used in the regression models derived from Studies 1 to 4 could be used to predict whether analysis of these ratings could differentiate between my own ratings of protagonists' attributes and other British participants' ratings of these attributes. I then examined whether analysis of these ratings could predict whether a participant was culturally British or Chinese. In Studies 1, 2 and 4 my real interest was in comparing the reception of film protagonists by native Chinese and North American audiences in order to understand whether different perceptions of film characters might contribute towards audience preferences for certain psychological character attributes, which may in turn contribute towards films' domestic and global box office performance.

In lieu of US or Canadian participants, I investigated the perception of film protagonists by British participants, since the principle of linguistic relativity states that language influences thought and many cognitive processes in non-trivial ways (Koerner in Pütz & Verspoor, 2000). Furthermore, British and US/Canadian cultural values are very similar on four out of five cultural dimensions (Hofstede, Hofstede & Minkov, 2010). In the "long-term orientation" dimension where British and North American cultures contrast, British people tend to be more comfortable with uncertainty and ambiguous situations than North Americans. Related to this, many North Americans have stronger ideas on that which they consider to be "good" versus "bad". This extends to issues including the rights of the Government, gun control and so on, particularly in the US. While this cross-cultural difference suggests that there will likely be some variation in the types of films that North Americans and British viewers tend to prefer, there are no specific indicators to suggest that audiences in North America and in the UK should differ in the ways that they receive particular protagonist qualities. Support for my hypothesis that North American and British

viewers tend to enjoy similar films comes from the fact that 86% of the top-ten ranking films at the annual North American box office for the years of the study also ranked in the top ten of the annual UK box office for these years. Differences between films' ranks at the box offices of North America and the UK are more evident when comparing films ranking much lower at the box office, since these lower-ranking films reflect the differing cultural and memetic concerns of their nations.

One of the major findings from this study was that there were no significant differences in my ratings of North American and Chinese protagonists' attributes for the variables in the regression models derived from Studies 1 to 4 when compared with the ratings by other British participants. This allows me to make cautious generalisations about the findings of Studies 1 to 4 to the wider British population, and by proxy to the US and Canadian population. A second finding was that there were no significant differences in the British participants' ratings of North American and Chinese protagonists' attributes for the variables in the regression models derived from Studies 1, 2 and 4 when compared with the ratings of the culturally-Chinese participants, suggesting cross-cultural and possibly universal consensus in the way these particular psychological attributes are assessed. This allows me to make cautious generalisations about the findings of Studies 1, 2 and 4 to the native Chinese population. In other words, it is far more likely that the findings of Studies 1 to 4 are due to cross-cultural audience preferences for films with certain protagonist types than to my own subjective reception of these films.

From these findings, it cannot be concluded that audiences across the world perceive all protagonists' motivations, emotions and personality traits in identical ways. First, the findings of this study need to be confirmed and validated by further research. Second, this research needs to verify whether the findings of consensus between the ways that the British and Chinese viewers rate certain psychological attributes also apply to North American and native Chinese viewers. One explanation for the finding of consensus between British and Chinese viewers' ratings of certain psychological attributes is that the culturally-Chinese participants were more culturally-British than I had expected, since some of these participants had lived in the UK for up to thirty years. Furthermore, since my research only examined the possibility of cross-cultural variation in the attributes included within the models derived from Studies 1, 2 and 4, further research is required in order to determine whether there are any cross-cultural differences in audiences' perceptions of other protagonist motivations, emotions and personality traits.

8.8 *Avatar* (2009) and an evolutionary framework for the analysis of film protagonists

When Snyder asserted that films require protagonists to be motivated by “primal urges” in order to ensure a film’s narrative is “something that every caveman (and his brother) will get” (2005, pp. 54–56), he was only partly correct. My research demonstrates that creating a film narrative with the potential for global appeal is far more complex than Snyder had imagined. Since every motivation displayed by a film protagonist is a writer’s mimesis of a human evolutionary motivation, it is evident that giving a protagonist “primal urges” is not sufficient for a film’s global appeal. Thus, while Snyder is right in arguing that the underlying motivations and emotions of the apocryphal caveman would have been very similar to those of the modern-day human, Snyder fails to take into account cross-cultural differences in the expression of these attributes, and preferences for these attributes.

