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a mixed methods analysis of students' sense of belonging to university

Mi Young Ahn

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Abstract

Social capital, from the collective social capital theory perspective, is constituted by trust, social network and participation. Social capital is agreed to be crucial for civil society and wellbeing, but there is no general consensus on how to define and measure it. Sense of belonging shares important meanings with social capital, but is more amenable to measurement. Social capital, primarily a metaphor, is elastic, implicative, and versatile, whereas belonging is a more concrete and tangible concept that is suitable for the measurement. This research explores how belonging is related to social capital, and examines whether belonging can be used as an indicator for social capital.

A mixed methods, qualitative and quantitative research design was developed to collect data on students' sense of belonging to Bangor University. A new instrument, the 10 Words Question, was developed to elicit participants' own thoughts and feelings, while a survey questionnaire was used in parallel, with questions about belonging, social capital, and demographic information.

The empirical analysis reveals that there are four main domains of belonging, academic and social engagement, surroundings, and personal spaces. This challenges previous research on the subject in the UK. The findings suggest that students' sense of belonging is strongly associated with social capital. Further conceptual and statistical analysis shows that there is significant overlap with each of the main components of social capital.

One implication of the study is that a one-dimensional approach to students' sense of belonging to an institution may result in poorly targeted and ineffective policies. The research highlights the complex characteristics of belonging, so if students' belonging is to be used to promote academic success and retention, more conceptually refined approaches and empirically detailed evidence will be required. This research also demonstrates that belonging data can be used as a simple alternative indicator for social capital.

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I am also grateful to other researchers who gave me constructive feedback on my work at conferences: the results of a qualitative and quantitative analysis of the 10 Words data were presented at two conferences (The Asia-Pacific Conference in January 2016; and the British Sociological Association (BSA) Conference in April 2016); an examination of using belonging as an indicator for social capital was presented at the Wales Institute of Social and Economic Research, Data & Methods (WISERD) annual conference in July 2016; and the detailed results of a statistical analysis of students' sense of belonging in higher education were reported at the British Educational Research Association (BERA) conference in September 2016.

To all my friends and family here and back home, I am very grateful for their tireless encouragement, patience and emotional support. Lastly, this thesis is dedicated to my daughter, Audrey Joojin, and my husband, Ik Soo, who have been my inspiration and motivation for this journey.

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Chapter 1. Introduction

Social capital, from the collective social capital theory perspective, consists of three main concepts: social network, trust, and participation (Wollebaek and Selle, 2002). Social capital is crucial to civil society and wellbeing, but there is no general consensus on how to define and measure it (Schuller et al. 2000). My thesis approaches this problem with the different but related concept of 'sense of belonging'. Conceptually, sense of belonging shares many important concepts with social capital, but is more amenable to measurement. This study explores how sense of belonging is related to social capital, focusing on social network and participation as the theoretical linkage between them. It is also designed to investigate whether sense of belonging can be used as an indicator for measuring social capital. This introduction explains the origins of the project, the circumstances which led to framing of the key questions, and the general approach to data and measurement.

This thesis starts from the strong belief that social capital is one of the vital concepts to grasp the nature of civil society. It is a powerful metaphor to understand the prosperity of a society at the individual and societal levels, from political, economic, and sociological perspectives. The main components are derived from the literature review, which provides firm evidence that they are crucial to social capital; people genuinely trust, and actively get involved with others and society through many forms of action including socialising, helping, supporting, campaigning, and volunteering. This thesis is, therefore, fundamentally inspired by Putnam's neo-Tocquevillean conceptualisation of social capital (Prell, 2006; Foley and Edwards, 1999; Morrow, 1999) and his measurement approaches (Putnam 1993, 1995, 1996, 2000). It also shares the view that social capital in civil society is often embodied as civic virtue (Fukuyama, 1995), and draws on the theoretical background developed by collective social capital theorists including Paxton (1999) and Li (2015).

Social capital is 'elastic' (Lappe and DuBois 1997). The concept is versatile and adaptable and it can be applied to explain various social phenomenon. However, this flexibility can be a double edged sword, since social capital is often interpreted as a universal panacea for broad social phenomena, even in less relevant cases. It also raises a question whether we can agree about what we believe social capital is. Furthermore, its elastic character clearly affects how it is measured. Attempts to measure social capital are not always consistent. That is the main

reason why three chapters are devoted to a literature review to demonstrate this complex character of social capital conceptually and empirically in terms of definitions and measurements.

The literature review leads to the conclusion that the foundation of social capital should be specified in order to clarify what social capital refers to, and how it can be measured. Considering collective social capital theorists' arguments, trust, social network, and participation are selected. In facing the challenge of measurement, the network-based approaches of Borgatti (1988, 2005), Burt (1992, 2005), and Prell (2006) are a significant influence, since they help to understand how individuals are connected and interact with each other and society on the micro level. At the initial stage of this research, social network analysis was a central academic interest; first drawing on authors such as Faust and Wasserman (1994), Wellman (2002, 2007), and Marsden (1987, 1990), then moving to social influence and contagion within networks (e.g. Smith and Christakis 2008; Christakis and Fowler 2007), and to McPherson's homophily, 'birds of a feather flock together' (1986, 2001).

However, due to the increasingly apparent obstacles to feasibility, accessibility, and practicality, it was difficult to proceed. My thesis initially tried to approach these issues by performing secondary data analysis. In order to measure social capital, the data should contain all the variables of the core components such as trust, social network, and participation. The data also should be collected from participants on the complete network structure, considering the network aspects of social capital. Most public data on a large scale is collected from randomly selected samples, with no specified network ties, except the Add Health data (The National Longitudinal Study of Adolescent to Adult Health)[1] in America (See Appendix 4). This famous dataset has been used in more than 6,000 publications. Although the Add Health data meets all the requirements, it is of questionable value because it was originally collected 20 years ago, from adolescents in the secondary schools in the USA. In addition, since all the main variables spread over different waves, it was difficult to conduct a cross-sectional study. A research plan was then considered for primary data collection from students in the School of Social Sciences in Bangor University to generate

[1] The Add Health is a longitudinal study of a nationally representative sample of adolescents in grades 7-12 in the United States during the 1994-95 school year (http://www.cpc.unc.edu/projects/addhealth)

data to resolve the methodological issues of network ties, boundaries, and the scope of the analysis.

When the opportunity arose to work on the Students' Sense of Belonging to Bangor University Research in 2014, I joined the research, without hesitation. It was an academic and logical intuition that a person's belonging, as a feeling of being connected to others, groups, or society must have close affinity with their social capital. My training and experiences in research design, data collection and analysis enabled me to participate in the research development stage and the management of the project, not just act as a research assistant.

It should be emphasised that this study was primarily concerned with institutional policy in relation to the student experience in higher education. The main aim, design, and data collection and analysis were developed to understand students' sense of belonging in higher education, since the research project was initiated and funded by Bangor University Student Engagement Office and Widening Access. My role in the research project was to deliver the overall research project, as a lead researcher, including the literature review, research design and planning, and data collection and analysis. From my position in the School of Social Sciences, I had full access to the institution.

A review of theoretical and empirical research on students' belonging in higher education highlighted the shortcomings of existing questionnaires in the UK. Being aware of the potential benefits of mixed methods design, I initially planned to combine quantitative and qualitative research using a survey questionnaire, focus groups, and in-depth interviews. My idea of developing a new method to elicit open-ended responses on belonging originated as a simple and quick pilot study to examine current students' status in Bangor University. An informal pilot using this instrument, which I have called the 10 Words Question, turned out to be very effective, and it became one of the key components of the mixed methods strategy. Full details about this instrument, including its theoretical inspiration and empirical development process will follow in the methodology chapter (Chapter 5).

Since my academic background is in sociology and social policy, and the PhD topic is social capital, the belonging research project has a further aim: to explore the relation between these two concepts to open up the possibility of using belonging as an indicator for social capital. It would be wrong to claim that it was my original idea to find a proxy measure for social capital, the idea of an alternative indicator promised to overcome many conceptual and

empirical problems. It redirects the approach to social capital and raises the fundamental question: is social capital measureable? As Morrow (1999) argues, social capital might not be the most appropriate concept to measure, but it can still function effectively as a metaphor to appreciate social phenomena.

This thesis develops with a commitment to explore the interaction between theories and concepts, to use more than one method, to integrate the results from different analytical procedures, and to work with qualitative and quantitative data. Multiple perspectives, designs, and methods facilitate the search for the truth about complicated, multifaceted, and intricate social phenomena. Therefore, this thesis adopts a multi-disciplinary approach to literature review, mixed methods research design and analysis, and to the concepts of both belonging and social capital.

The following chapters depict an academic exploration of social capital, guided by belonging as an indicator, based on a belief in its positive effects on civil society. The literature review extends across the next three chapters, because it is essential to lay a solid conceptual foundation. The journey starts from the existing theoretical debates about social capital (Chapter 2) and sense of belonging (Chapter 3), then moves to appreciating the commonality as well as contrasts between them. Due to the versatile and sometimes ambiguous characteristics of social capital, the process of the operational definition to measure social capital still attracts heated debate. In Chapter 4, issues in measurement of social capital as well as sense of belonging are critically reviewed in order to establish the linkage between these two concepts. In these literature review chapters, a broad range of theoretical and empirical research of social capital and sense of belonging is evaluated, forming a stepping stone for the research design and answers to the thesis questions.

Chapter 5 describes the research design and process using the questionnaire and the 10 Words Question. The following three chapters present and discuss the results of the analysis of both types of data. As this study aims to investigate whether belonging can be used as an indicator for social capital, the analyses of the questionnaire and 10 Words data are conducted in a sequential order, from belonging analysis to social capital analysis of the questionnaire (Chapter 6); followed by the 10 Words (Chapter 7 and 8). Since the 10 Words Question is a newly developed method, it requires a full description of the analysis procedures such as coding, clustering, statistical analysis, and visualising. The intention is to enhance its validity by making the procedures fully transparent.

The discussion chapters (Chapter 9 and 10) present an interpretation of findings within the context of the broader literature. Discussions of both research regarding belonging and social capital are included in Chapter 9. The final chapter (Chapter 10) presents methodological reflections and comments on the strengths and limitations of this study.

This thesis will provide the research community with a simplified but effective proxy for social capital, which should help to move social capital debates further along. It will also bring more complicated and structural understandings of students' sense of belonging in higher education research and policy fields, by providing new findings as well as challenging existing discussions.

Chapter 2. Literature review: social capital

2.1 Introduction

This is the first of three chapters of literature review: social capital (Chapter 2), sense of belonging (Chapter 3), and their conceptual linkage (Chapter 4). This chapter will focus on what social capital is and how it is defined from various theoretical perspectives.

Despite the rapid growth and increasing popularity of the concept, it is difficult to find a general consensus about the definition of social capital in academia and policy discourse. The conceptually ambiguous nature of social capital means that it can be defined, applied, and measured in different ways for various research purposes. As demonstrated by scholars such as Putnam (1993, 1995, 2000), Fukuyama (1999), Burt (1997), Lin (2001), Paxton (1999), and Woolcock (1998), it is, therefore, essential to draw conceptual boundaries in order to clarify the definition, especially for research who attempt to measure social capital.

This chapter will summarise researchers' attempts to provide theoretical conceptualisation, including three influential scholars who have contributed most to the foundations of the social capital theory in the contemporary context, namely Bourdieu, Coleman, and Putnam, followed by Putnam's neo-Tocquevillean conceptualisation of social capital and its position in civil society, which is the theoretical foundation of this thesis. Different trends of literature review will be investigated such as collective and individual social capital theories, and network-based approaches.

After discussing the main critiques of social capital, it will address how researchers face these criticisms, which will lead to the importance of constructing core components of social capital. It will highlight three main elements which constitute social capital, namely trust, social network, and participation, which will become the basis of the operational definition for the measurement in Chapter 4.

2.2 Defining social capital

Social capital is undoubtedly one of the most popular terms in social sciences, as Woolcock (2010) shows in the figure of the 'Citations of Social Capital, Human Capital, and Political

Parties, 1988-2008'. He discovers that the term was referred to almost 16,000 times in 2008 in Google Scholar, which means 'social capital' appeared as often as 'political parties'. Truly, as Portes notes, social capital is indeed one of 'the most successful exports' from sociology (Woolcock, 2010; Portes 2000:1). Despite the increasing popularity of social capital in research, as noted by Prell (2006), Borgatti (2005), Kadushin (2006), and Portes (1998), it is difficult to find general agreement on the definition of social capital. Like concepts such as community or power, social capital is stretched and interpreted to refer to a wide spectrum of research as well as policy.

This thesis applied two strategies to conduct literature review: a systematic approach and snowballing technique. First, the keywords search (e.g. social capital) was performed through various search engines including Bangor University Catalogue, Web of Science, Google Scholar, and academic journal database. Since social capital is a multi-disciplinary concept, the search was conducted broadly throughout social, political, economic, health, and computer sciences, network analysis, and organisational studies. Next, the snowballing technique was applied with names of key researchers including Putnam, Coleman, Paxton, Fukuyama, Burt, Wellman, Lin, Portes, Woolcock, Prell, Borgatti, and Li. Their whole research related to social capital was evaluated; then their citations as well as those studies which cited their research were explored sequentially.

The literature review reveals that social capital has been defined in various ways by different researchers. However, there are two trends most frequently applied in research: three key scholars, and two perspectives of collective and individual social capital theories. Before investigating both distinctive trends of literature review in detail, this chapter will start with Adler and Kwon's (2002:20) table of 'Definitions of Social Capital'. As one of the most recognised papers, it has been cited over 8,300 times up to January 2017, according to Google Scholar, which many recently published journal articles still rely on. This table addresses a wide spectrum of the definitions, including two distinctive perspectives (collective and individual), and three key researchers.

Table 2.1 ‘Definitions of Social Capital’ after Adler and Kwon.

External versus internal	Authors	Definitions of social capital
External	Baker	‘a resource that actors derive from specific social structures and then use to pursue their interests; it is created by changes in the relationship among actors’ (1996:619)
	Belliveau, O’Reilly, & Wade	‘an individual’s personal network and elite institutional affiliations’ (1996:1572)
	Bourdieu	‘the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition’ (1985:248) ‘made up of social obligations(‘connections’), which is convertible, in certain conditions, into economic capital and may be institutionalized in the form of a title of nobility’ (1985: 243)
	Bourdieu & Wacquant	‘the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition’ (1992:119)
	Boxman, De Graaf, & Flap	‘the number of people who can be expected to provide support and the resources those people have at their disposal’ (1991:52)
	Burt	‘friends, colleagues, and more general contacts through whom you receive opportunities to use your financial and human capital’ (1992:9)
	Knoke	‘the process by which social actors create and mobilize their network connections within and between organizations to gain access to other social actors’ resources’ (1999:18)
	Portes	‘the ability of actors to secure benefits by virtue of membership in social network or other social structures’ (1998:6)
Internal	Brehm & Rahn	‘the web of cooperative relationships between citizens that facilitate resolution of collective action problems’ (1997:999)
	Coleman	‘Social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: They all consist of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure’ (1990:302)
	Fukuyama	‘the ability of people to work together for common purposes in groups and organizations’ (1995:10)
	Inglehart	‘a culture of trust and tolerance, in which extensive networks of voluntary associations emerge’ (1997: 188)
	Portes & Sensenbrenner	‘those expectations for action within a collectivity that affect the economic goals and goal-seeking behavior of its

		members, even if these expectations are not oriented toward the economic sphere' (1993:1323)
	Putnam	'features of social organization such as networks, norms and social trust that facilitate coordination and cooperation for mutual benefit' (1995:67)
	Thomas	'those voluntary means and processes developed within civil society which promote development for the collective whole' (1996:11)
Both	Loury	'naturally occurring social relationships among persons which promote or assist the acquisition of skills and traits valued in the marketplace.. an asset which may be as significant as financial bequests in accounting for the maintenance of inequality in our society') (1992:100)
	Nahapiet & Ghoshal	'the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit. Social capital thus comprises both the network and the assets that may be mobilized through that network' (1998:243)
	Pennar	'the web of social relationships that influences individual behavior and thereby affects economic growth' (1997:154)
	Schiff	'the set of elements of the social structure that affects relations among people and are inputs or arguments of the production and/or utility function' (1992:160)
	Woolcock	'the information, trust, and norms of reciprocity inhering in one's social networks' (1998:153)

Source: Adler and Kwon (2002:20), 'Definitions of Social Capital', from 'Social Capital: Prospects for a New Concept'

Adler and Kwon's table summarises various attempts to explain the meaning of social capital by categorising them into groups which they characterise in terms of 'external' and/or 'internal' social ties. This table is reproduced there in its entirety because it provides an effective summary of literature from an important stage in the development of social capital research.

As shown in the table, Adler and Kwon (2002) apply external and internal relations as an indicator to classify existing social capital research. For instance, some researchers regard social capital as resources, generated and embedded in social network ties. Considering the potential benefits for an individual through these external ties, this perspective shares its focus with egocentric network analysis (e.g. Burt, 1992; Adler and Kwon, 2002). The external view, therefore, is related to Putnam's (1993, 2000) notion of bridging social capital, and individual social capital theory, which will be introduced later in this chapter.

The alternative perspective tends to approach social capital from the opposite direction. These researchers focus on relations on the structural level, since social capital, as an entity based on sociocentric network ties (Sandefur and Laumann, 1998), functions internally within that boundary of the group. The researchers, therefore, are interested in the characteristics from network relations, such as trust, reciprocity, and solidarity, as well as the positive social outcomes from those relations. Adler and Kwon (2002) categorise definitions from Putnam (1995) and Coleman (1990) as the internal view. This table also includes the third group of researchers, who tend to keep neutral positions in this debate. This group argues that the directions of network ties of social capital can work both ways.

The table demonstrates the breadth of the conceptual debates about social capital, in which Adler and Kwon (2002) highlight the important distinction in viewing social capital. The more detailed understanding of social capital based on these different trends such as individual and collective theorists, or network analysis (e.g. egocentric or sociocentric) will be discussed later in this chapter. But next, three key scholars who established the theoretical foundations of social capital will be explored.

2.3 Theoretical foundations: Bourdieu, Coleman, and Putnam

Despite the lack of the general consensus, Bourdieu, Coleman and Putnam are most frequently cited, as the most influential researchers, since they theorised and developed the concept of social capital in the contemporary context.

According to Bourdieu (1985, 1986, 1997), social capital is defined as 'the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition… which provides each of its members with the backing of collectivity-owned capital' (Bourdieu, 1997:51). Bourdieu highlights the importance of the scale of social connections which individual members have, and the benefits that accrue from these powerful resources (Li, 2015; Mata and Pendakur, 2014; Torche and Valenzuela, 2011). In order to obtain useful resources, individuals need social capital, since social capital means social connections and opportunities to access resources, and accumulate those resources (Li, 2015; Mata and Pendakur, 2014; Pooley et al., 2004; Morrow 1999). Bourdieu (1986) considers social capital as a form of capital, alongside economic, human, and cultural capital, which inevitably leads

to social inequalities (Carrasco and Bilal, 2016; Adler and Kwon, 2002; Morrow 1999). Social capital, in this context, is regarded as a powerful instrument for the dominant class to maintain their social status (Carrasco and Bilal, 2016; Morrow, 1999).

Adler and Kwon (2002) highlight that some characteristics of social capital are shared with other forms of capital; as an asset, it can be invested, converted, and reciprocated. However, unlike other capitals, especially economic capital, social capital is not possessed by individuals, since it is embedded in social networks and relations. In addition, it seems impossible and pointless to measure social capital, since it should be regarded more 'metaphorically' (Adler and Kwon, 2002; Solow, 1997). Li (2015) also points out that Bourdieu's definition is less amenable to quantitative research such as large scale surveys.

For Coleman, social capital is 'a variety of entities which have two characteristics in common: they all consist of some aspects of a social structure, and they facilitate certain actions of individuals who are within the structure. Like other forms of capital, social capital is productive, making possible the achievement of certain ends that would not be attainable in its absence.' (Coleman, 1990:302)

In contrast to Bourdieu's concept, Coleman's functionalist approaches and attitudes are clearer to understand (Li, 2015; Prell, 2006). Here, Coleman emphasises social structures, which consist of individuals and their social connections (Macinko and Starfield, 2001), and constitute individual's resources in a group (Paxton, 1999). His notion that individuals can obtain resources like social capital through those dense and close networks arguably begs the question of whether this is a tautological statement (Portes, 1998).

Unlike Bourdieu (1986) who focuses on the reproduction of the power, Coleman is recognised as the one who 'democratised' the concept of social capital (Carrasco and Bilal, 2016). Coleman (1988, 1990) argues that social capital is potentially useful to the community, and is not private property, since it is generated by and through social networks and relations themselves. His attitude of emphasising the importance of social networks is often categorised as being network-focused (see Patulny et al. 2015).

It is Putnam who has re-conceptualised and popularised social capital in recent sociological debates. According to Putnam, social capital refers to 'features of social life -networks, norms, and trust- that enable participants to act together more effectively to pursue shared objectives' (Putnam, 1995:664-5), and the key concepts of social capital are social networks,

trust, and civic participation, which are very closely linked to civil society. He explains social capital under the social frames of community, democracy, and general well-being (Prell, 2006; Burt, 2005; Portes, 1998), and combines it with civil society theories of Bourdieu and Coleman, which stem from Alexis de Tocqueville (Prell, 2006; Foley and Edwards, 1999; Morrow, 1999). Since Putnam (1993, 1995, 1996, 2000) is the theoretical foundation for this study, the details of conceptual and empirical discussions about his research will be continued throughout the literature review chapters.