If Snyder’s hypothesis was correct, then *Avatar* (2009), the world’s most commercially successful film, would owe its success to the evolutionary themes in its narrative. But does that mean that the film’s narrative would be something every caveman would get? This is highly unlikely. Assuming a Pleistocene epoch viewer was able to contain their astonishment over the technology of cinematic projection, they would need to learn to interpret cinematic techniques, including making sense of edits between shots, camera movement, sound effects and so on. Applying David Bordwell’s (2008) argument that stylistic conventions in filmmaking are constrained by evolutionary biological universals to this hypothetical scenario is not to argue that today’s cinematic conventions would be immediately understood by our Pleistocene period ancestors. Next, Snyder’s apocryphal caveman – or his sister – would puzzle over elements of the narrative which would make no sense in the Pleistocene period. What is this “other world” in which the film’s action takes place? What is the military, and how do their machines work? Who are the Na’vi? What is an avatar? How can a human transform into one of these pan-human beings? In response, Snyder might argue that beneath the superficial presentation of *Avatar*’s narrative its underlying themes and emotions appeal to global audiences, and it is these with which his apocryphal caveman would identify. In this respect, Snyder is correct – all the major themes and questions posed by *Avatar* have evolutionary origins. However, they are specified by culture. Instead, I propose that narrative factors contributing towards *Avatar*’s global appeal include the film’s heroic protagonist, driven by motivations that are high in the evolutionary

fitness stakes, together with the film's mining of evolutionary themes that are specified through contemporary pan-cultural, geo-political issues as they are experienced all around the globe.

At the most instinctive level, *Avatar* may appeal to audiences' preferences for protagonists who demonstrate heroic qualities that have likely evolved in humans through sexual selection. Thus, Sully's demonstrations of high levels of physical skill, bravery and risk-taking altruism, together with moderate levels of intelligence, make him an appealing protagonist for audiences across the world. A significant proportion of the action in *Avatar* is focused on survival, employing the most primal motivational structures in the brain which circumvent culturally-learned memories. Because of this focus, Sully's actions are instinctively understood by viewers from around the world. The film also offers many sequences in which Sully encounters frightening situations and then responds to these in adaptively-rewarding ways, offering viewers the vicarious thrill of experiencing tension followed by joy. Placing viewers in this "fast-track" thinking mode for long sequences in the film, during which the mind is attuned to rapidly appraise environmental threats, may add to the film's tension and again offers similar viewing experiences for viewers from across the world. In addition to these sequences that require fast-track cognitive processing, *Avatar* also offers respite in many slower-paced segments which appeal to more deliberative, complex thought.

The first of these segments examines the taboo around inter-species love – an evolutionary theme which draws upon contemporary pan-cultural issues. Although some contemporary viewers may interpret the courtship of Jake Sully, *Avatar*'s human protagonist, with the Na'vi princess Neytiri as a metaphor for love across cultural and technological divides, it is fundamentally an example of inter-species attraction. To complicate matters further, Sully demonstrates his attraction for Neytiri when in both human and avatar form. When in human form, Sully's interest in Neytiri is best understood as interspecies attraction which is usually prevented by evolved biological mechanisms in order to prevent cross-species reproduction (Koh & Carlson, 2013). Interestingly, while interspecies mating rarely occurs in the majority of animal species, during the Pleistocene epoch *Homo sapiens* are thought to have bred with *Neandertals* and *Denisovans*, leaving genetic fingerprints in humans today (Green et al., 2010; Prüfer et al., 2013; Ko, 2016). Since interspecies mating between early humans resulted in fertile offspring, the evolutionary barriers to reproduction may have been much lower. Within this context, our apocryphal caveman may be far more understanding about the depiction of love between Sully and Neytiri than we might initially

imagine. Furthermore, Sully is only shown pursuing a sexual relationship with Neytiri when he is in avatar form, at which point he is an interspecific hybrid since his biology is described in the screenplay as “human DNA mixed with DNA from the natives here” (Cameron, 2009b, p. 11).

A second theme of *Avatar* is the subjugation of a peaceful indigenous culture by an aggressive dominant invader with military might, in order to exploit their resources. James Cameron, the writer and director of *Avatar*, describes the film as being “about imperialism in the sense that the way human history has always worked is that people with more military or technological might tend to supplant or destroy people who are weaker, usually for their resources” (Ordoña, 2009). Since the concept of a nation with a boundary would have been entirely unknown to the Pleistocene era viewer, these cultural notions of imperialism would be lost on our earliest ancestors. Similarly, envisaging how mankind may have depleted all its resources at some future point would likely be incomprehensible to a Pleistocene hunter gatherer. However, underlying the film’s cultural exploration of imperialism is an exploration of the adaptive motivation of aggression, together with demonstrations of status through displays of physical skills, mental skills and the acquisition of materials. The advantages offered by building coalitions are also explored. In the Pleistocene era, such advantages were equally important. While one *Neandertal* would have easily beaten a single *Homo sapiens* in a fight due to greater brawn and strength, large groups of *Homo sapiens* are thought to have contributed towards the extinction of *Neandertals* because *Homo sapiens*’ superior cognitive skills allowed them to form larger coalitions to plan and co-ordinate attacks (Harari, 2014, p. 19).

A third theme of *Avatar* investigates how the desire to accumulate resources leads to detachment from the natural world and destruction of the environment. When interviewed about the film, Cameron muses that he sees *Avatar* as a satire on the sense of human entitlement: “It’s just human nature that if we can take it, we will. And sometimes we do it in a very naked and imperialistic way, and other times we do it in a very sophisticated way with lots of rationalization – but it’s basically the same thing” (Gross, 2010). From an evolutionary viewpoint, the human desire to acquire material wealth or resources is thought to have been a sexually selected adaptation which demonstrates the ability of an organism to care for its offspring. As early as the Paleolithic era, archeologists have found evidence of long-distance trade in a volcanic glass called obsidian, which was used to make particularly strong and sharp tools (Harari, 2014, p. 39). This plundering of resources from a distant

island may well have resulted in warfare between local and marauding tribes, in direct parallel with *Avatar*'s narrative.

Another theme in *Avatar* examines the idea that every aspect of nature is connected. Cameron places this ecological tenet within a spiritual and religious context, by making Pandora's "Home Tree" the resting place of Na'vi souls. Since religious behaviour and ancestor worship is thought to have first evolved during the Upper Paleolithic, around 30,000 years ago (Rossano, 2006), later Paleolithic era viewers may understand the film's appeal to religious ideas. Sully's displays of interest in spiritual ideas are an example of meaning-motivated behaviour, that draws on personal philosophy in order to make sense of life events (Bernard et al., 2005, p. 167). By contrast, the apocryphal caveman will fail to understand *Avatar*'s thematic connection between alienation from the natural world and the spiritual desire for unity with nature, since these are Anthropocene concerns related to industrialization and living apart from our natural habitat while simultaneously destroying it. North American commentators have viewed *Avatar*'s depiction of human environmental destruction as a metaphor for the felling of Amazonian rainforests and mining in Brazil (Pottinger, 2010), the mining of uranium near Navajo reservations in New Mexico (Schmidt, 2010), and battles over property rights (Boaz, 2010). In China, commentators have remarked upon *Avatar*'s parallels with the fight between Chinese "nail-house" residents facing enforced evictions and property developers, played out as public dramas which have captivated China in recent years (Hess, 2010). Because of these multiple interpretations, *Avatar* has been described as a "transnationally polysemic text" and an "all-purpose allegory", which is made meaningful by viewers connecting the narrative to their own cultural and political situations (Mirrlees, 2013, p. 5). This misses the point that underlying all local, cultural, historical, political and geographical interpretations of the narrative are evolutionary universals – the human drives for self-protection, mating, relationship maintenance and parental care, coalition formation, creating a legacy and finding meaning. *Avatar* offers North American viewers the possibility of engaging with a heroic character, who acts impulsively and on his own initiative, in order to use his physical skills to help others in life-threatening situations. To its Chinese audiences, *Avatar* offers a protagonist who finds meaning when he puts his former military career behind him and comes to replace his independent view of self with an interdependent view of self. It could be said that in doing so, Sully learns that the Chinese concept of the "wen" is superior to the "wu". To its global audiences, *Avatar* offers an intelligent, emotionally-stable and heroic protagonist who is played by an actor who looks the part. Beyond the cultural particulars of the way *Avatar*'s

narrative is communicated – beyond the contemporary technology, politics and references to the environmental challenges of the Anthropocene age – *Avatar* deals with universal themes that have been important to humankind throughout their evolutionary history. Nevertheless, it is through the pan-cultural specifics in the way that these universal themes are communicated that makes them feel so relevant today to audiences across the world.

8.9 Applications of findings to screenplay development and film production

The main reason I chose to investigate whether the frequency of display of universal attributes in film protagonists is related to a film's box office performance was to address the "greenlighting problem" within the film industry. Many screenplays that are selected for full financing on the basis of instinct and industrially-received wisdoms are produced into films that fail to make any profit at all from their theatrical release (De Vany & Walls, 2004; Vogel, 2014). Since a film's narrative is thought to play an important role in a film's ultimate success or failure at the box office, I reasoned that in many instances when returns on revenue are important, the wrong screenplays are greenlit. My research findings provide some support for this finding. Having found that certain attributes of a film's protagonist explain 48.5% of the variance in whether a film becomes a hit at the annual North American domestic box office or a flop, I conclude that better decisions at the greenlighting stage, guided by narrative and protagonist factors, will improve films' chances of success at the North American domestic box office. The same is true for decisions to greenlight high-budget films, produced for budgets of US\$110 million or over, since certain attributes of a film's protagonist and leading actor account for 42% of the variance in global box office takings. As I have already noted, giving a protagonist certain qualities is not enough to guarantee a film's domestic or worldwide appeal, but films in which protagonists have these qualities certainly have better chances of financial success. Moreover, since these psychological attributes are easily identifiable in the way that a protagonist is characterized in the screenplay, knowledge of these attributes should be useful to screenwriters, development executives, producers and financiers in North America and China.