Bourdieu, Coleman, and Putnam are generally recognised as the *three dominant strains* in contemporary theories of social capital (e.g. Prell 2006, Lewandowski 2006, Pooley et al. 2005). Coleman brings an *economic or rational strain*, Putnam represents a *political or democratic strain*, and lastly Bourdieu establishes a *critical or Marxist strain of social capital*. Coleman (1990, 1984) understands social capital in terms of individualistic rational choice theory, focusing on its functions, while Putnam interprets it with a contemporary neo-Tocquevillian political scientist's view, emphasising its effects on democracy. Unlike Coleman and Putnam, Bourdieu is interested in inequality, power, and conflicts, therefore criticises the negativities of social capital which work as 'socially stratifying resources' (Lewandowski, 2006: 20).

Unlike Coleman and Putnam, Bourdieu seems to be less interested in community (Morrow, 1999). Morrow explains that this results from the difference in approach between European and American sociology. All three researchers, however, share the same view that the quality of social network, regarded as valuable resources, is important (Li 2015; Pooley et al. 2005; Winter 2000). Having considered the similarities and contrasts, this thesis will follow Putnam's notion of social capital as a main theory, since social capital, as Adler and Kwon address (2002:20), is not a private property, but a public good, like 'clean air and safe streets', which is beneficial to everyone in the society. Further discussion about theoretical perspectives regarding social capital as collective goods will be explored (e.g. Putnam 1993, 1996, 2000; Fukuyama 1995, 2000; Paxton 1999), compared to individual approaches (e.g. Lin 1986, 2008).

2.4 Different approaches to social capital

Despite of a lack of consensus on definitions, it is widely agreed that the mainstream of theoretical debates can be divided into two perspectives: individual social capital theory and collective social capital theory. Researchers with individual approaches like Lin (2001) regard social capital as important and powerful resources embedded in networks in order to achieve personal goals, while collective approaches mainly rely on Putnam's (1993, 2000) perspectives of social capital as a collective good coming from shared norms and value, trust, and reciprocity. In addition, the literature review reveals that there are researchers close to network theorists (e.g. Borgatti, 1988), who suggest network-centred points of view and concepts, since they are useful and pragmatic to understand social capital from different directions.

Collective social capital theory

Assuming civil society consists of all voluntary activity of citizens, outside of the state and the market, their active participation in any form in any part of society is crucial for democracy (Fukuyama, 2001). Social capital, in this context of civil society, undoubtedly plays a significant role.

Fukuyama (1995, 2000, 2001) argues for the importance of social capital in civil society. After having admitted that the conceptual definition of social capital can vary, he regards social capital as 'an instantiated informal norm that promotes cooperation between individuals (Fukuyama, 2000: 3)'. It leads to civic virtues such as shared norms and values, and trust. Fukuyama, echoing Tocqueville, emphasises the function of civil society as the check and balance on the power of the state, and believes that strong civil society comes from strong social capital.

Paxton (1999) also asserts the interlocking relation between social capital and democracy in her paper examining Putnam's claim of declining social capital in the United States. Her argument is based on three sources of empirical evidence: the encouragement of memberships in voluntary groups for political action (Verba, Scholozman and Brady 1995; Verba et al 1978; Wolfinger and Rosenstone 1980), Putnam's research into social capital and government in Italy in 1993, and her own cross-national research in 1998. She describes the effect of social capital on the maintenance of democracy in two ways: one is to support a

level of trust within the society, which contributes to the smooth transfer of powers; and the other is associations which work as network structures of information sharing.

In the process of producing and maintaining social capital, voluntary associations play a crucial role (Putnam, 1993, 1995a, 1995b, 2000). Within the associations, individual members can interact and communicate through networks, and learn how to participate in community as citizens. In addition, through the collective activity of voluntary associations, individuals can contribute to civil society. They are what Alexis de Tocqueville called in *Democracy in America* (1835), 'schools of citizenship'.

Since social capital plays a positive role not only in parts of society such as health, government, and the economy, but also in civil society through shared values, norms, and trust for better and healthier democracy (Wallace and Pichler, 2009; Field, 2003; Fukuyama, 2000; Halpern, 2005; Putnam, 2000), participation in any form of voluntary association is seen as positively beneficial (Putnam, 1993).

This theoretical trend, mainly represented by Putnam's work, can be called the collective perspective, since it focuses on how social capital generates collective goods. Scholars on the collective perspective consider social capital to already inhere in the social network structure, and to be generated through social interactions by members of those groups or communities (Bekker et al. 2008).

Individual social capital theory

Bekker and colleagues (2008) consider that individualistic approaches to social capital regard the network ties of individual actors as valuable resources, which can be used for personal goals such as job hunting (Granovetter, 1973), social support (Van Leeuwen et al. 1993), academic achievement (Coleman, 1998), and mental and physical health (Lin et al., 1986). Since social capital from this perspective can only be accessed through the network ties which are formed by individual contacts, either having a large number of ties, or taking a significant position in the network structures is considered to be the best way to obtain social capital.

One of the most influential researchers amongst individual social capital theorists, Lin (1986), for instance, argues that social capital is the resource which an individual can activate

within their personal networks, therefore, the focus should be on how individuals use valuable resources to attain personal goals. In his social resources theory, he creates the position generator to measure the accessibility to social resources, by locating an ego's position within the network structure. Lin's position generator is found in many pieces of research to measure social capital, which inspires other measurement instruments such as the resource generator (Van Der Gaag et al., 2005).

Lin observes that there are two traditions in social capital research: 'resources embedded in one's social networks', and 'resources that can be accessed or mobilised through ties in the network' (2008: 51). According to Son and Lin (2008), the first group including Burt (1992, 2000), Erickson (1996) and Flap (1991) focus on the way individuals use social capital as personal resources to achieve certain goals. On the other hand, the researchers for the second group such as Bebbington and Perreault (1999), McCleanaghan (2000), Paxton (2002), Putnam (1993, 2000), Putnam et al.(1993), Schafft and Brown (2000) highlight the functions of social capital on the society level.

This categorisation of social capital with two mainstream trends of individual and collective social capital theories has been widely adopted by many researchers including Grootaert, et al. in their World Bank working paper (2004), and Li, Pickles and Savage in *Social Capital and Social Trust in Britain* (2005). As revealed in the literature review, these two theories approach social capital fundamentally distinctively; individual theorists regard social capital as a person's resource, whereas collective theorists argue that it plays a key role as civic virtue, and contributes to civil society. In order to achieve higher social capital, therefore, the individual perspective suggests to increase a person's networks or to make connections with those who have large networks or are in the important position. The assumption is that there are inevitable differences between individuals who have relatively more social capital and those with less. These different approaches to social capital are associated with the interpretations of social capital as something which might cause inequality or make it possible to resolve it. This study follows Putnam and collective theorists, based on the belief that social capital can play the positive key role to better, healthier, and happier society.

Network theory

Borgatti and Jones (1988)'s attempt to categorise social capital theorists is worth noting. Like Wellman and Bartram (1997), they argue that there are clear differences in research traditions, especially in terms of types of actors and types of focus. Instead of relying on individual and collective social capital theories, they create two indicators, which are 'type of actors' (individual or group) and 'type of focus' (internal or external), and divide existing research into four categories, as described in Table 2 below. For instance, according to Borgatti and Jones, Putnam's research *Bowling Alone* (1995) approaches social capital on the collective level as a whole structure, focusing on how it affects members in return. Therefore, his work can be described as a *group* approach for type of actors as well as an *internal* approach for type of focus. On the other hand, the authors regard research from Burt (1992) and Lin (1986) as both *individual* and *external*, since they concentrate on individual actors' network ties rather than network structures, where network ties function externally with others. Their categories of 'internal' and 'external' seem to resemble those in Adler and Kwon's (2002) table.

Since there is no research applicable in the internally directed cases by individuals, category A appears empty. Borgatti and Jones's categorisation is developed to find the way to measure social networks in social capital, therefore each category has different methodology. More details will be discussed in the measurement chapter (Chapter 4).

Table 2.2 'Different Conceptions/Forms of Social Capital' after Borgatti and Jones

	Type or focus	
Type of actor	Internal	External
Individual	A)	B) Burt(1992), Lin (1986) Brass (1992)
Group	C) Putnam (1995) Fukuyama (1995)	D) Ancona (1990), Cohem & Levinthal (1990), Everett & Borgatti (1999)

Source: Borgatti and Jones (1988), 'Table 1. Different Conceptions/Forms of Social Capital', from 'Network Measures of Social Capital' (http://www.analytictech.com/borgatti/borg_social_capital_measures.htm)

Being positioned as network theorists, their research inspires others such as Prell (2006) and Lakon et al. (2007). These researchers continue to work with network-based social capital, often called 'network capital', which puts network relations at the centre of the analysis. According to this perspective, theoretical debates are generally divided into two categories: one focusing on networks of ego; and the other on the whole network structure (Prell, 2006; Borgatti, et al. 1998; Kadushin, 2004; Lin, 2001).

Prell (2006) argues that researchers with individualistic approaches such as Lin (2001), Van Der Gaag et al. (2005), and Wellman and Frank (2001) start their analysis from main individual actors' network ties. They often focus on certain features, which are a number of network ties in the case of Wellman and Frank (2001) and Van der Gaag (2005), or a position under the whole network structure in the case of Burt (2001, 2005). Notably some researchers develop theoretical models in their own terms; for example, Burt's (1992, 2001, 2005) 'brokerage', and Lin's (2001) 'position generator'. On the other hand, the second researcher group investigates complete network structures, which are formed based on individuals' network ties. Prell (2006) describes how these network structures create and affect shared norms, value and emotions on the group level. Just as Coleman (1988, 1990) notes the importance of a closed network structure and its influence on trust and reciprocity, so Putnam (2000) emphasises the functions of strong, dense, and closed ties within the group which shares mainly similar characteristics. The well-known concept of *bonding social capital* of Putnam (2000) can be produced by the network ties of those members, and trust which comes from those ties. Prell also points out that Burt's (2006) term of 'closure' can be similarly understood to some extent. Such strong but closed network ties can lead to social exclusion, which will be discussed later as one of the major critiques.

Similarly, Lakon, Godette, and Hipp (2007) also understand network types as egocentric and sociometric, which are developed for the purpose of measurement. Egocentric networks are useful to calculate network ties with specific characteristics like best friends relationships, whereas sociometric networks present the complete network structure within a unified context like a school. According to these authors, the sociometric view has the benefit that it recognises the individual as well as group network levels.

As Adler and Kwon's table of 'Definitions of social capital' shows, collective social capital theory aligns with the internal perspective on the sociocentric network structure, and bonding

social capital. In contrast, the theoretical approach which focuses on the external social relations of individuals, that is egocentric network ties, aligns with individual social capital perspectives. The literature review in this thesis reveals that there is no single research trend to be derived from these various perspectives, which can capture the wide spectrum of social capital (Patulny, et al. 2015). Furthermore, Carpiano and Hystad's (2011) research demonstrates that the attempt to measure the *whole* social capital in collective and individual terms is unlikely to successfully capture any social capital. The importance of the linkage between the definition and measurement, with the case of Carpiano and Hystad's research will follow in the measurement discussion in Chapter 4. The table of research cited in this chapter is attached in Appendix 1.

2.5 Critiques

Some researchers conclude that it is difficult to find anything fundamentally new in the social capital debates (Portes, 1998). Social capital has been criticised in various ways; for this thesis, three major criticisms will be discussed, namely definitional ambiguity, logical circularity, and the negative aspects. Versatility and flexibility of the conceptual facets of social capital result in the stretching of definitions and interpretations. The indeterminate, unclear, and cryptic definitions often lead to the circular statements between cause and effect. In addition, Putnam's notion of *dark sides of social capital* (2000:350) has been criticised, since the negative consequence of close and strong social ties can lead to social exclusion.

Definitional ambiguity

As shown in the discussion about definitions, there are many difficulties in clarifying the concept of social capital, since social capital is not a single, straightforward idea, but rather a melting pot which can contain various concepts in many different contexts (Son 2015). Schuller and colleagues (2000:25) point out this problem, using the example of the definition from the World Bank, where social capital spreads over a wide spectrum of 'economics and trade; education; environment; finance; health, nutrition and population; information technology; poverty and economic development; rural development; urban development; and water supply and sanitation'. In addition, the authors (Schuller et al. 2000:25) present empirical research which applies the concept of social capital to diverse topics in a broad

range of academic disciplines such as 'the economic performance of immigrant communities (Portes 1987); managerial incomes (Meyerson 1994; Boxman, de Graaf, and Flap 1991); health profiles at community and international levels (Kawachi et al. 1997; Wilkinson 1996); and intergenerational transmission of cultural capital (Nauck 2000)'.

As Alder and Kwon (2002:18) explain in the table of definitions, the concept of social capital is open to criticism for being indeterminate. They describe social capital as 'a wonderfully elastic term' (Lappe and DuBois, 1997:119), a notion that means 'many things to many people' (Narayan and Pritchett, 1997:2), and that has taken on 'a circus-tent quality' (De Souza Briggs, 1997:111). Macinko and Starfield (2001) also agree in their systematic review that social capital, to some extent, has lost the meaningfulness of its existence after overdoses (Portes, 1998; Roley and Edwards, 1998; Woolcock, 1998; Flora, 1998). This often results in epistemological and methodological disagreement between researchers (Galindo-Pérez-de-Azpillaga et al., 2014; Adam et al., 2003; Woolcock, 2010). The concept seems to be over-used as a universal remedy for a multitude of social problems in social policy.

Logical circularity

Alongside attempts to claim social capital as a panacea for many social problems due to its versatile characters, there is another criticism that the concept is logically circular. Is social capital a cause or an outcome? Is it a prerequisite for flourishing civil society or is it something achieved when it becomes civil society?

In Putnam's view (1993, 1996, 2000), when social capital is strong, the society becomes better. Helliwell and Putnam argue that social capital has a crucial role to play in key aspects of society such as crime rates, welfare, public health, government administration, politics, tax, education, as well as market performance (Helliwell and Putnam, 2004; Putnam et al., 1993; Verba et al., 1995; Knack and Keefer, 1997; Sampson et al., 1997; Putnam, 2000; Woolcock, 2001). In their view, positive results come from higher levels of social capital, which can be possibly interpreted as a causal outcome. However, it is hard to conclude that social capital solely and directly leads to these conditions, due to the lack of empirical proof.

Social capital can be interpreted as a resource or a means to achieve civil society and democracy, since social capital seems to be closely related to certain concepts such as trust, social networks, reciprocity, mutual understanding, social support, happiness, and

participation. In detail, social interactions based on close relationships increase trust in others and institutions. Various forms of social interactions are substantially related to social and civic participation. Participating in voluntary associations leads to network developments as well as trust building. At the same time, all these concepts are used for measuring social capital itself. Many researchers such as Portes (2000), Schuller et al. (2000), Macinko and Starfield (2001), and Prell (2006) criticise this for being tautological or empty rhetoric. In this context it is often difficult to distinguish social capital and civil society, or to determine the direction of causation (Edwards and Foley, 2001; Foley and Edwards, 1999; Portes, 1998).

The definitional ambiguity and logical circulation of social capital are inevitably related to the measurement issues, since it is essential to precisely define social capital in order to measure it. As Fukuyama argues (2000), measuring social capital is often regarded as the most critical weakness because it is problematic on the conceptual as well as empirical levels. His criticism is that research which tries to measure social capital is under-developed, where the important question to answer is whether individuals or relations between individuals are to be measured. Portes (2000) also points out that the relation between social capital at the individual and society levels is unclear, which causes confusion to many researchers.

Alongside the conceptual debates, social capital faces methodological challenges regarding measurement issues, such as the quality of data, analytic models, and technologies. The lack of definitional consensus leads to inconsistent approaches to data. As demonstrated in Putnam's well-known research to measure social capital in America, it is a time-consuming and costly process to design a research project to collect appropriate and sufficient data at the nationwide scale, and analyse them accordingly. In addition to availability and reliability of data, researchers need to develop complex models to examine the data - for example, the statistical equations used by network theorists. However it is difficult to determine which is the most accurate measurement tool, since models used in different cases are context-dependent. A lack of technological capacities including computer software programmes, and the vast usages of memory spaces, also use to limit the possible approaches to measuring social capital.

Later, in Chapter 4, this study will explore a wide range of empirical research to measure social capital from collective and individual social capital theorists, and network theorists,

including Putnam, Paxton, Lin, Prell, and Li. This will reveal how different definitions can lead to the different measurement approaches.

Negative aspects of social capital

Lastly, one of the most frequently mentioned critiques is 'the dark side of social capital' to use Putnam's own phrase (Putnam, 2000:350). Putnam's definition of social capital mainly focuses on the positive effects such as efficient government and healthier society through the active participation of citizens based on shared norms and trust. However, it is often ignored that strong, dense, and closed social ties can cause unexpected outcomes. Since it is presumed that social ties under these circumstances work internally, members who belong to the specific group or community share these strong social ties between themselves. They do not, however, necessarily share with others who do not or cannot belong to the same group. On the contrary it is commonly found that members are encouraged not to expand their social ties with outsiders in order to keep social bonds strong within the group. In this case, in-group solidarity and out-group or between-group solidarity operate in different directions.

Fukuyama addresses this 'negative externality', which results from the 'narrow radius of trust' (1999: 4) by citing examples such as the KKK and the Mafia. In these groups, members share extremely strong and closed in-group social ties, where their exclusive interconnections occur. Fukuyama criticises this negative side of social capital, which could cause abnormal, negative results on the society.

Li, Savage and Pickles (2003) acknowledge the danger of inequality and social exclusion arising from strong social capital, which has been repeatedly raised by scholars such as Bourdieu (1986), Portes (1998) and Lin (2001). The authors mention Bourdieu's criticism of social capital as a tool to force outsiders out and to block invaders.

Due to this ambiguous character, social capital is often criticised as a vague and meaningless term (Son, 2015; Barr, Ensminger, and Johnson, 2009; Durlauf, 1999; Foley and Edwards, 1997; Woolcock, 1998). Clearly, social capital is not a perfect remedy for civil society, as shown by its negative features such as exclusiveness. Having pointed out these difficulties of defining social capital and problems of measuring it, Morrow (1999) argues that social capital should be approached as a metaphor, rather than as something to be quantified. This

argument for regarding social capital as a metaphor will be revisited in the measurement discussion in Chapter 4. Next, this chapter will explore how researchers face these criticisms.

2.6 Facing the criticisms

Defining core components

Having admitted the conceptual confusion, many researchers tend to define core components of social capital in their own way as a solution to the problem. In this way, researchers can avoid an unnecessary trap of logical circularity as well, which often results in the confusion of cause and effect. Developing an operational definition based on key components of social capital enables researchers to formulate their measurement methods. Much empirical research aiming to measure social capital, therefore, starts by developing the conceptual framework with core components, and then moves to the measurement instruments based on them, as the following examples show.

Putnam's original definition of social capital is 'features of social organization such as networks, norms and social trust that facilitate coordination and cooperation for mutual benefits' (Putnam, 1996:67). In *Bowling Alone* (Putnam, 2000) he identifies five categories of 'community organizational life, engagement in public affairs, community voluntarism, informal sociability, and social trust'. He introduces 14 measurement indicators based on these elements, which ask more specific questions regarding the main features of social capital.

In another example, Li, Pickles and Savage's research (2005) aims to measure social capital in the UK, by applying Putnam's collective approach. They focus on three main aspects of social capital, namely formal civic engagement, informal personal networks, and informal situational networks.

As an individualistic approach, Son and Lin (2008) define social capital as resources embedded in individual and organisational networks, which produces expressive and instrumental civic actions. The authors set out their own model of five components based on this definition: an organisational network feature, organisational social capital (internal), individual social capital, expressive civic actions, and instrumental civic actions. They develop 11 types of personal friendship ties, based on indicators such as ethnicity, business

ownerships, welfare receivers, and religion, in order to examine the variety of socioeconomic status on social network ties.

In measuring networks, Borgatti and Jones (1988) show other examples of categorisation of social capital. For collective social capital theorists ('internal measures for collective actors' in their phrase), the method of standard cohesion is applied, whereas for individual social capital theorists ('external measures for individual actors'), methods such as standard ego-network measures, structural hole measures, or standard centrality measures are introduced.

These examples briefly show that it is common for researchers to design their own conceptual frameworks. However, the step from the operational definition to the measurement tool seems problematic, since it often leads to a significant gap between what the research aims to do and what it actually achieves. In addition, it turns out that there is a broad spectrum of measurement outcomes of social capital, due to the variation of core components in different studies. This raises a fundamental question. If there is no consensus about what social capital is and how it can be measured what is its meaning and purpose for social research? Further discussion of measurement will follow in Chapter 4, with a full investigation of researchers' attempts to address this issue. All the research examples cited in this chapter and the measurement chapter (Chapter 2 and 4) are summarised with details of the definition, its main elements, and measurement indicators in the table in Appendix 1.

Bonding and bridging social capital

Putnam's (2000:350) *dark sides* of social capital or *negative externality of narrow radius of trust* in Fukuyama's (1999:4) phrase means social exclusion deriving from strong, dense, and closed ties within the group. Having acknowledged unbalanced inequality effects from social capital, social capital can be explained by introducing two different types, and highlights the conflict between them; *bonding* social capital and *bridging* social capital (Putnam, 2000; Patulny et al., 2015; Adler and Kwon 2002). Bonding social capital is composed of strong, dense and closed ties based on the similarity of members such as socio-demographic features or shared norms and values, which works internally within the boundary (Schuller et al., 2000). As criticised earlier, this negative social capital often results in discrimination of individuals outside of the group, which strengthens the in-group solidarity.

Bridging social capital, Putnam suggests, is the linkage of those groups in order to raise between-group solidarity by sharing ideas and information with each other. The concept of these open, loose but widely connected social ties stems from Granovetter (1973). His weak ties correspond to what Fukuyama (1999) indirectly addresses as networks to widen the radius of trust.

Perspectives from social network analysis demonstrate how differently those two types of social capital operate, and what the meanings of those ties are (Patulny et al, 2015; Li et al. 2003). In terms of networks *per se*, the two capitals show very distinctive patterns. Bonding social capital shows network ties of individuals who have similar features in terms of age, ethnicity, gender, social class, and social status, whereas the network ties of bridging social capital demonstrate no such homogeneity, but heterogeneity of various individuals (Dodd et al., 2015; Grootaert et al., 2003; Helliwell and Putnam, 2004).

Adler and Kwon (2002) interpret these two types of social capital in a network perspective. Bonding social capital emphasise social relations among actors within a group, related to the sociocentric (Sanderfur and Laumann, 1998) and the 'whole network' (Wellman, 1988:26) variants. On the other hand, bridging social capital tends to focus on an actor's connections with others, which is inspired by egocentric network analysis.

A new suggestion has been made relatively recently in this debate, namely linking social capital (Grootaert et al., 2004; Woolcock, 1999; World Bank, 2000). The researchers who promote this concept argue that in certain cases, especially in the deprived countries, it is more important to have social connections with key political figures in the hierarchy of social structures, rather than have horizontal bridging social capital.

2.7 What constitutes social capital? Core components

This literature review has shown how important it is to define the core components of social capital to resolve ambiguity, and avoid logical circularity. This thesis will mainly follow collective social capital theory, considering Putnam's perspective as the point of departure. Putnam's conceptualisation of social capital is echoing Tocqueville's civil society and civic virtue, where social capital profoundly exists for collective goods. Three main aspects of social capital, therefore, will be trust, social network and participation. They will be considered in turn.

Trust and social network

Social capital often stands for a broad spectrum of concepts including norms, values, sharing, social support, trust, reciprocity, sense of belonging, individual and societal wellbeing, sense of connectedness, interactions, relations, social networks, social ties, associations, participations, civic virtue, citizenships, community, civil society, and even democracy itself. Some of these concepts are directly applicable to construct the meaning of social capital, while the others are closely but indirectly related. In order to define social capital therefore it is crucial to arrange essential components and their conceptual boundaries accordingly.

The core of social capital must be described as *social relations,* since the concept cannot exist without them. Individualistic approaches regard social capital as an individual's resource for certain goals, but that resource stems from the very social connections which individuals create, maintain, and develop. From the collective perspective, social capital is something useful for the society as a whole, including certain positive collective feelings and beliefs, and norms and values, which members can share. Those socially meaningful feelings and beliefs can be only generated from members' interactions based on social relations.

Having considered relations as the foundation, social capital consists of a *social* part and *capital* part; *social* means some abstract parts of it, which stands for socially meaningful feelings and beliefs like trust, while *capital* is related to something more concrete and tangible, which refers to social network. It is commonly accepted that social network and trust are most fundamental to social capital (Schuller et al., 2000). Amongst many scholars who put a stress on trust and social network, Paxton (1999) points out that objective network structures as well as subjective relations within those network ties are the key to social capital. Individuals within the social network structure interact together with positive emotions and expectation such as trust, which can lead to individual and collective benefits. Here, network structures stand for individuals' network ties, while the contents mean positive social relations such as reciprocity and trust. She argues that this theoretical tradition of dividing the structure and the content comes from Simmel (1971), which can be understood as combining a quantitative and qualitative dimension of social capital.

Adler and Kwon (2002) also observe that social capital research has two major strands, one emphasising the formal structure of social ties, and the other examining the contents of those

ties. Later, Moody and Paxton (2009), in their paper in search of a way to link social capital and social network, highlight that the structure of social networks and the content of social capital should be merged. The structure, as a network side of social capital, refers to patterns of connections, whereas the content means relations, norms, and feelings from that social embeddedness.

Fukuyama argues for the importance of trust to the society, especially in terms of economy and politics, and defines trust as 'the expectation that arises within a community of regular, honest, and co-operative behaviour, based on commonly shared norms, on the part of other members of the community' (Schuller et al., 2000; Fukuyama, 1995: 130). He compares societies with a high and low level of trust, and then concludes economically successful nations show a relatively high level of trust.

Similarly trust is defined by Barber (1983: 165) as 'socially learned and socially confirmed expectations that people have of each other, of the organizations and institutions in which they live, and of the natural and moral social orders, that set the fundamental understandings for their lives'(Paxton, 1999). According to this definition, trust is formed based on people's interactive experiences with other people or organisations in everyday lives, and covers feelings towards people, groups, community, or society. Based on this, Paxton measures trust in three different levels in her research: trust in specific individuals, trust in generalised others, and trust in institutions. Further investigation about measuring trust will follow in the measurement discussion (Chapter 4).

'Network society' for Castells (1996, 2000) involves understanding what social networks are made of, how they work on the individual as well as society level, and how important they are in the modern society. Social network is often defined as social ties which connect individuals together in the network structure. Here, an individual, or a *node* in network theorists' parlance, has various types of social relations with many other nodes, with or without certain patterns, which can be described as ego-centric networks. The sum of these ties altogether makes a whole picture of the social network structure.

In Wasserman and Faust's term, social network is 'a set of nodes or network members that are tied by one or more types of relations' (Marin and Wellman, 2009:11; Wasserman and Faust, 2009). Marin and Wellman (2009) argue that social network analysists tend to keep a distinctive approach, where social network and ties are regarded as an analytic unit. This attitude of technically examining social network and the structure to understand social

phenomenon seems to be different from the other social scientists, who mainly focus on general socio-demographic factors such as age, gender, ethnicity, education, and social status.

The importance of social network research

Borgatti and others (2009), in the paper published in *Sciences*, briefly describe how social network research concepts have been historically developed by key contributors such as Moreno's (1934) 'social gravitation' and 'social atoms'; Bavelas and MIT colleagues' four network structures in the 1940s; Kochen and Pool's the 'small world' problem in the 1950s; Milgram's (1967) 'six degrees of separation'; followed by sociologists' 'ego-networks' for community structures; theoretical and empirical developments in anthropology in the 1960s; Burt's structural equivalent models (1983, 1987); Granovetter's famous Strength of Weak Ties theory (1973); and social network analysis's territorial expansion in various academic fields in the 1980s and 1990s. Through their summary, it is clearly demonstrated how social networks have been influenced by many other academic disciplines of social sciences such as anthropology, ethnography, psychology, economics, and politics, as well as beyond social sciences such as mathematics, computer sciences, physics, and biology. (For a more detailed historical development, see Scott's *Social Network Analysis: a handbook*, 1991)

Borgatti and others (2009) categorise four types of network ties in social network analysis: similarities, social relations, interactions, and flows, and they highlight important roles of network structures, network positions, and dyadic properties. On the other hand, they acknowledge the critiques of network research: a lack of theoretical understanding, considering nodes as passive agents without any self-determination, ignoring individual's capabilities of understanding network ties on their own ways, and being unable to explain the causal direction of network structural influences. However, they insist that network research can provide a powerful explanatory tool for social network structures methodologically as well as conceptually.

For instance, as Scott (1988) states, one of the most useful and popular methods to measure social networks is graph theory from mathematics, which understands networks in the simplest way of nodes and lines. However, describing in mathematical terms and converting into measurable forms do not necessarily mean that it can automatically explain detailed and complicated social relations in the social structure.

To fully understand the benefits of applying social network perspectives to the theme of social capital, it should be highlighted how different researchers approach and interpret the social capital concepts. A methodological approach emphasising social network can bring patterns and structures of social networks and their relations to the centre of research interest (Scott, 2000; Wellman and Gulia, 1999). Social network analysis in social capital allows researchers to investigate network ties of individual actors deeply and exclusively, focusing on certain characteristics such as trust, and reciprocity (Prell, 2006).

Concentrating on contributions from each side of social capital and social network, Moody and Paxton (2009) argue that social capital without social network can explain only *contents* such as social relations, socially meaningful emotions, or values and norms from social embeddedness (Fukuyama, 1995; Paldam and Svendsen, 2000; Rahn and Transue, 1998), whereas social network without social capital describe only *structures*, which consists of sheer network ties without any subjective meaning such as friendship, support, or hate (Bonacich, 1987; Doreian and Stockman, 1996; Frank and Harary, 1979; Friedkin and Cook, 1990; Morgan, Neal and Carder, 1997; Snijders, 1996; Wasserman and Faust, 1994).

In order to achieve comprehensive understandings of social phenomenon, Moody and Paxton (2009) recommend that the *content* side of social capital as well as the *structure* side of social network should be interwoven. Network approaches, on one hand, can provide accurate and measurable analytic tools to define social capital more clearly, and test it in a scientific manner (e.g. Wasserman and Faust, 1994; Wellman and Wortley, 1990), and improve social capital theory by adapting network concepts such as connectivity or structural equivalence. Admittedly, social capital has been criticised for lack of convergent definitions, analytic methods, and measurement tools, problems which in many ways network analysis can help to overcome.

On the other hand, social capital approaches can add richer descriptions of network ties with social features such as trust, solidarity, or support, and ameliorate the criticism of ignoring social contexts. The capacity of social capital to describe characteristic features of network ties with various layers of contexts is definitely crucial, especially considering the criticism of network analysis as hollow demonstrations. As Lin (2001) points out, social network analysis has serious difficulties in describing certain characters of network ties such as values, norms, feelings, trust, reciprocity, friendship, or support, since it has little or limited function to capture those social meanings separately. Even regarding one characteristic social tie such as

friendship, an ego's friendship tie with friend A can mean completely different thing from an ego's friendship tie with friend B.

Participation

Participation, in its various forms, is an indicator showing a strong linkage between social capital and civil society, which is the sign that social capital can contribute to prosperity of democracy, as discussed above. Participation in voluntary associations is one of the crucial components of social capital for many researchers such as Putnam (1995, 2000), Paxton (1999), Li et al. (2005), Wellman et al. (2001), and Harper and Kelly (2003). On the other hand, there is a group of researchers who consider participation significantly, but separately from social capital, such as Wollebaek and Selle (2002), Fahmy (2006), Son and Lin (2008), Bekkers et al. (2008).

As Wallace and Pichler (2009) argue, there are difficulties in drawing a boundary of participation, since it can cover a wide range of activities from voting to attending Parent-Teacher Associations or choral groups. Putnam (1995, 2000), for instance, includes all types of associations, where the contents seem to matter little, as long as those associations can directly or indirectly contribute to civil society.

In Son and Lin's recent paper (2008:330), the authors borrow the definition of civic engagement from the American Psychological Association (www.apa.org);

> Civic engagement means individual and collective actions designed to identify and address issues of public concern. Civic engagement can take many forms, from individual voluntarism to organizational involvement to electoral participation. It can include efforts to directly address an issue, work with others in a community to solve a problem or interact with the institutions of representative democracy. Civic engagement encompasses a range of specific activities such as working in a soup kitchen, serving on a neighbourhood association, writing a letter to an elected official or voting.

As clearly described in this definition, civic engagement, civic participation, or participation consists of any forms of activity of one or more citizens in order to achieve certain public goals. In this general definition, the characteristics of associations such as formality or

informality, types, memberships, and objectives have little significance. In other words, participatory actions seem to require no formal organisational structures, no specific typology (e.g. political campaigns, environmental movement).

Son and Lin (2008) compare a number of definitions from other researchers such as Putnam (2000), Rosenfeld et al. (2001), and Messner et al. (2004), in order to demonstrate how different definitions affect the measurement of civic engagement. Rosenfeld and colleagues (2001), for example, strictly limit the definition to political actions, while Messner and others (2004) cover a broad spectrum of community service, religious, and leisure activity.

On the other side, there is a trend to categorise participation into two groups. Bekkers and others (2008) adapt the concept of instrumental and expressive actions from Gordon and Babchuk (1959), which originally stems from Max Weber's typology (1978). Instrumental participation is related to actions with particular civic purposes (e.g. interest groups, trade unions), whereas expressive participation is any form of affective behaviour for social value or living standards such as community groups, or Parent-Teacher Associations (Bekkers et al. 2008). Son and Lin (2008) highlight the difference between these two types of engagement in terms of resources; the former aims to develop new resources through more open and large networks, while the latter focuses on maintaining resources through dense and closed networks.

Volunteering, or voluntary actions are the most familiar form of participation, which is why it is often used for the measurement of participation in this context (Patulny et al., 2015). Wilson (2000:215) defines volunteering as 'any activity in which time is given freely to benefit another person, group or cause', one type of general helping activity. Volunteering, however, is generally distinguished from helping, because it is related to collective actions and goals. Volunteering is *formal, public, and organised*, while helping is *informal, private, and casual*, according to Wilson and Musick (1997:694).

In the debates about civil society, it turns out that volunteering is influenced by the society; one person's volunteering is significantly determined by his or her social connections, while this voluntary action affects those social connections as well. General social interactions are more likely to increase volunteering, but not informal helping (Wilson and Musick, 1997). Schervisha and Havensb (1997: 235) argue that formal and informal social relations, through which individuals are connected, can be described as 'communities of participation', because they tend to make a significant impact on individuals' volunteering and giving tendencies.

Types and characteristics of the associations such as civic and political participation, religious meetings and sports groups have little influence on people's voluntary actions (Smith, 1994).

Well-being

According to Putnam and many collective theorists, social capital is strongly related to prosperity of the society in a wide range, such as a crime rate, child welfare, education performance as well as public health and happiness (Helliwell and Putnam, 2004; Putnam et al., 1993; Verba et al., 1995; Knack and Keefer, 1997; Sampson et al., 1997; Putnam, 2000; Woolcock, 2001). As the essential elements of social capital, trust, social networks, and participation are strongly related to each other, they enable civil society to function on the macro level. On the micro level, a flourishing society is the foundation of life satisfaction. At the same time, when people get happier and healthier, the society becomes more prosperous. This strong positive causal effect of social capital on health is commonly acknowledged in the health disciplines (Yu et al., 2015; Drukker et al., 2003; Kawachi et al., 1996; Orthgomer et al., 1993; Welin et al., 1992). According to Chen et al.'s health study (2015), social capital shows positive associations with health on the individual level (Berkman et al. 2000; Chen et al. 2009a, 2011; Nieminen et al. 2010; Norstrand and Xu 2012; Poortinga 2006), the collective level (Bartkowski and Xu 2007; Lochner et al. 2003; Miller et al. 2006; Poortinga 2006), and the national level (Kawachi et al. 1997; Kennelly et al. 2003).

Helliwell and Putnam (2004) examined data on a large scale including the World Values Survey, the US Benchmark Survey and a Canadian survey in order to explore the relation between social capital and subjective wellbeing. Their influential research reveals a strong correlation between social capital and wellbeing in various ways. Regarding participation, their research confirms that the more people get involved with community activity, the more likely they are to trust others, which leads to the higher level of happiness. Plagnol and Huppert (2010) also claim there are significant positive connections between volunteering and wellbeing, after considering other structural factors on the macro level. Wallace and Pichler's paper (2009) focuses on volunteering and life satisfaction not only on the individual level but also the national level. They found evidence of a significant positive relation between civic participation on the national level and the aggregate level of individual wellbeing.

2.8 Summary

In this chapter, the definition of social capital has been explored from various perspectives, including three influential researchers, collective and individual social capital theorists, and network-oriented researchers. It also addresses main critiques on social capital such as conceptual ambiguity, logical circularity, and negative aspects, and how researchers face them.

Since social capital is criticised to be a versatile but ambiguous concept, it is vital to develop a conceptual framework, which can be applied as an operational definition to measure social capital. This study, therefore, establishes three main components of social capital, such as trust, social network, and participation, inspired by the collective social capital theory, based on the strong belief of positive relations between social capital and civil society.

Despite the criticisms of social capital, social capital research has been not only continuously increasing, but also has expanded its territories into a wider range of academic fields (Prell, 2006; Borgatti, 2005; Kadushin, 2006; Portes, 1998). There is a general consensus of a strong positive correlation between social capital, civil society and wellbeing, which is proven by many pieces of empirical research. In the flourishing society, social capital is common, as a form of general trust, well-connected networks, and active participation. Portes (1998) points to this circular character of social capital as both cause and an effect. Stating the phenomenon of co-existence of social capital and government efficiency, he argues that social capital as collective goods stems from civic virtue such as trust and reciprocity, which arises from politically and economically successful society in return.

The detailed empirical research to measure social capital will be broadly examined in Chapter 4, after the literature review of sense of belonging in the next chapter. Many researchers including Putnam, Lin, Li, and network theorists tend to develop and apply their own measurement instruments based on the operational definitions. The conceptual discussion in this chapter will be expanded in the measurement chapter, where theoretical and empirical issues of those research will be critically evaluated.

The next chapter will explore the literature of sense of belonging, focusing on definitions and measurements of the concept. As applied to social capital, it will be conducted on the multi-disciplinary approaches to demonstrate diverse perspectives of understanding belonging, and developing measurement instruments.

Chapter 3. Literature review: sense of belonging

3.1 Introduction

Sense of belonging is a person's feeling of being connected and related. This feeling is generally formulated based on various social interactions with network ties. As presented in the literature review of social capital in the previous chapter, some concepts (e.g. social relations, close kinships, connectedness, solidarity, and involvement) seem to be mirrored in the sense of belonging context. The understanding of belonging in the wider disciplines will enable investigation of the linkage between these two main topics – social capital and sense of belonging- for the next step of this thesis.

In this chapter, the literature of sense of belonging will be explored in three main fields of study: psychology, education, and sociology. The academic trends in approaching sense of belonging tend to vary markedly between disciplines. Researchers in education and psychology seem to share the similar theoretical roots, which are located within the individual territory, whereas sociologists tend to consider the concept in more structural ways. The different understandings of the concept by researchers lead them to develop their own measurement instruments. A variety of empirical research will be critically reviewed in order to establish a foundation for this thesis. Since this thesis mainly focuses on belonging from the educational perspective, higher education research in the UK and Wales will be also included.

In order to construct the conceptual foundation, this thesis will explore theoretical and empirical debates in three disciplines, focusing on the similarities and contrasts. This process will reveal the strengths and weakness of those research approaches. The argument in this chapter is that synthesis of the three perspectives is more effective than adopting one single approach.

3.2 Definitions of sense of belonging in various contexts

The literature review was conducted using a similar strategy to the one for social capital: a systematic search of database with keywords, and a snowballing approach with key

researchers and literature. Related keywords such as attachment, relatedness, engagement, involvement, retention, place attachment, solidarity and belonging were systematically searched through Google Scholar as well as Bangor University Catalogue. Studies from key researchers in each discipline (e.g. Hagerty, Goodenow, Tinto, Astin, Kuh, Osterman, Antonsich, Yuval-Davis, May) were investigated with their reference lists, to broaden the range of relevant research. For higher education in the UK, the search started from the 'What Works project report' (Thomas, 2012) as well as literature from the Higher Education Agency (HEA).

Firstly, this chapter will review the definition of sense of belonging in three major academic disciplines, namely psychology, education, and sociology, where theoretical debates developed differently according to individualistic, institutional, and structural assumptions.

Psychology

Many items of psychological and educational literature on sense of belonging start from Maslow (1954)'s famous theory about human needs. Maslow argues that five different needs including love and belonging are fundamental in the hierarchy of needs. There is evidence that meeting needs of belonging profoundly affects one's physical and mental health (Maslow, 1968). Similarly, Baumeister and Leary (1995) argue that belonging is an essential human need and is generated by stable and consistent relationships. They also propose that a need to belong is crucial to physical and mental health. The concept of belonging, as a basic human need, in this context, refers to being connected or related (Strayhorn, 2012; Rosenberg and McCullough, 1981; Vallerand, 1997).

Despite the popularity of Maslow's hierarchy of needs model, there are numerous critiques (King-Hill, 2015). For instance, it is questionable whether Maslow's argument is generally applicable to most individuals (King-Hill, 2015; Wahba and Bridwell, 1976), since individual needs may vary. Cianci and Gambrel (2003) criticise Maslow's explanation for being 'too simplistic', and Barnes and Pressey (2010) argue that there is no consideration of structural perspectives in Maslow's model.

Hagerty has studied belonging for many years, and developed the definition, a measurement tool, and its effects, based on the evidence collected from clinical psychiatry (e.g. Hagerty et

al. 1992; Hagerty et al. 1993; Hagerty and Patusky, 1995; Hagerty et al. 1996; Hagerty and Williams, 1999). In the research, sense of belonging, or relatedness is defined as 'an individual's level of involvement with persons, objects, groups or natural environments and the concurrent comfort or discomfort associated with that involvement' (Hagerty et al., 1993: 292). The authors point out that a person's belonging can occur through relationships, institutions, and natural or cultural environments (Hagerty et al., 1992).