Having examined several industrially-received wisdoms upon which greenlighting decisions are based, I found some of this "craft knowledge" to be unsupported by my results. I have already concluded that giving a film protagonist primal motivations and emotions is insufficient to create a film with universal appeal. My research stopped short of examining

whether a universally-appealing protagonist even exists, as the number of films that were popular in both North America and China in my study were too few to support any analysis which would have been able to draw useful conclusions. However, this is certainly a question that should be addressed in further research. One possibility is that intelligent heroic characters may be universally liked, but in order to create a heroic protagonist who is appealing across the world, cultural and geopolitical differences in the way that heroic behaviour is conceived by different nations need to be taken into account. Alternatively, universally-appealing protagonists may be created by combining some of the psychological attributes that are most preferred by cultures from around the world. If such globally-appealing protagonists exist, they may be characters akin to Sully in *Avatar* (2009), who combines heroic attributes with the desire to draw meaning from the events of the narrative, a fusion of attributes which are appealing to both North American and Chinese audiences and potentially also to other audiences from across the world.

Moving on to consider the specific outcomes of my research, I propose that if these findings were to be replicated and validated they may have several useful implications for the film industry. These recommendations should be treated with caution, since as I have already noted the correlation between certain protagonist qualities and films' box office performance in domestic or global markets does not necessitate that the commercial success of these films is caused by audiences' preference for certain attributes of their protagonists. Nevertheless, my research provides US and Chinese film studios with additional information about North American and Chinese audiences' preferences for particular types of films, which will enable these producers to develop their high-budget projects accordingly.

American studios developing high-budget action films, costing around US\$110 million or over, appear to be already catering well for their domestic audiences' preferences when creating impulsive protagonists who display physical skills and altruistic behaviour in fear-inducing situations. Further research is required in order to determine how a character's gender and the film's genre mediate audiences' preferences for these attributes. Since high-budget films would be required to perform well at the international marketplace in order to return investments, US studios should also consider developing the mental skills of the protagonists of these films, particularly in relation to their dialogue, displays of humour and creativity, as well as having these protagonists draw meaning from the events of the narrative, in order to appeal to Chinese audiences. Further research is required to identify the optimum levels of displays of these attributes for audience engagement. At the point of

casting the film, producers of high-budget US films intended for the international marketplace should consider matching the look of the actor to the role. For heroic roles, audiences appear to prefer actors that look less anxious.

By contrast, Chinese studios developing mid- to high-budget films, relative to typical Chinese production costs (typically now over \$US60 million), should consider Chinese audiences' preferences for films in which protagonists show a tendency to draw greater meaning from the events of the narrative. When developing films aimed at the international market, and particularly co-productions, Chinese producers should also consider the aforementioned preferences of US cinemagoers and international audiences. Finding a balance between attributes that are culturally idealized in the domestic market and those that are valued in other nations without offending local or foreign cultural sensitivities, while creating a character that viewers find psychologically credible and culturally authentic, is of vital importance.

The findings of my research also have implications for film industries outside North America and China. Since UK-qualifying US studio-backed films accounted for a quarter of the world's box office in 2015 (BFI, 2016), many of these films have earned the largest shares of their ticket sales in North America and China. Thus, my research findings are directly relevant to British writers and production companies developing screenplays for British-American co-productions. Producers of higher-budget films in other territories that are developing films for international release would also benefit from an increased awareness of the cross-cultural differences in audiences' preferences for film protagonists' attributes, since North America and China are the worlds' largest cinema markets.

Other prevalent wisdoms that I investigated within my theoretical research include the ideas that films require a three-act structure and a protagonist who transforms in order to have the widest audience appeal, since these are both argued to be narrative universals. On examination of the former, I concluded that certain elements of the three-act structure are *statistical* narrative universals, which reflect evolutionary adaptations in the human mind. These universal elements, including linear storytelling, causal relationships, narrative coherence and redemptive sequences, very likely contribute at least in some small way towards a film's mass appeal. On investigation of the typical screenwriting manual requirement for a protagonist to transform, I concluded that since character transformation within film narratives is modelled on universal changes in motivational drives that generally

occur through human life-course development, the transformational character arc may be considered another statistical narrative universal, and as such also likely contributes towards box office appeal. This is consistent with previous research that found that global blockbusters tend to have protagonists who begin their narrative journeys with more agentic goals and values, and who end their narrative journeys with more communal goals and values (Beckwith, 2009). This is not to say that all film narratives include linear storytelling, causal relationships, narrative coherence, redemptive sequences and protagonists who transform from having more agentic to more communal goals, nor that these elements are requisite for box office success. Instead, these factors likely contribute towards films' success at the global box office.

8.10 Implications for the pedagogy of screenwriting

In addition to the specific conclusions that I have drawn about cross-cultural differences in audiences' preferences for films with certain types of protagonists, my research has several other implications for the pedagogy of screenwriting studies and film studies. Since these implications are relevant to the analysis of fictional characters across all fictional works, they also apply to the pedagogies of critical writing and literary criticism, dramaturgy, digital fiction and game narratives. Within this section I focus on the applications of my experimental findings to the method and practice of teaching screenwriting for fictional feature films and television series, as well as to approaches to further research within this field.

First, I propose that the evolutionary framework that I have outlined has many useful applications for screenwriting teaching and research. Through uniting evolutionary and cultural explanations of narrative thematics, this consilient framework allows the analysis of films and screenplay texts at three levels (following Carroll, 1995). At the evolutionary level of analysis, films and screenplays are analysed in order to identify character motivations, emotions and personality traits based on adaptive human attributes. These universal character attributes are created through writers' mimeses of human evolutionary psychology and provide the broad brushstrokes of characterization. Next, the cultural level of analysis investigates the degree to which the psychological attributes of film characters are expressed with different frequencies across cultures. This level of analysis also accounts for cross-cultural differences in audiences' reception of these attributes, and related to this, cross-cultural variation in audiences' preferences for films with certain protagonist "types". At the

individual level of analysis, individual differences between screenwriters' works are understood to be the result of evolutionary variation in writers' personality traits, motivations and emotions, mediated by local environmental factors and cultural learning. This level also accounts for individual differences in the reception of films and film protagonist qualities, and provides explanations for differences between film characters, through explaining these as writers' mimeses of evolutionary variations between individuals.

I propose that this framework of analysis of film and television characters enables a more nuanced understanding of *how* psychologically-credible characters should behave, as well as offering explanations of *why* this is the case. This framework allows psychological models of personality to be used as practical tools by screenwriting academics and practitioners during the creation and analysis of screen characters. These psychological models define the basic "layer" of traits espoused by a number of authors of screenwriting manuals (e.g. Iglesias, 2005, p. 5). For the student of screenwriting, the Big Five model of personality, or Zuckerman's Alternative Five-factor model, offer psychologically-valid frameworks for the construction of film characters. They are thus far superior to many of the existing approaches outlined in screenwriting manuals, which are based on either pop psychology or unproven psychoanalytic theory. By considering the "personalities" of fictional characters to have five discrete dimensions, the student screenwriter is given the best tools to create a fully dimensional character, or to analyse and review a character that they have previously constructed. To scholars who argue that the best writers base their characters on instinct and therefore deconstructing characters in this way cannot produce "good writing", I respond that writers work in a variety of ways (see Froug, 1996). For writers who work best relying on instinct, this additional knowledge of personality psychology may be unnecessary. However, in my experience as a screenwriting tutor, and as evidenced by positive online reviews of screenwriting manuals (Amazon users, 2016), many screenwriting students find the use of tools very helpful when creating new characters and critiquing existing characters. Similarly, psychological theories of emotion, including Lövheim's psychobiological framework, may be useful reminders of the breadth of human emotional experience for many student screenwriters. Such theories provide students with a comprehensive framework through which to plan their characters' emotional arcs, and with which to analyse the display of characters' emotions in films and screenplays.

Other findings from my theoretical research may help screenwriting students better understand characters' motivations. Screenwriting manuals tend to emphasise the importance of a character's transformation for audience appeal, and argue that the film protagonist

requires two overarching desires (McKee, 1999), which are sometimes described as the “want” and the “need”. The specific nature of these desires is ill-defined (Cattrysse, 2010). Drawing on research from developmental and narrative psychology, I propose that the protagonist’s transformational arc is frequently found in film narratives and other fictional forms because it is modelled on changing motivations throughout human life course development. I suggest that the protagonist’s “want” is better understood as an agentic desire, often within the domains of self-protection (aggression, exploring the world, safety, play or health), or mating (sex, improving or displaying appearance, demonstrating mental or physical skills, or displaying or acquiring wealth), replicating the most common desires in early adult life. By contrast, the protagonist’s “need” is generally a communal desire, which may be for parental or relationship care (affection), coalition formation (altruism and displays of conscience), building a legacy, or finding meaning, replicating the most common desires in middle and later adult life. Rather than the “want” and the “need” translating to a single agentic adaptive goal and a single communal adaptive goal, I contest that “wants” and “needs” are generally comprised of multiple evolutionary motives.