Many researchers suggest that belonging, as a feeling of being connected, is so fundamental, that when the need is not fully met, negative behavioural and psychological symptoms such as mental illness and criminal tendencies can ensue. For instance, although the level of individual needs of belonging might vary, a lack of belonging can result in social isolation (Baumeister and Leary, 1995). The concept of alienation (e.g. Seeman 1959, 1971) is often applied to understand the opposite to belonging, in the wider sense of being powerless, or meaningless (Heaven and Bester, 1986). Kanungo (1979) explains that the term of alienation is employed in a corresponding way to Maslow (1954)'s notion of insufficient needs of belonging by social psychologists. Other research about belonging and social support reveals that these two concepts are significantly associated with psychological functioning (Hagerty et al., 1996). Sense of belonging turns out to be a vital element to explain depression, as well (Hagerty and Williams, 1999; Sargent et al., 2002).

Education

There is a general consensus in education that sense of belonging refers to students' feeling of being connected to their institutions. In a series of studies by Goodenow, the author explores the concept of students' belonging in educational environments, and its effects on students (Goodenow, 1992, 1993a, 1993b). In these papers, he defines students' sense of belonging, or 'psychological membership in the school or classroom', as 'the extent to which students feel personally accepted, respected, included, and supported by others in the [school] social environment' (Goodenow, 1993a: 80). Another well-known researcher in education, Tinto, in his recent book (2012: 66), presents sense of belonging as 'a generalized sense of membership that stems from students' perception of their involvement in a variety of settings and the support they experience from those around them'.

Strayhorn (2012), in his book investigating sense of belonging in the higher educational environment, argues that being connected to the institution includes self-recognition of him or herself as well as the degree of fit into the educational environment. Tovar and Simon (2010: 200) describe it as 'an individual's sense of identification or positioning in relation to a group or to the college community, which may yield an effective response'. Students in higher education regard the social recognition from others as very important, where they feel being accepted, valued, and related. Strayhorn (2012) points out that lack of sense of belonging in college could lead to serious negative outcomes such as low academic performance (Walton and Cohen, 2007) as well as dropping-out (Berger, 1997).

A number of studies have found that various elements including sense of belonging play a crucial role in students' retention (Thomas, 2002; Tinto, 1975, 1993; Benn, 1982; Astin, 1984; Johnes, 1990; Pascarella and Terenzini, 1991; Moortgat, 1997; Berger and Braxton, 1998; Ozga et al. 1998). For instance, Tinto's (1993) retention model concludes that there are several factors such as academic and social integration, institutional support, which critically influence students' retention.

Astin (1984, 1993, 1999) also highlights the importance of social and academic engagements in the education environment. According to Astin's (1984) theory of student involvement, students' participation levels in academic and social activities determine students' retention to a large extent. The later article reveals that these factors refer not only to the educational environment but also to students' own experiences as well as their social interactions, which influence sense of belonging, and retention (Astin, 1999). Here, involvement is described as students' efforts or investment in participation in various academic and social settings (Astin, 1984).

As Baumeister and Leary (1995) reveal, concrete relationships based on the regular social interaction seem to be vital to belonging in the educational context. The perceived support from various sources including social interaction with peers in higher education emerges as a crucial factor in students' sense of belonging (Strayhorn, 2008).

Engagement is one of the most popular terms in education research. Similar to involvement, this word engagement is closely located to belonging. It represents the amount of effort that students invest for their educational development (Kuh, 2001, 2009). In addition, it often includes institutional initiatives to encourage students to participate in educational activities

(Kuh, 2009). Therefore, engagement is twofold: from students as well as from institutions (Kuh, 2009; Wolf-Wendel, Ward and Kinzie, 2009). Many researchers have found that engagement is strongly associated with students' sense of belonging, success and retention. For instance, Kuh and others (2005) discover a strong correlation between engagement and students' success. Osterman (2000), from his extensive literature review, also concludes that students' academic and social engagement is vital to their reported belonging. Furthermore, there are some studies insisting that students' sense of belonging is the result of their academic and social engagement. Thomas (2012), for instance, explains academic and social engagement more fully in the final report of the 'What Works? Project'. Firstly, the author relates academic engagement to 'effective and/ or deep learning' (Ramsden, 2003:97), which can be expanded 'both within and beyond the formal curriculum' (Krause, 2011). On the other hand, social engagement occurs in the various social spaces within the institution, as well as accommodations, via social interactions and activities. She also suggests that this social engagement can generate informal peer support, which can also contribute to students' belonging.

Pittman and Richmond (2007) summarise the trend of studies about the effects of belonging, including belonging and academic motivation (Anderman and Anderman, 1999; Finn, 1989; Goodenow and Grady, 1993), belonging and academic achievements (Anderman, 2002, 2003; Goodenow, 1993; Goodenow and Grady; Roeser et al., 1996), and retention (Finn, 1989; Wehlag et al., 1989).

Students' sense of belonging to the institution seems to be mainly influenced by psychological perspectives, and developed in the educational context. While the foci of psychological and educational research on belonging seem to remain on the individual level, there are often found structural or macro-level approaches in sociology.

Sociology

In the sociological domain, belonging often appears with related words such as identity, citizenship, community, solidarity, place and neighbourhood. Antonsich (2009: 644-645) explores a wide range of academic disciplines including geography, sociology, anthropology, psychology, and political science, investigating the definition of belonging. He summarises research examples of interpreting belonging as the meaning of 'identity' in geography

(Armstrong, 1998; Ehrkamp 2005a,b; Mackenzie, 2004; Madsen and van Naerssen, 2003; Sporton and Valentine, 2007; Veronis, 2007); in sociology (Bond, 2006; Colombo et al. 2009; Fortier, 1997; Fox, 2006; Gubert, 2000; Kiely et al. 2005; Scheibelhofer, 2007; Westood and Phizacklea, 2000); in anthropology (Dragojlovic, 2008; Lovell, 1998b; Warriner, 2007); in linguistic and communication studies (Meinhof and Galsinski, 2005; Volcic, 2005); in psychology (Arcidiacono et al. 2007; Hernandez et al. 2007); and political science (Croucher, 2004; Migdal, 2004). He (Antonsich, 2009: 645) also presents research referring to belonging as 'citizenship' by geographers (Ho, 2006, 2009; White and Gilmartin, 2008; Winders, 2007), sociologists (Clark, 2009; McNevin, 2006; Wong, 2007), anthropologists (Getrich, 2008; Rosaldo, 1994), political scientists (Clark, 2009; Hampshire, 2005; Mason, 2000; Varsanyi, 2005), jurists (Bhabha, 1999; Kaplan, 1993), and historians (Fahrmeir and Jones, 2008).

According to Antonsich, belonging should be studied in relation to both 'place-belongingness' and 'politics of belonging' (2009:645). 'Place-belongingness' refers to personal feelings of being safe and comfortable, attached to a certain place, while the 'politics of belonging' is associated with more political, structural meanings on the macro level. He argues that one can only achieve a proper understanding of belonging, by looking into both individual and structural dimensions (Antonsich, 2009).

Rustin (1996), in his book chapter, 'Attachment in context', argues for the importance of solid attachment, which is a basic need of bonding and belonging as a member of the society. In addition to this attachment theory, he proposes three other macro-level aspects of the community of residence: understanding the current situation with no or less security; the meaning of symbolic attachment in the complex modern society; and the economic forces towards inequality. These aspects should be considered to understand the negative consequences of lack of belonging.

Yuval-Davis discusses a more political meaning of belonging, defining it as 'an emotional (or even ontological) attachment, about feeling at home' (2011: 10). She argues that this belonging implies Taylor's (2009) 'hope for the future' as well as Ignatieff's (2011) notion of 'a safe space', which we take for granted in daily life. However, it can become *political* when our normal world is under attack, such as the 7/7 bombing in London in 2005. She (Yuval-Davis, 2011:12) concludes that belonging is not a single, fixed concept, because it is 'multi-layered and multi-scale' on the geographical level (Antonsich, 2010) or 'multi-territorial'

(Hannerz, 2002). Belonging inevitably contains three aspects: ‘social locations’, ‘people’s identifications and emotional attachments’, and ‘ethical and political value systems’.

Similarly, May (2011) considers sense of belonging as a linkage between individual and society, by defining it as ‘a sense of ease with oneself and one’s surroundings’ (2011: 368). As one of the basic human needs as Baumeister and Leary assert earlier (1995), belonging is ‘a concept that allows for a person-centred, dynamic and complex approach and that understands people as active participants in society’ (May 2011: 367). Our self-identification, as a human, results from a mixture of various socio-demographic elements such as ethnicity, gender, age, and religion. Besides, our environment is fluid and changing through the lifetime. May (2011), therefore, argues that sense of belonging should be studied as a multifaceted phenomenon. As a linkage between the person and the society, May (2013) stresses the importance of belonging. The crucial part of belonging is the process that one can recognise him or herself, who is existing and interacting in the environment (or the society). May highlights that these identities are inevitably associated with place, where our sense of belonging can be generated, following Leach’s (2002) and Tilley’s (1994) debates.

Savage, Bagnall, and Longhurst (2005) investigate local belonging by comparing different communities in England. According to their empirical research, sense of belonging is generated through a choice to belong, when people believe the place they choose is worth belonging to. This notion of ‘elective belonging’ might seem controversial, since sense of belonging has been commonly considered as people’s attachment to place, environment, or community, which generally emerges through natural interactions, rather than a choice.

Their research also reveals that this belonging is not a fixed, permanent concept. When the socio-economic environment changes, people may feel they no longer belong to that space, as happened in Manchester. Savage and colleagues explain;

> Belonging should be seen neither in existential terms (as primordial attachment to some kind of face-to-face community), nor as discursively constructed, but as a socially constructed, embedded process in which people reflexively judge the suitability of a given site as appropriate given their social trajectory and their position in other fields. (2005:12)

The review of sense of belonging literature in different academic disciplines reveals that there are rather distinctive traditions based on different perspectives. Psychological approaches focus on belonging as a person's subjective feelings, presuming that belonging is a basic human need. In education, it seems natural to accept and adapt psychological perspectives into the educational context. The discussion about students' belonging often centres on their success and retention within the institution. On the other hand, sociologists seem more interested in belonging on the macro-structural level. Many sociological researchers focus on belonging in the social, cultural, locational, and environmental contexts. A single academic approach tends not to capture the comprehensive meaning of belonging. For this thesis, the theoretical understanding of belonging will be based on a synthesis of all three disciplines, and a multi-disciplinary approach to individual, structural, and educational contexts.

3.3 Measuring sense of belonging

Just as the conceptual understandings of belonging vary, empirical approaches to measurement are also varied. Examples of the most frequently used measurement instruments in the above academic fields include the Sense of Belonging Instrument (psychology, nursing), the Psychological Sense of School Membership (education), the Sense of Belonging Instrument (higher education), and the Sense of Community Index (community psychology, sociology). The strengths and weaknesses of each instrument will now be evaluated.

Sense of Belonging Instrument (SOBI)

Hagerty and Potusky (1995) developed the 'Sense of Belonging Instrument' (SOBI), in order to measure adults' belonging psychometrically. The questionnaire consists of two separate scales: the Sense of Belonging – Psychological (SOBI-P); and the Sense of Belonging – Antecedents (SOBI-A). The psychological belonging scale (SOBI-P) examines valued involvement and fit, whereas the SOBI-A focuses on individual abilities and their willingness to develop belonging. This measurement instrument includes 27 items using a 4 point Likert scale. The questionnaire contains questions asking participants' own recognition of their fitting in, being included, valued, and accepted; while other questions assess if they are willing to develop the level of their belonging.

Many researchers have applied Hagerty's sense of belonging instrument, especially in psychology and health, due to its effectiveness and reliability. Her measurement is designed not only to examine one's recognition of his or her sense of belonging, but also to investigate a person's willingness and intentions in the future. This multiple-measurement approach enables researchers to expand the boundary of belonging from passive acceptance towards more proactive actions because participants who intend to change their current belonging status implies an increase in their level of belonging.

However, this measurement seems to treat the objectives of belonging less significantly, since the questionnaire does not specify to whom, to what, or where the participants belong. Considering the fact that belonging generally requires clear boundaries such as a person, group, organisation, community, place, or nation, the researchers applying this measurement tool may risk ignoring some crucial characteristics for understanding a person's sense of belonging.

Psychological Sense of School Membership (PSSM)

Goodenow's (1993) 'Psychological Sense of School Membership' (PSSM) is one of the most popular sense of belonging measurement scales in education. In her article, 'The psychological sense of school membership among adolescents: Scale development and educational correlates', she describes the detailed procedure of developing the measurement questionnaire. It consists of 18 items measured on a 5 point Likert scale, which include questions about students' membership of the school, their self-identification, and being recognised, valued, and supported by peers and teachers (1993: 84).

The analysis of the data collected from adolescents in the secondary school reveals that students' sense of school membership and their motivation show a strong positive correlation, which, Goodenow suggests, might link their academic results and efforts. The association between these factors is investigated further in the follow-up research (Goodenow, 1993b). The author proposes that students' belonging is significantly related to their effort, achievement, and especially motivation.

The PSSM is generally regarded as an effective tool to capture the most important elements of students' belonging to their school. However, the successful application of this

questionnaire has been limited to the school setting, especially for adolescents. Although the teaching and learning experiences in higher education still occur based on the classroom, as in primary and secondary education, there are significant differences between the school setting and higher education institutions. The distinctive features of higher education include a high level of independence, anonymity, freedom of the choice, voluntariness, wider and more multiple aspects of life outside of school environments.

Sense of Belonging Instrument (SB instrument)

Hoffman and colleagues (2002) explored first-year students' sense of belonging in higher education by applying their sense of belonging measurement tool. Their theoretical foundation is rooted in Tinto's (1975, 1987) definition of sense of belonging, which is 'the subjective sense of affiliation and identification with the university community' (2002: 228). Their findings support Tinto's well-known theory of the strong positive relationships between students' belonging, their engagement levels, and satisfaction, and retention levels.

In detail, their instrument starts from selecting main factors, which are most likely to influence students' belonging in two aspects: between students; and between students and institutions. After the analytic process, 26 items are developed in five categories: 'Perceived peer support, Perceived faculty support/comfort, Perceived classroom comfort, Perceived isolation, and Empathetic faculty understanding' (Hoffman et al., 2002: 249). The Sense of Belonging (SB) instrument is designed to measure the levels of belonging through these main factors on a Likert scale. Hoffman and colleagues' empirical research confirms that 'valued involvement' (2002: 249) is the most crucial part of students' belonging, which is determined not only by the actual amounts of academic and social support from peers and institutions, but also by their belief in support being available in the future.

It is commendable that Hoffman and his colleagues aim to develop a measurement instrument which contains multi-layered aspects of students' belonging to the institution. Understanding the characteristics of belonging in the higher education context, it includes personal feelings (negative and positive) as well as their recognition of support and understanding. However, there is no simple but fundamental question to capture participants' belonging directly, such as 'being part of', 'belonging to', or 'a member of'. Although the set of questions are tested by reliable statistical analysis, it is doubtful whether this questionnaire is fully adequate to

evaluate students' belonging. Although the questionnaire consists of some aspects of social engagement, mainly related to support in teaching and learning environments, there is a lack of consideration of a wide range of social activity occurring in the institutional sphere such as clubs, societies and university events.

The Sense of Community Index (SCI)

Although there have been several studies in the community psychology literature discussing the definition and measurement of sense of community (e.g. Doolittle and MacDonald (1978), Glynn (1981), Riger and Lavrakas (1981), Ahlbrant and Cunningham (1979), Bachrach and Zautra (1985)), there remains a grey area, which has not been fully charted and developed (McMillan and Chavis, 1986). In their influential study, 'Sense of Community: A Definition and Theory', McMillan and Chavis (1986) attempt to fill this gap between developing a more concrete theoretical definition and coherent measurements. After investigating numerous empirical studies, they identify four main elements of sense of community: membership, influence, integration and fulfilment of needs, and shared emotional connection (1986: 9).

In detail, membership refers to sense of belonging, while the third element means a member's belief of meeting his or her needs by the community. These two elements are often found in the belonging literature as a feeling of being part of the group and having support available from others. Influence and connection are the additional factors, which explain community aspects. For instance, influence stands for a person's concern about community matters, and recognition of his or her influential power on it. The last element, shared emotional connection, refers closely to solidarity, which, in this case, is a form of collective emotional bonding, based on local attachment. These four elements are internally related to some extent, but also share cause and effects, which makes the dynamics more complicated (McMilland and Chavis, 1986).

Based on these four elements, the authors developed a measurement scale, the Sense of Community Index (SCI), which includes 12 items with a true or false response. The results confirm the SCI as a potentially useful measurement tool, which could indicate certain behaviour such as participation. However, several pieces of research have examined the SCI in various ways to address specific weaknesses like validity issues (e.g. Chipuer and Pretty

(1999), Long and Perkins (2003), Obst and White (2004), Peterson, Speer, and Hughey (2006)). The research team develops this scale further, responding to the criticisms faced on the first attempt. The Sense of Community Index version 2 (SCI-2) consists of 24 items measured on a 4 point Likert scale. Based on the same four main elements of community belonging as the first version, this questionnaire is relevant to a wider theoretical discussion (Chavis et al., 2008).

In education, sense of community refers to 'a feeling of belongingness within a group' (Osterman, 2000: 323). Osterman adopts McMillan and Chavis' concept of sense of community (1986), pointing out in the context of community there are two aspects of boundary and relationships. She argues that words such as 'belongingness', 'relatedness', 'support', 'acceptance', 'membership', and 'sense of community' all refer to students' psychological experiences with similar meaning in the educational context (1986: 326).

This instrument to measure participants' level of belonging to their community has been broadly applied (e.g. community psychology, sociology, education), because the questionnaire items cover multiple aspects of the concept of community belonging. However, the versatility of the concept of community is problematic; the meaning of community can be interpreted by individual participants in substantially different ways. Also, the questionnaire design seems ambitious to include a very wide range of characteristics of community belonging, such as personal and group identities, support, shared norms and values, trust, and civic elements (individual and group influential powers, leaderships) on top of the sense of belonging.

Measuring sense of belonging in sociology

Measuring sense of belonging with quantitative methods seems to occur rarely, or to be less preferred in sociology, since it is difficult to find a quantified measurement tool. Instead, many researchers, who are interested in sense of belonging in sociological terms, have applied qualitative methods such as in-depth interviews, focus-group interviews, observations and content analysis.

For instance, in Savage and colleagues' (2005) long-term empirical study of sense of belonging in Greater Manchester, they conducted qualitative interviews with 182 participants.

In the methodological discussion, the authors explain that they are fully aware of criticisms from both qualitative and quantitative researchers. They note that qualitative researchers such as Mason (1996) and Sayer (1992) warned about 'cherry-picking' attitudes, since the scale of the interview might be too large in terms of the complexity. However, quantitative researchers might criticise the sample for being too small, and not even randomly selected (2005: 16). Savage and colleagues argue for the need to apply both quantitative and qualitative analytic methods; therefore, they conducted both frequency analysis from the coding as well as interpretative analysis of their data (2005: 16).

Their research is a clear example of trends towards qualitative methods in the discipline of sociology, which embraces a range of ontologies, styles of evidence gathering, and data. This sociological perspective could influence researchers' attitudes towards qualitative research to measure sense of belonging. In addition, it could explain that the quantitative measurement of belonging on the sociological perspectives has been often conducted through other frameworks such as social capital, due to a lack of belonging tools. This measurement framework of the theoretical and empirical linkage between belonging and social capital will be fully discussed in the next chapter (Chapter 4).

3.4 Empirical research in higher education

Since this thesis aims to understand sense of belonging in higher education, it will review empirical research of students' belonging in higher education. The focus will then be narrowed down to the UK and Wales levels to examine whether there are significant similarities or contrasts.

Students' sense of belonging in HE

The first part of this chapter introduced well-known researchers in higher education such as Astin (1993), and Tinto (1987), who argue the importance of academic and social engagement on the university level. To recap, this belonging is positively related to various aspects, such as students' social and psychological functioning (Hagerty et al. 1996), perceived support and caring (Freeman et al. 2007), participation in college activities

(Hurtado and Cartet, 1997), self-confidence and academic outcomes (Pittman and Richmond, 2007), and social recognition and acceptance (Freeman et al., 2007). Moreover, this positive social interaction based on friendships is strongly associated with sense of belonging (Chipuer, 2001; Pittman and Richmond, 2007), and plays the vital role in successful college life (Pittman and Richmond, 2008). However, there is a noticeable gap in understanding belonging in terms of students' perceptions (Summers et al, 2002; Summers et al, 2003), as Freeman and Anderman (2007) argue. Here, the detailed information about the research will be examined.

Firstly, Hagerty and colleagues (1996) conducted quantitative research, by applying their measurement tool, the Sense of Belonging Instrument (SOBI), which was developed in previous research (Hagerty and Patusky, 1995). They investigate the relationship between students' belonging, and social and psychological functioning in higher education. Social and psychological functioning are examined using indicators such as social support, conflict, participating in religion and community, and mental health. The analysis of 379 community college students reveals that belonging is significantly positively associated with social support for both genders (Hagery et al., 1996). It turns out, however, that for women, activities such as community and religious participation are positively related with belonging, whereas no relation is found in men. The research also confirms that lower belonging is associated with mental health issues such as loneliness, depression, and anxiety (1995: 243) for both genders. It concludes that there are stronger tendencies towards positive associations between belonging and this functioning for women rather than men, amongst college students. Although their research is useful to understand belonging and the functioning, the researchers seem to be less interested in the participants' educational environment. There is no specific measurement indicator, which refers to the higher education context in the Sense of Belonging Instrument (SOBI).