Taking the example of Jake Sully in *Avatar* (2009), he articulates that his main desire, or “want”, is to regain the use of his legs. This desire is better understood as a combination of adaptive motives, namely exploring the world, increasing personal safety and improving physical skills. Sully also desires Neytiri, which in evolutionary terms is clearly a mating desire. Sully’s “need” is to “save” the Na’vi and their world from imminent human military invasion. In evolutionary terms this may be understood as comprising relationship care, a display of conscience, wanting to help unrelated others through altruistic acts and finding meaning in life. Thus, Sully’s “want” consists of several agentic motivations within the social domains of self-protection and mating, while his “need” consists of communal motivations within the social domains of relationship maintenance and parental care, coalition formation and the memetic arena. Through understanding protagonists’ “wants” and “needs” as mimeses of human evolutionary motives, and character transformation as being based on the typical progression of motivations throughout the human life-course, screenwriting students are provided with a framework through which to better understand *why* characters are generally shown to transform, as well as *how* they transform. Having found that the seventeen evolutionary motives I examined in my quantitative research were sufficient to explain protagonists’ behaviour across the 170 films that I analysed, I suggest that these provide a useful starting point for screenwriting students when creating new characters.

Finally, screenwriting scholars may be interested in using the APTM-Q for further research and analysis of screen characters, in films, television series, web series and commercials. While my thesis has focused on the analysis of fictional feature film protagonists, the evolutionary framework I discuss here is applicable to all fictional characters – in novels, short stories, flash fiction, poetry, radio plays, stage plays, immersive theatre, ballet, opera and so on.

8.11 Limitations

There are eight limitations to my quantitative research. First, my sample sizes were relatively small, comprising 170 films in total. Thus, the power of my research findings is limited. On completion of my viva, I would like to repeat the studies using a much larger sample of films. Second, in Studies 1 to 4, analyses of the protagonists' attributes were based on my ratings alone. Although I verified that my ratings of protagonists' attributes were very similar to those of my British sample, thus reducing the likelihood of individual bias within my analyses, it would be preferable to repeat this research using the ratings of multiple participants. Third, I used British raters, including myself, as a proxy for North American raters. While the Hofstede cultural dimensions for the UK compared with the US and Canada are similar for four out of the five dimensions, cultural dimensions do not measure perceptions of others' personality traits, motivations and emotions and so there may be cross-cultural differences between the reception of these attributes between British and North American populations. Thus, future investigations should repeat Studies 1 to 5 using North American participants.

This leads me to my fourth point, which is that I used Chinese Britons as participants in Study 5, in lieu of resident Chinese nationals. Although my Chinese participants identified far more strongly with Chinese cultural values than British values, they were likely to be more influenced by British cultural values than resident Chinese nationals, and therefore did not accurately reflect the preferences and perceptions of a native Chinese audience. Fifth, my group of Chinese participants in Study 5 was biased towards middle-aged women who watched films infrequently. Given that the average age of the typical Chinese cinema-goer was under 25 in 2014 (Zhu, 2014), my Chinese participants were not representative of the typical audience demographic.

Sixth, the film viewing conditions in Study 5 were not strictly controlled. Some participants watched the films in their homes, while many of the Chinese participants

watched the films as a group, within the setting of their local Chinese community centre. It is therefore likely that the group setting contributed a variable which I failed to control for. Furthermore, I had to rely on the honesty of participants watching films in their own homes to have focused on viewing the complete film in one setting as was required. Seventh, the British and Chinese British participants of Study 5 watched slightly different versions of the same films. The Chinese versions of the films were either dubbed or subtitled in Mandarin, and had been censored to meet the requirements of the Chinese Censorship Bureau in order to receive Chinese release. While I had assessed these differences between the films' edits and found them to be minimal in relation to the ways in which the films' protagonists were portrayed, it is possible that small changes which were present resulted in different depictions of the films' main characters. Also, the act of reading subtitles in order to understand a film involves other factors which I did not control for. The translations from English to Mandarin may be imperfect or imply different meanings, and the very act of reading subtitles may employ different cognitive modules that mediate the perception of characters' attributes. For dubbed versions of the films, changing a protagonist's vocal qualities may result in changes to audiences' perceptions of the character's personality traits, emotions or motivations.