Freeman and colleagues (2007) argue there is not enough empirical research about students' belonging in higher education, despite the existing research trend of school-aged adolescents' belonging, found in Anderman (2003), Anderman and Anderman (1999), Brand et al. (2003), Furrer and Skinner (2003), Goodenow (1993b), Resnick et al. (1997), and Roeser et al. (2000).

Mainly based on Goodenow's Psychological Sense of School Membership (PSSM) (1993), Freeman and colleagues (2007) developed their measurement scales with items including

belonging and various aspects of the academic environment. They distinguish class belonging from university belonging, and find out that belonging to the classroom has little impact on belonging on the university level. Instead, students' feeling of being accepted by other students and academic staff seems to be the most crucial to their belonging. As admitted by the authors, this finding suggests the needs for further research on university belonging, as well as on the multi-dimensionality of students' sense of belonging.

Similarly, Pittman and Richmond's article (2007) investigates the meaning and impact of university belonging on college students, applying Goodenow's Psychological Sense of School Membership (1993). They criticise existing studies to understand belonging for focusing on limited social interactions. Instead, they insist on 'university belonging', which extends to a wider boundary (2007:272). The statistical analysis reveals that university belonging is the vital element in many aspects of students' life including academic achievement and self-confidence in the higher education context. In their later study (Pittman and Richmond, 2008), this university belonging as well as personal friendships were found to be the most important factors for first year college students.

Higher education studies in the UK

Several studies have attempted to explore students' sense of belonging in higher education in the UK. For instance, Read and colleagues' (2003) qualitative research consists of three different research projects to understand students' perspectives of belonging to the post-1992 university ('New university'). Their data is collected from 33 focus groups, with 175 participants including working-class students as well as ethnic minorities. These 'non-traditional' students in terms of class, maturity and ethnicity (2003: 261) seek to belong to these new universities. However, the authors argue that the academic culture seems to be dominated by the images of traditional 'elites' such as 'young, white, middle-class and male' (2003: 274).

Wilcox and colleagues (2005) conducted qualitative research with first year students studying social sciences related subjects at the University of Brighton. Their main research focus was to explore the meanings and roles of social support in relation to belonging, social integration, and retention. They highlight that 'making compatible friends' (2005:718) is the most important aspiration for students who start university, which is related to academic,

emotional, and social support, and affects their sense of belonging as well as, ultimately, retention.

The Higher Education Academy (HEA) is an organisation to improve quality across higher education sectors in the UK, which has supported and published an extensive amount of research. Several of these studies focus on students' engagement, first-year experience, and sense of belonging in higher education.

'Student Engagement Literature Review' by Trowler (2010), for instance, is useful to understand the trends and development of higher education research in the UK. The author argues that British researchers have tended to investigate students' experiences in teaching and learning, whereas the North American/Australasian literature predominantly studies students' engagement. Trowler also points out there has been little peer-reviewed research in the UK, where the studies about students' engagement are mostly in the form of grey literature (e.g. small, single case studies) like much of the American research (2010: 3). She stresses the need for further research on students' engagement in British higher education.

In this broad literature review, the author makes reference to belonging; that belonging is related to emotional engagement as one of the three dimensions of student engagement, alongside behavioural and cognitive engagement (2010: 5, referring to Fredrick et al., 2004). In addition, belonging can be understood in the sense of building students' own identity (2010:10). A search of two peer-reviewed journals which the author mentions, however, returns no references to the word 'belonging' (e.g. Jary and Lebeau, 2009; Little et al. 2009).

Harvey and colleagues (2006) explore more than 750 publications from the last two decades, to identify key topics of the first-year students' experiences in higher education. In this extensive literature review, they also point out the different research focus of the British research in higher education, such as students' attitudes, expectation, and satisfaction (2006:4).

On the nation-wide scale, there is some noteworthy research exploring various aspects of students' belonging in the higher education context; the What Works? Student Retention & Success program 2008-2011, co-funded by The Paul Hamlyn Foundation (PHF) and the Higher Education Council for England (HEFCE). The What Works program aims to investigate the evidence of effective practices for higher completion rates in 22 higher education institutions. The findings from seven different projects are summarised in the final

report by Thomas (2012), 'Building student engagement and belonging in Higher Education at a time of change: final report from the What works? Student retention & success programme'. Since this report was used as a starting point for the research on 'Students' Sense of Belonging to Bangor University' linked to this thesis, details of the methods, analysis, findings, and policy implications will be fully discussed later in the methodology (Chapter 5) and discussion (Chapter 9) chapters.

Higher education studies in Wales

Despite the difficulties of finding research about students' belonging in higher education in Wales, there are two reports published by the Higher Education Academy, namely 'First Year Student Experience Wales' (Fitzgibbon et al., 2010) and 'Engaging Students to Improve Student Retention and Success in Higher Education in Wales in 2011' (HEA, edited by Thomas and Jamieson-Ball, 2011). The first report was published as a practical guide for higher education institutions, describing a summary of case studies throughout the universities in Wales. In order to develop and share this initiative further, the second report was introduced after the related conference, 'Improving retention and success' in 2010. The 'Engaging Students' report includes the current students' status in Wales, and introduces the UK-wide 'What Works' project, as mentioned earlier (Thomas, 2012). Although the statistical data shows that higher education institutions in Wales perform below the UK average regarding non-continuation following the year of entry, this report contains many case studies of Welsh universities' attempts to enhance students' retention and success.

Despite a lack of theoretical and empirical journal articles about Welsh students in higher education, there is one interesting research about students' sense of belonging to Wales and their choice of higher education institutions, by Hinton (2011). The author aims to understand students' decisions in the sense of aspiration (Sinclair et al. 2010) as well as mobility (Urry, 2000; Cresswell, 2006). The qualitative research based on the 8 focus groups reveals that there is a strong tendency amongst Welsh students to stay in the space where they feel a sense of belonging as Welsh. Cultural and geographical familiarity including language, heritage and the natural environment is indeed the key factor to influence their belonging. The author also suggests the need for further research about the disadvantaged students who have little or no experience outside their comfort zone because the place where they feel strong belonging

is most likely to affect their selection of a place to study. This issue about Welsh students' belonging will be revisited during the data analysis (Chapter 6 and 7) and the discussion chapter (Chapter 9).

Students from disadvantaged backgrounds

Several studies investigating students from disadvantaged backgrounds have been carried out. For instance, Goodenow (1992) points out that students from ethnic minorities as well as socio-economically less advantaged backgrounds, might benefit from stronger sense of belonging than others. In addition, Becker and Luthar's (2002) research about disadvantaged students in secondary school in the USA confirms that there is a strong relation between belonging and academic engagement in terms of socio-economic status.

In higher education, Pittman and Richmond's research (2007) reveals that there is a significant association between strong sense of belonging and positive outcomes in the academic sphere from Latino students (Hurtado and Carter, 1997), African American and Caucasian students (Mounts, 2004). Strayhorn (2008) also suggests that social interaction with peers from various backgrounds is one of the crucial factors of belonging for Latino students.

Reay's (2002) research of working class, mature students reports on the growth in higher education in the UK in the last few decades (Scott, 1995), especially due to the contribution of non-traditional students from various backgrounds (Connor et al., 1999). The author points out that student groups such as women, ethnic minorities, disabled and working-class are encouraged to participate in higher education, by education policies such as the 1987 Department of Education and Science. Reay (2002) conducted qualitative research with 23 mature student participants who were attending higher education in a London FE (further education) college. The analysis of in-depth interviews with these students reveals that their unique identities as working-class mature students might cause conflict in their sense of belonging to the institution. The author concludes that social class is one of the most critical factors in mature students' choice to access higher education, alongside ethnicity and gender.

O'Donnel and Tobbell (2007) point to a lack of research about adult students in higher education in the UK and discuss many challenges which they face, such as their identity as a

minority group (Bamber and Tett 2000), vulnerability (Crossan et al., 2003), and conflictual situation of students with lower economic backgrounds (Reay, 2002). The authors (O'Donnel and Tobbell, 2007) show that there are several studies about adult students and their difficulties including extra commitment to work and family (Darab, 2004), or getting used to academic engagement (Lucas, 1990), which results in their social isolation (Christie et al., 2005) and low levels of belonging.

Lynch and O'Riordan (1998)'s research about low-income working-class students in Ireland reveals that financial status is one of the most crucial factors to influence these students' entry, success, and belonging in higher education, followed by social and cultural, and educational issues. The discussion about students with disadvantaged backgrounds and their belonging to institutions will be revisited later in the discussion chapter (Chapter 9).

Cultural capital and institutional habitus

Cultural capital in the context of education is one of the overlapping topics across education as well as sociology. As briefly mentioned in the social capital literature, the term is introduced by Bourdieu, with related concepts such as 'field' and 'habitus' (Bourdieu, 1977, 1984, 1986, 1990). Bourdieu defines cultural capital as 'instruments for the appropriation of symbolic wealth socially designated as worthy of being sought and possessed' (Bourdieu, 1977), which DiMaggio (1982:190) interprets, as one of the most popular and dominant understandings of Bourdieu in education (Lareau and Weininger, 2003). In the research to explore American elites' cultural capital and educational attainment at high school, DiMaggio measures cultural capital by the self- completion survey questionnaire asking about involvement in art, classic music and literature, adopting Bourdieu's notion (1982: 191).

Lareau and Weininger (2003) investigate how this term, cultural capital, has been broadly used in educational research. In their article, they point that DiMaggio and many of his followers (e.g. Teachman, 1989; Katsillis and Rubinson, 1990; Aschaffenburg and Maas, 1997; De Graaf, De Graaf, and Kraaykamp, 2000) tend to focus on two main elements of cultural capital such as elitism and its own unique characters, separated from parental backgrounds. They criticise that this interpretation is rather narrow and relatively less related to Bourdieu's original meaning. They argue that a wider range of interpretation might be useful for further research.

> By doing away with giving explicitly to everyone what it implicitly demands of everyone, the educational system demands of everyone alike that they have what it does not give. This consists mainly of linguistic and cultural competence and that relationship of familiarity with culture which can only be produced by family upbringing when it transmits the dominant culture. (Bourdieu 1977: 494)

As described by Bourdieu above, cultural capital is generally expressed as the way of one's talking, acting, behaving, and thinking. Therefore, it includes various aspects such as language, behaviour, appearance, as well as norms and values. Since these are mainly inherited from parents and family, parents' education and background, and socio-economic status should be regarded as main factors, too (Sewell and Shah, 1968; Sullivan, 2001; Beller, 2009). Sullivan (2001), for instance, developed an operational definition of cultural capital, with items such as various activity, cultural knowledge, language skills, as well as parents' qualifications and their cultural activity.

Closely related to cultural capital, institutional habitus in higher education is often adapted in order to explore the impact of social class in terms of students' selection of institutions, their belonging, academic and social experiences, success and retention. Thomas (2002) explores institutional habitus and students' retention in higher education in the UK, based on theoretical and empirical research, starting with Reay's work (Reay et al., 2001). Bourdieu's habitus refers to 'a power of adaptation', which 'constantly performs an adaptation to the outside world which only occasionally takes the form of radical conversion' (Bourdieu 1993: 78). Cultural capital can be traced back to individual's habitus, since habitus is the embodiment of cultural capital. Institutional habitus is, therefore `the impact of a cultural group or social class on an individual's behaviour as it is mediated through an organisation' (Reay et al. 2001, para. 1.3).

As a leading researcher investigating socio-economic factors in higher education, Reay has published many articles including the studies cited earlier (Reay, 1998; Reay et al., 2001; Reay 2002; Reay et al., 2010). Adopting Bourdieu's habitus, as a changing and interacting concept for critical engagement, Reay and her colleagues (2010) describe institutional habitus as connecting social group and individuals, and changing over the time. They summarise many examples of related research, which focuses on the relationship between social class, sense of belonging, commitment, and institutional habitus. Their study reveals that cultural

capital, which is likely to be mainly determined by social class, matters for university selection and development of belonging as well as identities to working-class students.

Students from socio-economically disadvantaged or multicultural backgrounds might find it difficult to feel being part of the institution, especially in the social and cultural spheres. McLaren (1989) insists that the educational institution often undermines these students from economically disadvantaged backgrounds, by recognising and valuing those who have dominant cultural capital.

3.6 Summary

In this chapter, a range of theoretical and empirical literature of sense of belonging in different academic disciplines has been explored, focusing on definition and measurement. Depending on the main research interests and aims, belonging can be understood as a general form (being related, as a basic human need); or more specific feelings within a certain boundary (students' feeling of connectedness to their institution). Researchers approach belonging on the micro level as an individuals' subjective feeling; or on the socio-structural level as the connection between a person and a society.

In their attempt to measure sense of belonging, some researchers develop their own instruments from the quantitative perspective, while the others explore the meaning, interpretation, and adaptation of belonging by investigating qualitative data such as in-depth interviews and personal narratives. There is an inevitable tension between these different methodological approaches, which is often reflected throughout the theoretical definition and the empirical measurement.

Sense of belonging research in higher education in the UK mainly tends to be applied and orientated towards the institutional context and policies for students' success and retention. A strong level of engagement in both academic and social spheres seems to be vital. Although many pieces of empirical research show that there is a strong association between students' belonging and other factors such as involvement, engagement, support, academic achievement and retention, there is no explicit evidence about the cause and effect. This seems to recall the similar criticism about logical circularity of social capital.

The literature review also reveals there is a lack of a well-developed trend in sense of belonging research in higher education in the UK, which considers multiple aspects of the concept. It therefore leads to the conclusion that it is difficult to identify the most appropriate measurement instrument for students' sense of belonging in the higher education context in the UK. This thesis, therefore, will adopt a synthesis of conceptual definitions from the multiple disciplines; individual subjective feeling of connectedness in the educational context, as well as the social structural dimension. For the measurement, this thesis will develop a mixed approach, considering multiple aspects of belonging in higher education.

In the next chapter, the theoretical and empirical discussion about belonging in the context of social capital will be taken a step further, after investigating the measurement of social capital. Social capital research is transdisciplinary, whereas sense of belonging seems to be shaped more by discipline. This difference is reflected in the literature reviews on social capital (Chapter 2) and belonging (Chapter 3). Based on the conceptual synthesis of belonging literature in this chapter and the approach to social capital set out in Chapter 2, it will demonstrate how sense of belonging can be integrated into social capital, considering their overlapping spheres as well as their independent characters.

Chapter 4. Approaches to the measurement of social capital, linking with belonging

4.1 Introduction

In Chapter 2, the literature review on social capital focused on definition. It revealed that defining social capital is crucial to avoid the ambiguity, but also to develop the measurement instruments. In response to the difficulties explained in the previous chapter, there is a need to link concepts and measurement of social capital. Chapter 3 explored the definition and measurement instruments of belonging in a multi-disciplinary context, and this chapter will take a step further to connect belonging to social capital.

This chapter consists of three parts: a review of research about measuring social capital; a discussion of the development of the measurement framework; and the conceptual linkage between social capital and sense of belonging. Since this thesis is based on the theory of collective social capital, previous empirical research in this tradition including Putnam and Paxton will be reviewed, followed by other approaches including individual social capital theorists, network theorists, and UK cases. The summary of a search of all the empirical research literature cited in this chapter, including definitions with the main elements of social capital, as well as measurement details, is presented in the table 'Social capital definitions and measurement by researchers' in Appendix 1.

This critical evaluation will lead to the discussion of principles for developing the measurement framework for this thesis, which consists of three main components of social capital: trust, social network, and participation. The last part of this chapter will focus on the linkage between social capital and sense of belonging in terms of concepts and measurements. The conclusion will show how all three chapters of literature review for this thesis can be used to establish the theoretical and empirical foundations for linking social capital and belonging.

4.2 Previous empirical research on measuring social capital: collective perspectives

As the literature review of conceptual debates on social capital in Chapter 2 showed, theoretical perspectives are commonly divided into two groups; collective and individual

social capital. This section will engage with some of the most frequently mentioned researchers amongst collective social capital theorists, namely Putnam, Paxton, Wollebaek and Selle, Wellman, and Zúñiga.

Putnam

Putnam is one of the most important scholars in social capital debates, not only because of his contribution of bringing the concept back into contemporary academic research, but also because of his quantitative methods for measuring social capital using large-scale data sets.

In his famous book, *Making Democracy Work: Civic Traditions in Modern Italy* (1993), he examines the relationship between social capital and government performance. He measures social capital by calculating the level of civic participation in terms of newspaper readership, voter turn-out, membership in various community groups and clubs, and confidence in public institutions. Comparing Northern and Southern Italy, Putnam concludes that the higher level of civic engagement through voluntary associations in Northern Italy is significantly related to more active democracy, and more efficient government performances in the region. Social capital is defined as 'features of social organisation such as networks, norms and social trust that facilitate coordination and cooperation for mutual benefits' (Putnam 1996:67). This research is empirical support for his argument that social capital plays a vital role in civil society through voluntary associations.

Later in *Bowling Alone* (2000), Putnam applies his framework of social capital to the USA, with an expanded definition including informal networks such as 'friendship and other informal types of sociability in everyday life', providing 'crucial social support' (Schuller et al., 2000; Putnam, 2000:95). To measure social capital, he develops a measurement instrument, the 'Central Composite Index of Social Capital'. The key elements of Putnam's definition of social capital are networks, norms, and social trust, which serve public goals. This instrument consists of 5 categories: community organisational life, engagement in public affairs, community voluntarism, informal sociability, and social trust. Each category includes 2 or 3 measurement items, a total of 14. Putnam's instrument mainly focuses on people's participation in the community, which is directly and indirectly influenced by them in return. Social capital, here, is understood as resources for collective goods such as better civil society, or prosperity of democracy, not for individual goals such as jobs or social status.

Putnam shows convincingly that sub-categorical factors of social capital can be measured quantitatively, for instance, by means of percentages of people who serve on the committee of local associations, numbers of organisations per 1,000 population, numbers of voluntary associations per 1,000 population, time spent on visiting friends, and trusting other people. The social network aspect is implied through voluntary associations as well as informal social life, without clearly specifying boundaries and degrees of those ties, and types of actions with them. According to this index, contacting relatives by email has nothing to do with social capital, whereas visiting friends without any meaningful connection will be counted as a measure of an informal social network.

Despite the clear description of categories to measure social capital in terms of formal and informal networks, trust, and participation, it is difficult to justify the match between each detailed question and the social capital concept. The gap between the definition and the measurement of social capital is particularly problematic in the case of informal social networks.

On the positive side, Putnam's efforts to define and measure social capital quantitatively (1993, 1995, 2000) have led to valuable analysis of the dynamics of social capital with the help of large-scale data (Li et al., 2005). Putnam's research has broadly inspired ongoing academic debates, and further applications.

Paxton

Paxton (1999) designs her own measurement model, using data from the General Social Survey (Davis and Smith 1994), in response to Putnam's (1995) claim that social capital in the United States is declining. She starts from a theoretical discussion, and develops a practical model based on a particular conceptualisation. Focusing on two key elements of social capital, trust and associations, she argues that the boundary of measuring social capital should stay within the positive side of social capital. This positive social capital consists of the aggregation of trust and associations on the in-group level as well as between-group level. She constructs measures for trust and associations. Specifically she uses a person's general trust in others as well as institutions to measure the *trust* side, and three indicators for understanding the *association* side. Paxton (1999:88) uses 'associations' to refer to *objective network structures*, or *individuals' network ties to the community*, which can be measured by

three indicators: the number of formal membership in voluntary organisations, the amount of time spent on a social evening with neighbours, and time spent on an evening with friends.

Two questions arise: the amount of socialising time, and the types of social ties. When people spend a significant amount of time for a social evening with friends or neighbourhood, does it directly mean he or she has a high level of social network ties, or a high degree of social capital? How about other indicators such as size and frequency, or other forms of social interactions such as regular contacts by letter? Next, the types of social network ties are specified as neighbourhood and friends. As Paxton herself mentions, there are various types of relationships between people, such as 'friendship or other emotional ties, kinship, and proximity in space, which can be directional (or non-directional), valued (or dichotomous), and uniplex (or multiplex)' (Paxton, 1999:100; Wasserman and Faust, 1994). Interestingly, Paxton as well as Putnam (2000) assume that friendship, instead of other relationships such as kinship, is the most significant type of tie. Unlike Putnam, who equates the time for visiting friends and entertaining at home with the category of informal sociability, Paxton divides informal socialising into two different categories of neighbourhoods and friends. There is not enough explanation of the rationale for dividing the categories and it is difficult to understand why these two categories are absolutely essential. Having considered the limitations of survey research, and difficulties in selecting appropriate questions for research purposes, it is doubtful how accurately and meaningfully these three indicators can 'indicate' the level of network ties.

Regarding participation, Paxton (1999) employs more general criteria of membership in voluntary associations, whereas Putnam (2000) specifies three detailed categories related to participation: *community organisational life*, *engagement in public affairs*, and *community voluntarism*. The differences in designing measurement methods between Paxton (1999) and Putnam (2000) reflect their different priorities; Paxton's interest in individuals' informal social networks, and Putnam's interest in participation.

Wollebaek and Selle

Wollebaek and Selle (2002) acknowledge Putnam's (1993, 1995a, 1995b, 2000) claim that voluntary associations act as schools in democracy, the sites for individuals to gather, interact, and share knowledge and information, in order to become citizens of civil society.

Yet the claim that social capital is mainly generated through these voluntary associations has not been tested in detail, according to the authors.

They see social capital as having three dimensions: trust, networks, and civic engagement, which together comprise social capital and can work for the prosperity of democracy. In the nationwide survey carried out by the Norwegian Centre of Research in Organisation and Management in 1998, they construct questions to measure these three dimensions: trust in most people for social trust; the number of network groups such as neighbours, colleagues, and friends, for social networks; voting, newspaper reading, and interest in politics for civic engagement.

Although the authors broadly follow Putnam's concept of social capital, they locate voluntary associations outside social capital, on the basis that voluntary organisations are the primary resources for social capital, unlike Putnam's original claim. In order to examine whether the intensity, scope, and types of voluntary association affect social capital or not, civic engagement and participation in voluntary organisations are separated; the former is interpreted as actions with political meanings, while the latter is understood as more general participation. Since types of organisations in the questionnaire include political associations such as political parties, and even semi-political groups, it causes a degree of confusion about the boundaries of social capital. It is questionable whether there is any definite reason why civic engagement should be differentiated from participation; not only because the concepts are very similar, but also because civic engagement can be understood in the wider context of civil participation, as discussed in Chapter 2.

Just as Putnam's earlier work (1993) faces criticisms for ignoring informal social networks, Wollebaek and Selle's research does not pay much attention to the details of networks. The authors ask which groups participants belong to: 'neighbours and local community where you live now', 'current colleagues or fellow students', 'former colleagues or fellow students', 'friends from where you grew up', and 'others' (Wollebaek and Selle, 2002:41). Although the research attempts to divide informal social connections into certain social groups related to education, workplaces, or geographic locations, these categories are developed within restricted definitions, excluding people who are positioned far from those categories for certain reasons, such as full-time housekeepers or parents, people who have disabilities, or are retired. Just as Putnam (2000) ignores kinship, so it is missing here. In addition, the network is measured based on the number of groups which participants think they belong to;

a high number is regarded as evidence of a high level of social network or social capital. This is as dubious as measuring amounts of time spent on informal social relations in Putnam (2000) and Paxton (1999).

Wellman et al.

Social capital is often measured in relation to the influence of other factors such as the Internet, or social network sites. Wellman, Haase, Witte and Hampton (2001) examine the effects of internet use on social capital by analysing data from the National Geographic Society Survey. Their research shows the importance of understanding the virtual community, and has influenced the conceptual debates about the online and face-to-face worlds. In their research, the authors define three types of social capital: network capital, participatory capital, and community commitment. The first two items, networks and participation, originate from Putnam's concepts (1996, 2000). The authors label one category as social connections, with their physical and emotional supports, and the other category as participation in politics and voluntary organisations. They adopt McAdam (1982)'s idea as the final item for social capital, which adds the strength of individuals' commitment to the communities. Analysing these elements, the authors conclude that the internet has a significant effect on increasing personal connections (network capital), and participation in organisations and political activity, but that it is not strongly connected to commitment to the online community.

The authors define network capital as interactions with close friends, relatives, neighbours, and colleagues which can provide various support including socially meaningful feelings such as trust, and sense of belonging (Wellman et al., 2001; Wellman and Frank, 2001). To measure it, they examine types of media (e.g., telephone, email, face-to-face, letters) and the contact. Interestingly, they compare kinship and friendship, without directly mentioning the words, family, or family member. Participation, both political and more general involvement, is included as part of social capital.

Zúñiga et al.

Zúñiga, Jung and Valenzuela (2012) have also explored whether using Social Networking Service (SNS) for checking news about public affairs can affect social capital and political participation. The authors take the collective social capital approach and define social capital as network resources for collective goods such as participation in civic and political organisations. They collect data from web surveys in the USA between 2008 and 2009, which include six items regarding social capital: feeling intimate in the community, sharing community values, talking about community problems, feeling connected, helping resolve problems, and watching out for community members. They conclude that using SNS for news is positively associated with social capital, civic participation, and political participation on- and off- line. In this questionnaire, they selectively focus on certain aspects of social capital related to the community such as a sense of belonging, and community engagement, to the exclusion of other main elements such as social network, trust and reciprocity.

In addition to political participation, they adopt five other items regarding civic participation from previous research (Shah et al., 2005): frequency of respondents' voluntary work for non-political groups, fundraising for charity, attending community meetings, purchasing products because of the social values advocated by the company, and banning a certain product or service because of disagreement with the social values of the company. Despite the fact that the authors rely heavily on the collective social capital theory, they separate civic participation from social capital, whereas Putnam's original concept emphasises the importance of people's engagements in community through various forms of association. The conceptual definition is not in line with the measurement design, because a very narrow measurement of social capital is applied without including network, trust, and participation.

4.3 Previous empirical research on measuring social capital : other perspectives

In this section, empirical research on the several approaches such as individual social capital theory, network theory, and other research will be critically evaluated to demonstrate how diversely measurement can be developed on various perspectives.

Individualistic social capital perspectives

Researchers using individual social capital perspectives adopt measures specifically designed for that purpose, such as the name generator and the position generator. Flap, Snijders, Völker, and Gaag (2003), for instance, use three: the name generator (McCallister and Fischer, 1978), the position generator (Lin and Dumin, 1986), and the resource generator (Snijders, 1999) to measure the social capital of individuals in the 1999-2000 Social Survey on the Networks of the Dutch (SSND). Since they interpret individual social capital as 'the resources present in ego-centred social networks' (Flap et al., 2003:2), the questionnaire is developed to examine whether the participants are able to access certain resources through their personal networks or not. In detail, it contains items on: accessing information and resources, naming helpful members and details about them, asking occupations which participants can contact, and selecting types of resources available through close networks.

Their approach is one of the archetypal examples of individual social capital theory, which puts access to and the availability of resources at the centre of research interest, focusing on individuals' network ties and interactions, designed to achieve individual goals. This theoretical approach naturally leads to the methodology of measuring social capital through investigating potentially who could provide resources, and what kind of resources the ego can access through direct and/or indirect social ties. As a result, the main issue in measuring social capital is the nature of social networks.

From the perspective of individual social capital, Putnam's key elements such as membership in voluntary associations, civic engagement and participation, trust in friends, and local and national governments have little significance or none. Social capital is treated as a person's property from personal network connections, which leads to different results from the collective social capital perspective.

Son and Lin's (2008) research examines the effect of social capital on expressive and instrumental civic actions. The authors define social capital as 'resources embedded in individual and organisational networks', which create 'expressive and instrumental civic actions' (Son and Lin, 2008: 330). To demonstrate this, they develop their own measurement model which contains five elements: an organisational network feature, organisational social capital (internal), individual social capital, expressive civic actions, and instrumental civic actions. In detail, for instance, individual social capital can be calculated from eleven types of

personal friendship ties derived from questions about ethnicity, business ownership, welfare receipts, and religion, while four indices of organisational social capital about organisational diversity, ranges of organisation diversity, organisational resources, and diversity of embedded resources. Using the 2000 Social Capital Benchmark Survey (SCBS) data in the United States, they reveal significant correlations between individual social capital and both expressive and instrumental participation, and between organisational social capital and instrumental civic engagement.

Their research assumes that social capital is generated from individual as well as organisational networks, because the organisation is also regarded as an actor which creates and maintains social network ties. The authors not only consider social capital separately from civic engagement, but they also argue that it is this social capital which produces various forms of participation. This view of Flap and others (2003), and Son and Lin (2008), reconfirms the importance of the relationship between definitions and measurement of social capital, and how they lead to different conclusions even on the same theoretical perspective.

Other attempts to measure social capital

Most studies of social capital can be categorised into one of two groups, namely individual and collective social capital, but there are some attempts to combine both perspectives.

First, Glanville and Bienestock (2009) discover possibilities to compare various forms of social capital by distinguishing between different levels of analysis such as micro and macro. The authors regard social capital as 'investment in personal relationships or social structure that facilitates the achievement of individual or collective goals', through network structure, trust and reciprocity, and resources (Glanville and Bienenstock, 2009: 1507). On top of these three elements, they add the fourth continuum, which is the consideration of micro and macro levels of social capital.

Bekkers, Völker, Flap and van der Gaag (2008) explore the social network of individuals who take part in voluntary associations from the perspective of both individual and collective social capital theory. Following Lin (2001)'s arguments, they argue that individual social capital is closely related to instrumental associations, for individuals who have more networks as well as resources should be more likely to participate for their own benefit. In

contrast, since a higher level of collective social capital comes from dense and small network ties with shared norms and trust, individuals with this type of network should be more likely to get involved with expressive associations.

With data from the Survey of the Social Networks of the Dutch in 1999-2000 (SSND), the authors use the name generator and the position generator to measure ego-centric networks in terms of network size, network density, heterogeneity, and indicators of intensity, trust and duration. For individual social capital, a position generator (Lin, 2001) is used to measure access to occupations through various types of ties such as family, friends, and acquaintances. Their analysis leads them to the individual social capital theory conclusion that members of expressive and instrumental associations can access more social resources, whereas there is no strong evidence of collective social capital.

Participation is measured by membership in voluntary organisations with ten different types including expressive as well as instrumental actions, volunteering, and donating money to charities. The authors regard participation as being closely related to voluntary action, indicated by membership, volunteering, and donations. When participation is expanded to the whole range of voluntary actions especially including donations, it leads to the question how appropriately that action is related to the context of social capital. How about other types of civic actions such as campaigning against housing associations or attending community meetings? Is donating money to voluntary organisations more relevant to participation than subscribing to a local newspaper? It is, therefore, important to examine the degree of correspondence between the conceptual framework and the empirical measurement method.

Lin argues that these collective and individual perspectives on social capital, simply approach the same topic from different directions, and do not exclude one another (Bekkers et al, 2008; Lin, 2001:24). However, attempts to measure social capital from the combined perspectives of individual and collective social capital theories show how different theoretical approaches lead to different research results, even with the same data.

How about the measurement designs based on other theories than Putnam or Lin? For instance, James Coleman's research (1998, 1990, 1988) has been influential. To examine the relation between a high level of social capital and academic achievement of immigrant children, Portes (2000) analysed data from the National Educational Longitudinal Study (NELS) in the United States. He adopts Coleman's notion (1988) of social capital as a source

of control within communities, which is mediated by educational outcomes, and defines social capital as 'an individual and family asset' (Portes, 2000:5). For this specific research purpose, he measures social capital with three variables: family composition, parental school involvement, and closure of parental networks.

Also using Coleman's notion (1988), Lake and Huckfeldt (1998) explore the effect of social capital on political participation. Social capital is produced by the activities of individuals who are connected through interlocking social networks (Coleman, 1988:S96). Since the authors' research aim is primarily focused on politically relevant social capital, which can be measured in terms of individuals' communication about politics in ego-centric networks, they use the name generator to analyse data from the 1992 American study of the Cross National Election Project and map the ego-centric network structure, network sizes, frequency of political interaction, and political expertise within networks. In addition, they select participatory activity (e.g. working for a party, attending meetings with any political purpose, displaying a political yard sign, donating money, and voting) in order to examine the relation between this political social capital and political participation.

There are two interesting points to note in Lake and Huckfeldt' paper: first, the specific facet of social capital, defined as *politically relevant social capital,* underlines the importance of constructing and adopting the conceptual definition of social capital in tune with the research aim, since social capital can be adjusted to serve various purposes. Second, the authors focus social capital particularly in terms of social networks, accepting Coleman's notion. Here, social capital is not the property of an individual, it can only be created through close interactions in individuals' network webs. Although they restrict the definition of social capital politically relevant social capital, it is doubtful that measuring certain factors such as the network size, frequency of political interaction, and political expertise within networks can be directly interpreted as measuring political social capital in the collective approach, since there seems to be a gap between this and Coleman's social capital which can produce solidarity, trust and the sense of belonging.

Network theorists' attempts to measure social capital

Li, Savage, and Warde (2008: 391) claim that studying informal social relations and networks enables us to understand the whole 'sociologically sophisticated' measurement of social

capital, in addition to formal participation in voluntary organisations. They have pioneered practical methods to overcome the lack of empirical research in the UK on informal social networks, which will be explored as one of the UK cases.

As described in Chapter 2, Borgatti and Jones's 'Network Measures of Social Capital' (1998) is very useful to understand the theoretical framework and methodological techniques of the network theorists. Amongst four groups in their categorisation, the group-actor and internal-focus, and individual-actor and external-focus (see Borgatti and Jones's Table 2 Conceptions of social capital by actors and focus in Chapter 2) are the most relevant for this thesis. The former group (equivalent to collective social capital) includes Putnam (1995) and Fukuyama (1995), while the latter (individual social capital) includes scholars such as Burt (1992), Lin (1986) and Brass (1992). The authors investigate various methods to measure social networks including collective and individual approaches, but they do not mention any other core concepts such as trust and participation. Despite this limitation, the authors' classification is a very useful summary of methods to measure networks of social capital, which other theorists have found difficulty in developing.

Prell (2006), in her research taking the social network approach, demonstrates how the *trust* side of social capital operates in the social network structure (Foley and Edwards, 1999). With the data gathered from 24 not-for-profit organisations in New York, the author examines relational measures with three concepts of social capital: networks, trust, and reciprocity. In another study, Prell and Skvoretz (2008) investigate how to apply Burt's (2005) closure and brokerage to measure social capital in terms of network structures.

Despite the authors' achievement on the methodological level, particularly in relation to social network analysis, there are issues to be addressed. Networks between actors are analysed in the sense of strength of network ties, which might be expanded further with different indicators such as homophily. However, social capital in this paper completely ignores the important aspect of participation, although the unit of analysis is the organisation. The sample for this research consists of 24 organisations working for youth and children in Troy city, USA. Thus social capital in this research needs to be understood in the context of locations, and their cultural, historical, and political characteristics, rather than the more general meaning.

The UK cases

In 2004, the World Bank produced guidelines for measuring social capital in connection with research projects on understanding the dynamics of poverty. Grootaert, Narayan, Woolcock, and Nyhan-Jones (2004) describe two theoretical trends in defining social capital: network oriented, and participation oriented. They then summarise six dimensions of social capital: groups and networks, trust and solidarity, collective action and cooperation, information and communication, social cohesion and inclusion, and empowerment and political action. The World Bank survey questionnaire items for measuring social capital are generated based on these conceptual dimensions (see World Bank Working Paper no.18 Measuring Social Capital: An Integrated Questionnaire, 2004). Research by international organisations such as the World Bank, and the Organisation for Economic Co-operation and Development (OECD) has influenced many governments on issues of social capital, including the UK.

As Li and others (Li et al. 2003; Li et al. 2005) point out, there was a lack of empirical research to measure social capital in the UK until 2001, when the Office for National Statistics (ONS) produced operational guidelines. There are several papers explaining the background and objectives as well as the results of this initiative (Economic and Social Data Service, see http://www.esds.ac.uk/government/themes/socialcapital/).

According to *Measuring Social Capital in the United Kingdom* by Harper and Kelly (2003), the operational definition of social capital adapted by the ONS is, 'networks together with shared norms, values and understandings that facilitate co-operation within or among groups' (Cote and Healy, 2001:41). This definition, which originates from the definition of the Organisation for Economic Co-operation and Development (OECD), contains three key elements of social capital: networks; shared norms, values and understandings; groups. The network refers to personal connections which belong to a wide range of relationships such as family, neighbourhoods, and workplaces, and actual interactions occurring from them. These network ties can be divided into Putnam's (2000) bonding, bridging, and linking social capital. The second element, shared norms, values and understanding, emphasises the importance of being agreed and adopted by members of the community, which encourages the internalisation of them. These norms and values are expected to work as invisible rules to restrict their behaviours for the good community. The group, the last element, stands for the collective social capital perspective, rather than individual social capital.

Based on this conceptual background, the measurement framework is developed with five dimensions: social participation; civic participation; social networks and social support; reciprocity and trust; and views of the local area. Interestingly, participation is divided into social and civic; the former stands for various types of activity for general purposes such as culture, leisure, and religion, while civic refers to more political activities such as voting. The third dimension refers to social networks of support involving close ties such as family, relatives, friends, and neighbours, and the level of life satisfaction, which results from those relationships. The fourth dimension, reciprocity and trust, includes both individual (e.g. trust in other people) and collective (e.g. confidence in local governments) levels. The meanings are applicable to people with or without similar socio-demographic characters. Lastly, the views of the local area are itemised as people's opinions about their local neighbourhood areas, including safety and fear.

This framework is informed mainly by Putnam's (2000) theory, since it heavily emphasises participation in various forms of social and civic action. In addition, the guidelines suggest the detailed application of social network indicators such as the frequency and size of contact with kinship and friendship face to face and online, and the level of life satisfaction. It also considers individual wellbeing as an important factor, based on the strong assumption that social networks and social capital should bring more life satisfaction on the individual level. Many pieces of research have been conducted based on the ONS social capital guidelines, including the 2001 General Household Survey (GHS), 2000 Health Survey for England, and 2001 Home Office Citizenship Survey.

The 2001 General Household Survey (GHS), for instance, applies indicators such as social relationships, social support, formal and informal social networks, group memberships, trust, reciprocity and community and civic engagement (Walker et al., 2001). In the questionnaire, 54 social capital questions are included such as asking about local area (e.g. safety, council services of council, health, school, policy, and transport, leisure facilities, crime, and problems), information sharing, influencing local decisions, participating in local activity or organisations, contacting with neighbours, friends or relatives, and social support from them.

Although the GHS questionnaire is based on the ONS guidelines, it focuses on local issues. In detail, 41 questions out of total 54 ask about the *local area,* which is defined as 'within about a 15-20 minute walk or 5-10 minute drive from your home', or *more immediate neighbourhood*, as 'your street or block'. Only the remaining 11 questions imply no

geographic restriction. The 2001 General Household Survey seems to regard neighbours as the primary social circle, which might be considered equivalent to the first radius of trust in Fukuyama's term. This tendency, however, begs the question of whether social capital occurs within a limited geographic area. How about people who spend most of the time on daily activity out of the neighbourhood area? The norm is for people to have numerous socially meaningful places such as the virtual world, workplaces or schools, not limited by distance. Although the neighbourhood is one of the most important factors in social capital debates, some researchers such as Paxton (1999), and Li et al. (2005) argue that geographical location has become less influential in modern society. This criticism of the limited boundary also applies to the next dimension, the group. Unlike the ONS guidelines, which acknowledge the diversity of geographical, professional, social, and virtual groups (Harper, 2002:4), the 2001 General Household Survey includes no items relating to a wide range of social groups.

Although the ONS guidelines encompass a broad spectrum of social capital, the questionnaire items designed to measure it do not reflect it accurately. For instance, it is difficult to link certain questions about personal experiences such as being 'a victim in the past 12 months', or perceptions about 'graffiti in the neighbourhood' with the measurement of social capital. This criticism highlights the gap between the theoretical framework and the questionnaire items for measurement, the problem noted consistently throughout this chapter. It shows that developing a measurement instrument in line with the conceptual definition is the crucial part of social capital research.

Fahmy (2006) conducted secondary data analysis to understand the relationship between social capital and civic action amongst British adolescents using the 2001 General Household Survey (GHS). The author adopts the definition of social capital from Field and others (Field et al., 2000), referring to social networks, and trust and norms. Fahmy emphasises these elements, as argued by Paxton (1999) earlier (Fahmy, 2006; Paldam, 2000; Paxton, 1999; Van Deth, 2003). The questionnaire is developed in two parts: civic engagement and social capital respectively. In detail, civic engagement is itemised as writing to a newspaper, contacting local authorities and politicians, and participating in protest campaigns and voluntary associations, while social capital is indicated by six measures, the neighbourhood trust (a number of known neighbours on the Likert scale, trust in them, looking out for each other, frequency of contacts with them), social reciprocity (receiving a favour from a neighbour, doing a favour for them), collective efficacy (influence on decisions), community

cohesion (perceptions of local area problems, fear of crime, walking the streets safely during the day, and at night), social networks (close relative living nearby, or friends), and social support (transport help, needing help when ill, from family networks, or friends and neighbours). Her research reveals that social capital has less impact on adolescents' civic action than on the population as a whole. However, the cultural aspects of social capital such as norms, values, trust and reciprocities seem to have a stronger effect, rather than networks including social support.

This example shows how research tends to approach the measurement of social capital in different ways, even within the same collective social capital perspective. Although collective social capital theorists generally regard civic participation as one of the important aspects of social capital, Fahmy (2006) excludes it from the measurement, based on the assumption that civic participation results in generating social capital, not part of it. In contrast, as shown above in the empirical research from the collective perspective, Wollebaek and Selle (2002) include civic engagement in their measurement. There is a noticeable difference between the questionnaires: Wollebaek and Selle (2002) use voting for a measure of civic participation, whereas Fahmy (2006) does not.