Eighth, an additional limitation arises from my use of readily available, neutrally-posed headshots of actors for the purpose of rating their personality traits. Since most of the actors playing roles in my sample films are well-known, participant ratings of their headshots may have been biased by those actors' performances in roles that the participants had seen them in before. Moreover, obtaining completely neutral poses of the actors, without make-up or hair concealing the faces was difficult, particularly for the female actors, and so I made use of the best available headshots that I could source instead.

8.12 Further research

Future research should first establish the validity and reliability of my findings. A useful starting point would be to use a larger sample of recent films from North America and China in order to increase the power of the analysis, either by increasing the span of years under study or number of top-ranking box office films analysed for each year. A larger sample size would also allow factor analysis to be applied to the psychological variables, which may provide the resulting regression models with a better fit.

In addition to increasing the number of films that are studied, it would also be useful to have multiple North American and native Chinese participants rate the protagonists'

attributes for each film. In relation to the Chinese demographic, this may mean confining the sample population to participants from mainland China, since Hong Kong and Taiwan have their own distinct cultures which are likely to mediate audiences' film preferences and their reception of screen characters. When examining the preferences of typical cinema-viewers in North America and China, participants' age ranges should be representative of these demographics. Other research could investigate whether viewers watching films at home share the same preferences for films with certain protagonist qualities as cinema-goers, or whether audiences have different expectations of the films that they choose to watch in the cinema versus at home. For example, is the North American audience preference for films in which protagonists demonstrate heroic qualities confined to "event films" viewed at the cinema? How do other cinema formats, including 3D films or IMAX films, mediate these preferences?

Since my research was limited to an examination of the cross-cultural differences in the perception of only a few of the psychological attributes measured by the APTEM-Q, future research should examine cross-cultural differences in the reception of all emotions, motivations and personality traits displayed by screen protagonists. With new findings in this field, the list of motivations and emotions may be broadened or even reduced. For example, recent studies in media psychology, positive psychology and humanistic psychology have identified "awe" as a powerful emotion that may be primed by exposure to short film clips showing particular kinds of natural scenes (see Schneider, 2017). Since awe may be related to a viewer's transportation by a film, and engagement with the leading character, it may be an important emotion to include in future iterations of the APTEM-Q.

Researchers developing the work of this thesis may wish to control for films' genre, classification and distribution factors as well as protagonists' gender within their experimental designs in order to better estimate the size of the contribution of psychological qualities of films' protagonists to films' domestic and global box office. I have suggested that genre may be particularly important in mediating audiences' preferences for certain attributes of film protagonists. Extensions of this research design could examine the preferences of viewers from other film territories for films with certain types of protagonists, to see how these are similar to, or contrast with, those of North American and Chinese audiences. This would provide useful information about domestic audiences' preferences for certain films, which could be used by transnational film producers, financiers and writers.

Future research should also examine whether the ranking of protagonists' primary motivations, in a hierarchy of evolutionary fitness stakes, contributes towards a film's global box office performance. While this was not a question that I specifically set out to address within my thesis, my results suggest that films with protagonists who are motivated by self-protection and mating have the highest chances of box office success. Films in which protagonists are motivated by parental and relationship care or coalition formation may have lower chances of box office success, while films with protagonists motivated by memetic goals appear to have the least chances of box office success.

The question of whether character transformation is a narrative universal is another interesting area of research. First, research is needed to confirm that protagonists transform in the majority of films that are preferred by audiences from across the world. Second, future studies should investigate whether this transformation typically depicts a change in the primary motivations of these protagonists from more agentic to more communal concerns, as I have proposed. Third, research is required in order to determine whether character transformation is a linear process that typically follows a series of stages, or whether there are cross-cultural differences in this process. Other questions that could be asked include determining whether these stages relate to the protagonist's belief systems and emotions. Do these stages reflect the psychological stages of human moral development? How is character transformation mediated by the character's personality traits? What role do the events of the narrative play in this transformation? Are these findings predicted by psychological theory?

Building upon the finding that high-budget films in which the protagonist appeared to be less anxious, more mentally skilled and less physically skilled were more likely to be a hit at the global box office, it would be useful to examine whether there are optimum levels for the displays of certain protagonist attributes in films preferred by audiences. If so, what are these levels? For example, it may be that protagonists need to display a certain level of intelligence to engage and win over audiences, but too great a display of intelligence is unappealing.

Further research examining the relationship between an actors' visual appearance, particularly based on facial cues, and a film's ticket sales could attempt to eliminate some of the bias that may have been introduced into this research by audiences' previous knowledge of that actor's roles, by focusing instead on unknown actors and the relationship between assessments of their personality, the roles that they play and financial performance of these films. Research questions would include investigating whether casting "with type" improves

a film's box office performance, or whether casting with type is important for some dimensions of personality but not others.

Another area of interest for future research would be to investigate the relationship between the protagonist's self-serving attributional bias towards achieving their goals and the film's performance at the global box office. In the 170 films that I viewed for this research, the films' protagonists all demonstrate moderate to high levels of a self-serving optimistic bias towards accomplishing their stated goals. This supports the finding that individuals from the US and China share similarly high levels of a self-serving attributional bias (Mezulis et al., 2004). Since audiences would view these film characters' chances of achieving these goals more realistically than the film characters, this gap between viewers' lower expectations for the protagonist to achieve their goals, and the protagonists' own expectations may have contributed towards dramatic tension in these popular films. Accordingly, the tension created by this dramatic gap may have contributed towards box office receipts for these films. Since research suggests that adult women, individuals who are depressed, and people from some Asian cultures – excluding China - demonstrate the lowest bias towards self-serving positive illusions (Mezulis et al., 2004), it would be interesting to investigate whether film characters reflective of these groups, or created by writers or directors from these groups, also demonstrate a lower self-serving attributional bias towards achieving their goals. If this is the case, does this result in reduced dramatic tension from the audience's perspective in these films, and does this influence the box office performance of these films?

Since the evolutionary framework through which audiences' perceptions of protagonists' psychological qualities have been examined in this research may be extended to the study of all fictional protagonists, further research could investigate the relationship between fictional protagonist qualities and the sales of novels, games, theatre and opera tickets, downloads of digital fiction, television series viewing figures and so on. Within the film industry, further analyses with the APTM-Q could investigate the relationship between the qualities of a film's protagonist and the sales of downstream products, including digital downloads, DVDs, merchandising, video games, television series spinoffs and theme park rides that relate to the film's protagonist. Within this research it would be important to control for a film's genre and classification, since different protagonist attributes would likely predict higher downstream sales of PG-rated family animations, compared with R-rated comedies or PG-13 action films.

As research in this field advances, I note cognitive critic Alan Richardson's cautions against over-simplistic retrospective mapping of evolutionary universals to fictional narratives, since fictional worlds relate to reality in a variety of ways (2000). Nevertheless, in nearly all the 170 films viewed in this study, protagonists' motivations, personality traits and emotions imitated real human behaviour and the majority of actors' performances were naturalistic. Although these films were able to sustain viewer engagement when breaking laws of physics or biology, for example by allowing fictional human characters to fly or travel through time, close approximation of human psychological behaviour may be a requisite of screen characters for a film's universal appeal. Thus, it could be argued that the more a film or other fictional narrative subverts our fundamental psychological realities, the less it resembles life as we know it, and the more reduced that film's appeal.

8.13 Final conclusions

I draw three major conclusions from my research. First, the evolutionary framework which I have proposed contributes a new consilient framework for scholarly research, bridging explanations of human behaviour from the biochemical and molecular to the cultural and aesthetic through a series of unbroken causal chains. As such, it provides a unifying framework for the analysis of films, television shows, screenplays, web series and all other screen arts. Within this paradigm, bio-evolutionary and cultural explanations are fundamentally interlinked and part of the same frame of understanding. New modes of enquiry have already been generated by this framework, through the application of Literary Darwinism to the study of novels and short stories. I suggest this approach has many useful applications when extended to film studies and screenwriting research.

Second, I advocate that this evolutionary framework contributes several useful ideas and approaches towards the analysis of narrative thematics and characterization within film and screenwriting pedagogy. Furthermore, through the application of psychological theories to the analysis of fictional characters' personality traits, motivations, emotions and typical life-course development, this evolutionary framework has the ability to resolve tensions between "academic" and "practitioner" perspectives on screenplay analysis, that have developed as a result of the dominance of screenwriting manuals (see Maras, 2011).

Finally, I contend that my research findings have useful applications for the film industry by addressing three important gaps in knowledge: first, the relationship between the psychological attributes of film protagonists and ticket sales at the annual domestic box offices of North America and China; second, the relationship between the psychological attributes of film protagonists and global box office ticket sales; and third, cross-cultural similarities in audiences' reception of certain psychological attributes of film characters. While the specific contributions of my research relate to films that were popular in North America or China between 2009 and 2014, excluding 2011, through these findings I have also demonstrated the value of extending my research to films produced and consumed in other territories around the world.

In conclusion, I propose that by understanding film characters' traits, motivations and emotions as writers' emulations of human evolutionary adaptations to problems of inclusive fitness, modulated by the environment as well as individual aesthetics and cultural processes, academics, researchers, film producers, financiers, development executives and screenwriters will gain valuable insights into the psychology of screen protagonists and their associated, cross-cultural audience appeal. Only by understanding our origins can we fully comprehend the utilization of Pleistocene protagonists so prevalent on our contemporary screens.