Li, Pickles and Savage (2005) attempt to measure social capital in the UK by developing measures which combine the three perspectives of Putnam (1993, 1996, 2000), Granovetter (1973), and Lin (1981). In their article, 'Social Capital and Social Trust in Britain', the authors point out that Putnam has shifted his focus from the formal membership of voluntary associations to the inclusive social activity such as informal network processes. They argue that Putnam's *bonding* and *bridging social capital* aligns with Granovetter and Lin's concepts of *resources* which are flowing along the *weak* or *strong ties*. The resources on weak ties are support from neighbours or colleagues, which is bridging social capital, while the resources on strong ties such as friendships are bonding social capital. Three types of measures are developed based on this conceptual definition: neighbourhood attachment (informal situational networks, or weak ties), social networks (informal personal networks, or strong ties), and civic participation (formal civic engagement). The authors analyse the data from waves 7, 8, and 10 of the British Household Panel Survey (BHPS).

Applying the categorisation of formal membership and informal networks seems to recall Paxton (1999)'s measurement approach. Paxton (1999) regards informal networks as the time spent on socialising with neighbours and friends, while Li et al. (2005) distinguish between

weak ties with neighbours and strong ties with close friends. Paxton (1999) includes trust as one of the measurement elements, while Li et al. (2005) argue that generalised trust is not applicable to the measurement of social capital, despite the strong relations between neighbourhood attachments and trust. They point out that informal networks should be analysed in terms of socio-cultural factors such as class, education, income, gender, marital status, age and the level of social deprivation.

The way that Li et al. try to combine three different perspectives to interpret social capital deserves further discussion. First, this research adopts similar measurement indicators of the neighbourhood boundary as the General Household Survey did; the informal situational networks, named as neighbourhood attachment (weak ties), and the informal personal network, as social network (strong ties). The authors apply two types of geographical boundaries; which are 'neighbourhood' for the situational networks; and '(beyond) immediate family', '(outside) household' for personal networks. The assumption that the geographical boundary such as neighbourhood plays a significant role might be unclear, since it is possible that close friends might not live in the neighbourhood area.

To sum up the argument so far, social capital research generally starts from proposing a measurement design, which is established on the foundations of a conceptual definition of social capital. Core concepts such as trust, networks, and participation can be purposely included or excluded, according to the researchers' operational definition. In other words, there are two crucial stages in the procedure for measuring social capital. The first is to construct a conceptual framework, then develop a measurement tool. These components symbolically represent the main concept of social capital, but also compose the operational definition.

Glanville and Bienenstock (2009), for example, suggest that building up their own definition of social capital is a useful way to conduct the research, and they cite various examples such as Adler and Kwon (2002), Burt (1997), Lin (2001), Paxton (1999), and Woolcock (1998). However, conceptually defining social capital does not automatically guarantee matching measurement, as it turns out that significant gaps may occur in the process between defining and measuring. Literature review on empirical research to measure social capital in this chapter reveals that the different measurement framework results in the variance of the

measurement instruments. What the research intends to measure may not be what is actually measured. In addition, there is a broad range of the measurement results of social capital, even between researchers, who share the same theoretical perspectives.

It is the time to develop a measurement tool which can practically capture those main elements of social capital through valid and reliable questions. Throughout the entire process, therefore, the most critical requirement is to keep the main components of social capital in line with the conceptual framework and the measurement tool.

4.4 Developing a framework for measurement for social capital

Following the conclusions of the literature review in Chapter 2, this thesis will adopt three main components of social capital: trust, social network, and participation. First, two core components of social capital are trust and social network, as pointed out by many scholars (e.g. Schuller et al., 2000; Paxton, 1999; Moody and Paxton, 2009; Fahmy, 2006; Helliwell and Putnam, 2004). Second, social capital plays a significant role in civil society through participation (Paxton, 1999), and effects on individuals' well-being in society. Participation is the key element which conceptually as well as physically links social capital to civil society through collective action for collective goods - civic virtue. Therefore, social capital can explain this social phenomenon, only on condition of considering three main aspects of trust, social network, and participation; when the society has high social capital, people are most likely to be happy and healthy.

The measurement strategy for three main components of social capital, and well-being based on the definition of these components in Chapter 2 will be clarified in this section, after briefly summarising the relevant empirical research.

Trust

As shown in the measurement table in Appendix 1, trust is measured on the individual level such as trust in everyone (Putnam, 2000), neighbour (Fahmy, 2006), or close friends; or the institutional level such as confidence in the local, regional, and national government; or both (Paxton, 1999; Harper and Kelly, 2003). In Li et al. (2005)'s view, trust can be measured as

‘trust in most people’, which, however, is deliberately excluded for measuring social capital, since trust results from social capital, does not consist of it.

This thesis will adopt Barber (1983) and Paxton (1999)’s approaches to trust. As explained in the previous chapter, Barber’s (1983) definition refers to a wide range of strong and positive expectations of good will from people, institutions, and norms (Barber, 1983; Yamagishi and Yamagishi, 1994; Glanville and Bienenstock, 2009). Trust in the context of social capital, as one of socially meaningful positive feelings towards other people, organisations, and society, is based on social relations coming from various network ties. Since trust is socially learned and shared beyond the immediate network connections, the measurement approach should be in the generalised form. For this thesis, trust will be measured on both individual and institutional levels.

Social network

Some researchers divide social network into formal membership and informal socialising for the purpose of measurement. According to collective theorists such as Putnam (1995, 2000), Paxton (1999), and Li et al. (2005), social network can be formally measured by counting membership in voluntary associations, but also informally by investigating close social relations. In addition, Paxton (1999) and Li et al. (2005) categorise informal socialising into two groups: close relationships with friends, and neighbours.

Instead of following Putnam (1995)’s perspectives, other researchers regard social network as close social relations and support they provide (e.g. Wollebaek and Selle (2002), Wellman et al. (2001), the UK social capital framework by Harper and Kelly (2003), and Fahmy (2006)). Some specify social network beyond immediate family, thus kinship is not included (e.g. Wollebaek and Selle (2002), and Li et al. (2005)), whereas the others define social networks to include both kinship as well as friendship (e.g. Wellman et al. (2001), Harper and Kelly (2003), and Fahmy (2006)). On the other hand, network theorists such as Borgatti and Jones (1988) understand social network as ties between the ego and the alter. For instance, the network can be analysed and expressed as ‘the ego A has a close relationship with the alter B’.

For this thesis, social network will be interpreted in the more general context, as various forms of social relations and interactions, casually and informally, where people feel close, socialise, and support each other, within a radius of daily activity. A broad range of social ties such as friendships, kinship, colleagueship, and relationships with academic staff will be included as objects for measurement. The measurement method is approached by network analysis such as density, strength, and frequency.

Participation, however, will be measured separately from social network, since it has the distinctive characteristics, such as regular contacts based on formal membership, purposive activity, and shared values and norms, rather than casual socialising, or spontaneous gathering.

Participation

In the collective social capital perspectives of Putnam (1995, 2000), Paxton (1999), and Li et al. (2005), participation is regarded as one of the key elements of social capital, but is used to measure the formal network side of it. Participation is often divided into groups with different organisational purposes: civic, political, and social. Putnam (2000) describes participation with three different categories; two with general involvements, and the one with more political actions such as voting. This trend of distinguishing political associations from general participation can be found in many cases but with different labelling; for instance, Zúñiga et al. (2012) distinguish between political and civic participation, while Harper and Kelly (2003) use civic and social participation. In Wollebaek and Selle (2002)'s case, only civic participation is identified. Lastly, civic participation may be understood as a single category including political, social, and general associations (e.g. Paxton (1999), and Li et al. (2005)).

Some researchers such as Bekkers et al. (2008), and Son and Lin (2008) investigate participation as civic action with expressive and instrumental purposes. Adopting Max Weber's typology (1978), they focus on the characters of those groups, which engage in either expressive actions such as musical groups, leisure groups, and parent-teacher meetings; or instrumental civic actions such as political parties, trade unions, and interest groups. In contrast with the collective perspective, network theorists such as Prell (2006, 2008) seem to have no interest in participation at all.

This thesis will apply Max Weber's typology (1978), as do Bekkers et al. (2008), and Son and Lin (2008). This typology divides the purposes of collective actions into two ideal types: one more social and expressive, and the other more civic and instrumental. It helps to clarify the boundary of measurement items, which are applied in other large scale survey questionnaires (e.g. the European Social Survey).

Well being

As explained in Chapter 2 of social capital literature review, well-being is significantly associated with social capital as well as civil society (Helliwell and Putnam, 2004; Putnam et al. 1993; Verba et al. 1995; Knack and Keefer, 1997; Sampson et al. 1997; Putnam, 2000; Woolcock, 2001). Well-being, as an important variable to imply the effects of social capital, is generally included in the measurement.

The concept of subjective well-being (SWB) in psychology refers to 'how and why people experience their lives in positive ways, including both cognitive judgments and affective reactions' (Diener 1984:542). Diener (1984) describes three characteristics of subjective well-being as the subjective feature (Campbell 1976), positive measurement, and the holistic evaluation. In other words, subjective wellbeing is related to a positive standard of individuals' life such as happiness or satisfaction, which is assessed subjectively and universally. For this thesis, individual subjective well-being will be measured via questions about life satisfaction, as the most frequently-used formulation in survey questionnaires.

4.5 Linking social capital and sense of belonging

Conceptual discussion

As the reviews of literature have shown, social capital and sense of belonging have been theoretically and empirically developed independently of each other. There is a large volume of literature, exploring various aspects of social capital such as the meaning, interpretation, measurement, effects, evaluation, and implement, which seems to be difficult to reach any general consensus. However, social capital debates, particularly collective social capital theory, have been formulated around three main components- trust, social network, and

participation, which are presumed to contribute significantly to a healthy, happy, safe, and effective society. Sense of belonging, as a feeling of being connected or related, is regarded as a basic human need. There is a strong trend of research to regard belonging as an individual's subjective feeling, however, a number of studies in sociology argue that a more macro-level approach to belonging should be taken.

Some researchers who adopt the social capital perspective seem uninterested in the role of belonging, whereas others regard belonging as a part of social capital. There is only a limited amount of research which investigates belonging in the social capital context. Researchers tend to apply sense of belonging as one amongst other sub-items for measurement. In this process of conceptualisation and measurement, sense of belonging becomes simplified to a considerable extent. As a result, the meaning of belonging remains narrow, and limited, for example, to neighbourhood attachment.

From the sense of belonging perspective, it seems less useful to apply social capital in the context of belonging. Belonging, as a personal feeling of being connected or related, contains little reference to social structures and systems in the psychology and education traditions. Some of the key elements of social capital such as civic participation (e.g. volunteering, voting, campaigning, political parties) rarely appear in the literature of belonging.

Although social capital and sense of belonging have been developed, with little influence on each other, it is not difficult to find the logical linkage and underlying commonality between them. Belonging is generally defined as being connected or related, and generated by consistent and regular social interactions. Concepts of social network and participation, therefore, are basically inherent in the very definition of sense of belonging. Various forms of social interaction occur based on a broad social circle of family, friends, neighbours, colleagues, and acquaintances. Social interaction, here, refers to casual and ordinary actions such as socialising, chatting, and mingling on a daily basis as well as more meaningful actions such as helping, supporting, and grouping. Sense of belonging as one of the elements to bridge an individual and the society, is generated through, and strengthened by these network ties and active interaction. Social capital and belonging, therefore, share this foundation of social network and participation as their key components.

From the social capital point of view, it is constructed on the macro level such as civil society, and seeks for a collective good through civic virtue such as members' mutual

understanding of good society, and voluntary actions formally as well as informally. Its main components are trust, social network, and participation, of which certain spheres conceptually overlap with sense of belonging. On the operational level, social capital can be approached through trust in others and institutions, various forms of interactions between people including socialising, grouping, volunteering, and civic actions in that society. Sense of belonging, in this context, shares social interactions with social capital, despite its own separate character.

In the wider context, both belonging and social capital are umbrella terms which include related concepts such as social support, neighbourhood attachment, shared norms and values, community involvement, and cultural and environmental surroundings. In addition, they are significantly related with, contribute to, and influence life satisfaction.

Measurement discussion

In the debates about measurement, a few attempts have been made to apply sense of belonging for understanding social capital. Since there is limited research which has fully investigated belonging as such, similar words such as attachment (neighbourhood attachment, place attachment) were also searched.

As shown in the table in Appendix 1, Wellman and his colleagues consider sense of belonging to be quite an important element for generating social capital (Wellman et al., 2001; Wellman and Frank, 2001). They argue that sense of belonging comes from social interactions between people, and influence their participation in the community. Similarly, Zúñiga and other researchers (2012) use belonging as a key indicator to understand community activity.

Instead of adopting the concept of sense of belonging directly, some research uses neighbourhood or place attachment, for instance, Paxton (1999) and Li et al. (2003, 2005). Paxton (1999) develops her own measurement tool with three indicators: membership, socialising with neighbours, and friends. Similarly, Wollebaek and Selle (2002) focus social network as one of three elements of social capital, of which the items are described as neighbours, colleagues, and friends. Li and his colleagues (2003, 2005) understand

neighbourhood attachment as weak ties, which features in a question about sense of belonging to that area.

Since the definition from the OECD set the social network more broadly in terms of family, neighbourhoods, and workplaces (Cote and Healy, 2001), there has been a trend to include neighbourhood attachment as one of the main domains of social capital measurement in the UK. In the Office for National Statistics (ONS) research, neighbourhood attachment is used in a question to measure social support available from social network as well as perceptions of the local area. Many studies have followed the ONS guidelines (e.g. Fahmy's work on neighbourhood trust, and neighbourhood support, 2006).

This trend, to define sense of belonging as a feeling generated by social interaction within close ties, or place attachment, can be found in more recent research, too. For instance, Paiva and the colleagues (2014) develop a social capital questionnaire for adolescent students, which includes a number of questions about social networks, cohesion, and sense of belonging in one category. Mata and Pendakur's research (2014) to explore the relationship between social capital and reciprocal help in neighbourhoods in Canada applies sense of belonging as a fourth element after trust, social interaction, and participation.

The attempt to measure social capital within more tangible and visible boundaries such as neighbourhood and geographic location results in the recent development of the concept of neighbourhood social capital. Closely linked to community belonging, research connecting neighbourhood social capital can be found in studies of wellbeing and neighbourhood social capital in New Zealand (Aminzadeh et al., 2013), individual health and neighbourhood social capital from the Dutch survey (Mohnen et al., 2015), and neighbourhood social capital and individual' behaviour (Nast and Blockland, 2013).

Although this term, 'neighbourhood social capital' helps to articulate a complicated, abstract, and versatile notion of social capital, it raises the question of where the boundary lies. Can social capital be measured on the regional level? If one approaches social capital on the frame of localities or neighbourhood, can national social capital simply be the aggregation of these measures? Is it a valid approach to measuring social capital? Collective social capital theorists see social capital operating on the macro level as civil society, and as a civic virtue. Therefore, empirical research to measure social capital dominantly occurs on the macro level such as the nation, as conducted by the World Bank, OECD, and the Legatum Index.

In contrast with researchers who are mainly interested in social capital but include belonging, there is little research on belonging which includes social capital. This lack of research might be because researchers who give top priority to individual feelings of belonging have little or no reason to give attention to the wider and different debates about social capital. For example, one of the key elements of social capital, civic participation, seems to be remote from the territory of individuals' emotion.

Nevertheless, several studies focusing on the relationship between social capital and sense of belonging have been found, especially in health and psychology research, centring around the concept of *community belonging*, or *sense of community*. Pooley and her colleagues (2005) examine if sense of community can inform social capital by analysing existing qualitative and quantitative research on the communities in Australia. Based on McMillian and Chavis's (1986) definition of sense of community, they examine four case studies to find how the data meets four categories of sense of community (e.g. membership, influence, emotional connection, and integration and fulfilment of needs) as well as social capital (2005: 74). They conclude that individuals' sense of community is significantly associated with social capital in the community and can, therefore, be employed as a useful indicator for social capital.

Although their approach to community belonging is straightforward, their perspective on social capital seems questionable, due to their definition. They claim three main domains of social capital, which are relationships, networks and competencies (2005: 73). However, when it comes to the details, the range of social capital suddenly becomes wide. Each domain refers respectively to sub-items such as individual and group relationships; trust, reciprocity, structure, density, and group membership; and individuals' adjustments to the community. The explanation of the definition seems familiar, since most of them are already included for sense of community. Therefore, it is difficult to distinguish the conceptual boundaries between social capital and community belonging in this context. This research reveals that the operational definition of social capital for measurement turns out to be one of the critical unresolved questions.

Carpiano and colleagues (2011, 2014) publish a series of social capital research studies in health, related to other factors such as community belonging, and trust. Carpiano and Hystad (2011) explore the relationship between sense of community and social capital in health, by investigating various aspects of social capital separately. They adopt the general assumption

in health research that community belonging is part of social capital, often used as an indicator for social capital.

In their research, the definition of social capital consists of *general social capital* and *geographically bounded social capital* (2011: 606). The former, general social capital, is comprised of two parts: individual social capital and group membership. This element derives from an individual social capital perspective, and they adopt the measurement tool of the position generator, which was invented and applied by individual social capital theorists. The remaining elements could imply a wide spectrum from personal social ties and support to collective perspectives such as social and civic participation. They find that community belonging is significantly related only to neighbourhood social capital, not network social capital. In similar research, Carpiano and Fitterer (2014) find that generalised trust is also related to that part of social capital, and less likely to be associated with network-based social capital.

Carpiano and his colleagues' research reveals the importance of the conceptual boundaries of social capital. When an inappropriate boundary applies (e.g. networks as personal resources from the individual social capital perspective), it is difficult to connect social capital and sense of community belonging. Social capital in that context does not share the same definition of sense of community with research on belonging. When the conceptual boundary is expanded too far, it loses its character and social capital becomes meaningless and purposeless, since it cannot capture relevant social phenomena. For this reason Carpiano and colleagues (2011) suggest that individual and collective social capital should be approached in separate ways.

The discussion of concepts and measurement leaves a dilemma. When social capital is defined in a more simplified ways, such as social interactions within a local neighbourhood or community, researchers tend to focus narrowly on the network side of social capital, ignoring the key role of a collective platform for the civil society. On the other hand, when social capital is stretched too widely, without justification, it serves as an imprecise metaphor or symbol with only a weak capacity to explain empirical phenomena. Next, the final section of this chapter will explain how this thesis faces this dilemma, by emphasising the relation between belonging and social capital within a multi-disciplinary perspective.

4.6 Introducing belonging as an indicator for social capital

The literature review of theoretical and empirical discussions about social capital and sense of belonging have pointed to a research gap; there is the lack of research which explores the relationship between two concepts, taking into account their independence and complexity. The aim of the three chapters in this thesis has been to argue that, conceptually, sense of belonging and social capital overlap; especially in terms of social networks and participation.

This thesis started from the doubt whether social capital is amenable to measurement, despite its importance. Three chapters of literature review suggests that there is little or no consensus of the definition, measurement, and findings of research on social capital. This thesis argues that social capital should be regarded primarily as a metaphor, not a measurement tool, agreeing with Morrow's (1999) point.

Social capital is an abstract, notional, difficult and complex concept, most often understood on the macro-structural level (e.g. civil society at the national level). In contrast, sense of belonging originates as a concept of individual feelings, which though subjective, is relatively more tangible and measurable. Social capital works primarily as a metaphor, whereas sense of belonging is more applicable within the boundaries of communities or institutions.

In the educational context, studying sense of belonging and social capital as an institutional agenda is conceptually under-theorised and empirically under-researched. There is little research in higher education which analyses students' sense of belonging to their institutions or interprets social capital with either psychological or sociological approaches.

For this thesis, exploring students' sense of belonging in higher education, instead of general belonging, has a distinct advantage; the explicit boundary. This boundary can operate in three dimensions: geographical, cultural, and organisational. The physical boundary defined by the chosen institution (e.g. Bangor University) is applied, as a geographical location. The cultural boundary based on the natural environment and geographic location is one of the crucial factors to belonging. For instance, this cultural element can be expressed in various forms such as Bangor locality, Welsh culture, history, and heritage. As argued by many sociologists above, these factors tend to determine a degree of attachment (e.g. neighbourhood, spaces and surroundings). Lastly, the organisational boundary implies the distinctive characters and atmospheres of each institution. This particular feature is considered to be influential for organisational membership and participants' identities. The boundary of 'the university' is

methodologically useful to clarify and access members of that institution, which is the population for the data collection.

Theoretical and empirical literature review on social capital leads to the conclusion that developing the conceptual framework with selected component parts is an essential step in measuring social capital. The research literature also reveals that the different definition of researchers results in the variance of the measurement framework. There is often a noticeable gap between what is claimed to measure, and what actually is measured in the research. The different measurement of social capital turns out to be a broad range of results, even between researchers who apply the same theoretical perspective, as shown in the collective social capital theory in this chapter.

Sense of belonging refers to a feeling of being connected and related to others, groups, or organisations, which bridges an individual and the society. The literature discussed above highlights the fact that belonging and social capital are significantly associated, especially through social networks and participation. There is also evidence that belonging and social capital have their own independent spheres such as psychological feelings of connectedness, trust in people and institutions, and civic participation.

This thesis, therefore, will examine whether sense of belonging can be used as a simple but effective indicator for social capital, by exploring how belonging is associated with social capital. This thesis establishes that three main components of social capital are trust, social networks, and participation. The elements of belonging will be analysed and compared with the main components of social capital, focusing on the overlapping concepts of social networks and participation.

Chapter 5. Methodology

5.1 Introduction

This chapter explains the design of the empirical research, the data collection procedures, data analysis methods and the relationship between the thesis and the research carried out for the Student's Sense of Belonging to Bangor University survey. It describes the background, objectives, and design of this self-completion survey and the development of the 10 Words Question. Using this data, the analytic strategy is to explore how sense of belonging is related to social capital, focusing on networks and participation as the theoretical linkage between them, as explained in the previous chapters. The research also investigates whether sense of belonging can be used as an indicator for measuring social capital.

5.2 Students' Sense of Belonging to Bangor University Research in 2014

Backgrounds

The Students' Sense of Belonging to Bangor University Research carried out in 2014 (the Bangor research) was a response to the What Works? Student Retention & Success programme 2008-2011 (the What Works programme), co-funded by The Paul Hamlyn Foundation (PHF) and the Higher Education Council for England (HEFCE). As explained in literature review, the What Works programme aims to investigate the evidence of effective practices for higher completion rates. It combines 7 independent research projects, and its findings are synthetically summarised in the final report written by Thomas (2012).

The What Works programme influenced the Bangor research in many ways, conceptually and methodologically. As discussed in literature review, a broad range of theoretical and empirical research in higher education used for background in the What Works programme, was used to inform the Bangor research. Findings from the What Works programme act as a stepping stone to research questions addressed in this thesis as well as the research design, survey questionnaire items, and data collection.

Firstly, the majority of What Works research projects applied mixed methods: usually combining quantitative (e.g. survey questionnaires) and qualitative studies (e.g. interviews, focus groups), as summarised in the table in Appendix 2. The Bangor research also used mixed methods: the survey questionnaire and the 10 Words Question. Other survey questionnaires used for the What Works programme were selectively adapted for the Bangor research. The detailed procedure will be fully described later in this chapter.

While the What Works programme inspired the data collection strategy for the Bangor research, there are some differences, for example, in overall response rates. Some projects were very low (between 4-19%), while the Sunderland University (Project 7) had a relatively high response rate (e.g. 57% from In-class voting). The Bangor research adopted the same strategy of collecting data in the class room.

Research aims

Despite the importance of understanding students' sense of belonging, no previous research had been undertaken on this subject in Bangor University. The first aim of this project was to understand the current status of students' sense of belonging, and the influential factors in academic and social engagement. Since this project heavily relied on the What Works programme, it intended to examine whether the findings from the existing research were applicable to Bangor University, by designing a survey questionnaire with relevant items.

In the second phase, there was another research objective for this thesis: to explore the relationship between sense of belonging and social capital. Unlike the What Works programme which focused on students' sense of belonging in the UK, the Bangor research contained this second research objective to examine the possibility of using belonging as an indicator for social capital. In order to investigate the association, the questionnaire included some key questions related to social capital, trust and civic participation. Yet the research instrument avoided using explicit terminology of social capital and did not pre-judge the relative importance of sense of belonging.

The Bangor research intended to contribute to the evidence-based enhancements of students' life as well as university policy in higher education. It was financially supported by Bangor University's Widening Access Fund. The research findings were presented to Bangor

University Senate in June 2014, and were disseminated via academic papers including this thesis (e.g. the Asia-Pacific Conference 2016; the British Sociological Association (BSA) Conference 2016; the Wales Institute of Social and Economic Research, Data & Methods (WISERD) conference 2016; the British Educational Research Association (BERA) conference 2016; the Wales Institute of Social and Economic Research, Data & Methods (WISERD) conference 2014).

5.3 Research design

Mixed Methods research

In order to provide complete and holistic views, mixed methods research is applied in this research. Quantitative research is more effective to examine researchers' points of views on the specific research topics by applying structured methods, while qualitative research can lead to exploring participants' own feelings and thoughts through rich and deep data (Bryman 2008). This study collected two types of data by applying two different methods and perspectives to capture and explore the current status of students' belonging. Further reflections on the methodology will follow later in Chapter 10.

First, the survey questionnaire was designed with 34 questions to measure participants' opinions about sense of belonging, academic and social engagement, social capital, leaving the university, and demographic information. Secondly, a new survey method was developed for this thesis; the 10 Words Question. This instrument uses a single open-ended question to invite participants to write down up to 10 words when they think about their sense of belonging to Bangor University. In the planning stage of the Bangor research, other qualitative methods of data collection such as focus groups, or in-depth interviews were also considered. The 10 Words Question was developed to maximise its effectiveness in terms of the cost and time, due to the limited funding available. All the documents of the Students' Sense of Belonging to Bangor University Research in 2014 including the survey questionnaire, the 10 Words Question and the ethical approval letter can be found in Appendix 3.

It was planned to compare the data from the current research with large scale data from the General Household Survey, the Millennium Cohort Study, the English Longitudinal Study of

Aging, the Citizenship Survey, the European Social Survey, or the World Values Survey. However, there are not sufficient variables to capture the main components of social capital for this thesis in these large scale data sets on the national and worldwide levels. Although the Add Health data (the National Longitudinal Study of Adolescent Health) from the USA contained all the relevant variables to understand social capital, the data was collected at the different waves over the period between 1994 and 2008. It was doubtful whether comparative study with the American data, which started in 1994, more than 20 years ago, would lead to meaningful results. As briefly mentioned in Chapter 1, the details of the large scale survey data including its elements for social capital for this thesis, can be found in Appendix 4.

Survey questionnaire

The survey questionnaire was designed to collect data on both sense of belonging and social capital, setting the measurement of students' belonging as the primary object. Firstly, the survey questionnaire includes two aspects of students' belonging in higher education, since belonging is known to be related to both academic and social engagement. Items on academic engagement have a straightforward, standardised format, adapted from existing questionnaires in higher education. Social engagement questions are addressed in the university and more general contexts. The university context refers to various daily activities, including expressive actions, which are typically found in higher education surveys. The general context is developed from a sociological perspective, referring to participants' social participation outside of the university. There are direct questions about participants' sense of belonging to their institutions, to measure their psychological memberships. Lastly, life satisfaction is itemised, since it is one of the most crucial factors to understand belonging and social capital. Most questions are not original but are adapted from questionnaire sets which have been developed for other similar research and are publically accessible.

In detail, the questionnaire consists of 34 questions in five sections; General Questions, Academic Engagement, Social Engagement, Leaving University, and Demographic Information.

Section 1. General Questions include two questions: belonging to Bangor University (Question 1) and to the participant's own academic school (Question 2). There are two reasons to ask about belonging on the university and school levels. First, unlike social capital,

it is possible to refine the boundary of belonging, and measure it accordingly. Belonging to academic schools is assumed to be distinguishable from belonging to university, since the university is a larger entity that is superior to individual schools. Measuring belonging on the separate levels makes it possible to explore the differences and similarities between them, including associations with other variables.

Section 2. Academic Engagement contains ten questions. The first four questions are structurally similar, asking when a participant has a problem, how likely he or she is to talk to: a lecturer (Question 3); a personal tutor (Question 4); a school administrator (Question 5); or fellow students (Question 6). The next six questions are related to students' expectations and opinions in the academic environment. Two questions ask about their expectations concerning courses (Question 7) and assessments (Question 9). Two further questions refer to participants' opinions about academic degrees for future goals (Question 8), and support from their fellow students (Question 10). The last two questions check whether students have any experience of working with others (Question 11) and whether they have discussed academic development with personal tutors (Question 12).

Questions in this section are developed to examine how strongly academic factors are related to sense of belonging. The previous What Works programme, for instance, revealed that the crucial factors are relationships with academic and administrative staff; interaction with fellow students and support; learning experiences; and curricular and assessments (Thomas, 2012). The academic questions for the Bangor research are mainly adopted from the 'HERE project 2009' and '2011 Student Transition Questionnaire by Nottingham Trent University' (Project 5 of the What Works programme), the 'University Life Questionnaire from Leicester University' (Project 3), the 'Survey at Reading university' (Project 6), and the 'Sample Research Instrument Questionnaire from Newcastle University' (Project 7).

Section 3. Social Engagement consists of three topics: life satisfaction, social participation and network, and social capital. First, between Question 13 and 15, participants are asked about their well-being in relation to three different items; 'life satisfaction as a student', 'enjoyable social life as a student', and 'general life satisfaction'. Given the importance of well-being, it is measured on the student, personal, and social levels.

Next, Question 17, 18, and 19 are arranged to understand participants' participation as well as social network. As revealed in the literature review, participation is divided into social and

civic participation based on the degree of formality and purposes of the activities. Social participation occurs casually and informally as a private pursuit; whereas, civic participation is often targeted towards collective goals. In order to examine students' levels of participation in these various social and civic activities, Question 17 includes 20 sub-items such as socialising (visit the pub, nightclubs, friends' homes and halls), leisure activities (SNS, visit the gym, play a sport, play games, watch TV, read, hobbies), and voluntary organisations (unpaid volunteer work, a business, professional or farmers organisation, trade union, an organisation for humanitarian aid, human rights, minorities or immigrants, an organisation for environmental protection, political party, and religious or church organisation). Two sub-items (Clubs or Societies at university, and Students' Union) were selected to meet the Widening Access Funding requirement.

The European Social Survey Round 1 and the HERE project 2011 Student Transition Questionnaire by Nottingham Trent University inspire the selection of sub-items. Frequency of participation is used in many survey questionnaires including the European Social Survey (Round 1 and 3), the Youth Cohort Study and Longitudinal Study of Young People in England 2010, the Home Office Citizenship Survey – 2001, and the National Longitudinal Study of Adolescent to Adult Health 2002. In the questionnaire for the Bangor research, frequency is measured on a 6 point Likert scale with a range of 'more than once a day, daily, weekly, monthly, less than once a month, and not applicable', as applied in the European Social Survey. The question is added as a sub category of asking whether participation occurs with personal friends or not, following the format of the European Social Survey Round 3 (Question E1-12 b).

As discussed in the literature review, measurement items such as frequency and a size are widely used to examine a person's social networks (e.g. Prell (2006), the Add Health study). Question 18 includes three sub-items, asking about frequency of social interaction with friends, relatives, and colleagues in the past 12 months. Question 19 asks the more direct question about the number of close friends, as the Add Health survey did. Similarly, the Nottingham Trent University questionnaire from What works programme formulated the question as 'making numbers of good friends since starting University'.

Lastly, questions related to social capital are found in Questions 16 and 17. Measuring participants' level of generalised trust is itemised as 'I can trust most people', which has been used previously in other research (e.g. the Understanding Society Survey). This question was

originally formulated by Rosenberg in 1956, and has been widely applied (Paxton, 1999). As explained above, civic participation questions are arranged as sub-items of Question 17.

Section 4: There are two questions about leaving University: one collects data on students' retention at university; the other asks how strongly participants have considered to leave university (Question 20); when (Question 21a & 21b); and why (Question 21c).

Lastly, in Section 5 the survey collects demographic information, including age, gender, ethnicity, nationality, student national status, and disability. Other variables include the academic school, level of study, study status, types of accommodation, distance to the university, cohabitants, and whether the participant is a Bangor Bursary recipient. Most questions are standardised and are often found in other student surveys (e.g. the HERE project 2011 Student Transition Questionnaire by Nottingham Trent University).

There are two advantages to using questions that have been asked in previous surveys: efficiency and comparability. First, since questions are already tested for their validity and reliability, they are selectively adopted for the purpose of this research. In addition, the results of this research can be used for the comparative study with other research, in order to explore the similarities and contrasts. Further discussion of this topic will be found in Chapter 10.

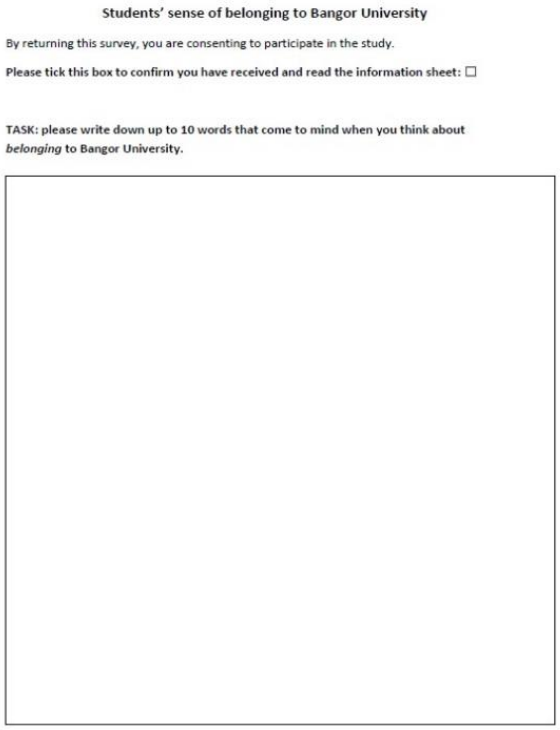
Some questions are measured on a 5 point Likert scale, such as all questions in General Questions and Academic Engagements sections, and some in Social Engagements section (Question 1 – Question 16). In this scale, participants can express their opinions based on 5 points from 'Strongly Disagree (1)' to 'Strongly Agree (5)'. For other questions (Question 17, 18, and 20), a 6 point Likert scale between 'More than once a day' and 'Never' is applied, since they are more effective to measure frequency.

Development of the 10 Words Question

The 10 Words Question consists of one short open-ended question asking participants to write down up to 10 words about anything that comes to mind when they think about belonging to Bangor University. The format of the survey is a single A4 sheet with a survey

title, a consent box, an instruction, and an empty box to write their response; as shown in Figure1, the response box takes up more than 70% of the space.

Figure 5.1 The 10 Words Question



A crucial part of this data collection technique is to keep participants' mind free from any prejudice, stereotypes, or preconceptions, so the instruction is written in a short, clear, and simple way. In addition, when the survey was administrated, the researcher gave essential instructions to participants without mentioning any examples. Since this instrument is relatively flexible, without explicit restrictions or rules, participants seem to be able to freely express their opinions, emotion, and thoughts. It is designed to encourage participants to willingly take part in the research, and to actively describe their thoughts.

This 10 Words Question was developed specifically for the Bangor research to explore students' sense of belonging. At the research planning stage, various types of qualitative research strategies were considered, including mind mapping, concept mapping, focus group interviews, biographical interviews, observation, and essays. Considering the purpose as well as practicality of this research, mapping techniques seemed to be the most useful and

appropriate method to collect students' own idea of sense of belonging to Bangor University in the early stage of the research.

Mapping techniques were originally developed and used as tools to help students' learning (Davies, 2011). They stimulate visual aspects of knowledge building, often by applying certain structures (e.g. hierarches or trees in the case of concept maps), or sets of diagrams in the case of mind maps. Using graphic tools such as boxes, arrows, lines and colours is one of the distinctive methods designed to internalise knowledge and information, and arrange them in one's own way (Novak and Cañas, 2006).

However, the fact that mapping techniques are designed for learning activities suggested a potential problems. For instance, they may function as a barrier to participants' free expression. When participants are asked to use a certain format (e.g. drawing a set of diagrams), the method may constrain them to follow that format in their thinking. For example, the format of boxes linked with lines might give them the impression that the words in their mind about sense of belonging should be connected in some way, rather than being completely independent and separated from other words. One person can describe sense of belonging with words such as friends, sports, membership, lectures, and workshops; while another may come up with various unrelated images such as the Menai Strait, the Main Art building, seagulls, double decker buses, text books, and the kitchen; or another might decide to write down a brief essay about how they feel about Bangor University.

The 10 Words Question allows participants to express themselves in such a free way that it is difficult to guess how responses will appear. In an informal, quick pilot study with a small group of people outside of Bangor University before the Bangor research, they tended to write down one or more words, assuming that it was the instruction. However, there were other examples such as using bullet points or numbers, writing phrases or sentences, and grouping words into categories. Since it is participants' own way to show themselves, this method is regarded to be able to capture not only *what participants think* but also *how they express their thoughts*. The advantages of the 10 Words Question from a methodological perspective will be followed up in Chapter 10.

Some of the common methodological critiques of qualitative research methods have to do with issues of sample size, transparency or consistency (Savage et al., 2005). Although qualitative methods are effective for collecting rich and deep discursive data, it is often

difficult to recruit participants, compared with quantitative research. The 10 Words Question is convenient from the point of view of recruitment because it is simple, short and efficient. In addition, the format of the data makes it amenable to analysis, compared with most types of qualitative data (e.g. essays, dialogues, interviews, observation).

In the debate on the reliability and validity of qualitative research, some researchers argue that the reality of social relations is too unique to be generalised. Bryman (2008) introduces an alternative criterion to check reliability and validity, namely trustworthiness, which stems from Lincoln and Guba (1985). This concept consists of credibility, transferability, dependability, and confirmability, which refers to internal validity, external validity, reliability, and objectivity in quantitative research. Credibility can be achieved by applying multiple methods or data sources for cross-checking, while researchers should thoroughly explain the research context. Dependability is related to researchers' responsibility to record every change happening in the setting and research process, whereas confirmability stands for researchers' attempts to confirm and reinforce their findings by others researches. The full discussion about the strengths and weaknesses of this research is contained in the methodological discussion in Chapter 10.

Purposive sampling

The total size of the population was the number of undergraduate and postgraduate students registered at Bangor University. According to the Higher Education Statistics Agency (HESA), 10,016 students were officially registered in 2013-2014. Out of a total 23 schools, 4 entities were excluded, namely Lifelong Learning, ELCOS (the English Language Centre for Overseas Students), IMSCAR (Institute of Medical and Social Care Research), and the Business School London Campus, and School of Humanities[2], which left a total 9,772 students in 19 academic schools. The population was spread unevenly over academic schools; from 45 students in the School of Philosophy and Religious Studies, up to 1,257 students of School of Psychology. More than 75% of the total population was undergraduate students. Assuming a response rate of 50%, a sample size of 800 participants was required with margin of error of 5% and a confidence level of 95%.

[2] There was no undergraduate student in School of Humanities, and the total number of students was 2.

A non-random sampling strategy was applied to recruit a purposive maximum-variation sample of students from the schools within the university. In order to understand relationships between students' sense of belonging and their retention, one of the aims of this research is to examine whether there is any hidden population whose members tend to feel less connected and more isolated. These students may be less likely to be engaged academically as well as socially, due to circumstances such as joining university at a more mature age, having financial difficulties, carrying various external responsibilities, and experiencing cultural or language barriers, as discussed in the literature review chapter.

For this research, four categories were selected, which could create barriers for some students in building sense of belonging: age, finance, language, and cultural differences. Mature students are defined by the Higher Education Statistics Agency as any students aged 21 or over when they joined the university. In order to screen students who might have financial difficulties, the indicator of a Bangor Bursary, the school bursary to support Widening Access, was used. Students who were entitled to receive this bursary were full-time undergraduates with a household income below £40,000[3]. Students with various cultural or language backgrounds were identified in two ways: those from outside of the UK/EU (international students) and those from inside the UK (Welsh medium students). As a result, the sample was able to include mature students, Widening Access students, international (non- EU) students, and Welsh medium students.

This purposive maximum-variation sampling strategy is effective to capture a certain facet of social phenomena, and the sample is carefully designed to include important variations (Patton, 1990). However, it may lead to difficulties in generalisation, since it is non-random and may over-represent categories.

In-lecture recruitment

An Excel spread sheet containing student data by academic schools was provided by the University Academic Registry. Considering numbers of students within the four categories, the sample units were selected based on a group of students in one academic year in each academic school. For example, one of the sample units was the first year students in School

[3] http://www.bangor.ac.uk/studentfinance/info/bangorbursary.php.en

of Social Sciences, and the total number of this sample unit was 162. For postgraduate students, sample units were simply defined as Master or PhD.

Based on the map of sample units, a recruiting procedure occurred, in this order: identifying modules which contained as many students as possible from the sample unit; contacting lecturers who led those modules, asking for their cooperation for the research; and negotiating to visit the available lecture to recruit participants and to conduct the survey.

This in-lecture recruitment strategy was applied in order to maximise response rates. As discussed earlier, according to the reference literature (What works final report), most survey projects showed low response rates of under 20% when data was collected from participants directly, except for two projects: online surveys of recipients of interventions (82%, 35%), and In-class voting (57%)[4].

5.4 Procedure

Data collection

Two forms of self-completion survey were conducted in Bangor University, between the 17th March and the 2nd May 2014. This period included Easter holiday breaks between the 7th and the 27th April; therefore research data was collected during 4 weeks excluding the academic holidays.

The data was collected in the class room during the timetabled lecture. At the beginning of the lecture, the researcher verbally explained the purpose, procedures, and methods, while handing out the written forms including a survey response sheet, and information sheet with consent (see Appendix 3. for copies of these documents). The in-lecture strategy made it possible to collect the data from nearly all students who attended that lecture. Students who did not participate were automatically not counted, therefore a precise response rate for this research was not available.

The 15 classes for the 10 Words Question, and 18 classes for the survey questionnaires were visited. The details of the modules are summarised in the data analysis results (Chapter 6 and

[4] See Table 1: Survey responses across the projects, Thomas (2012: 9)

7). There were many difficulties in collecting data from research students such as masters and PhDs, since there was no lecture for some postgraduate students to attend. Besides each academic school has geographically allocated research students to different locations, and individual PhD students prefer different work times and places. In order to collect data, postgraduate research offices for academic schools were visited separately.

One of the critical factors in the recruiting process was to get lecturers to respond and cooperate in order to access samples. A few lecturers did not respond at all, while one lecturer declined to invite the researcher, due to the time length for the survey.

Ethical considerations

The research was designed to comply with appropriate ethical guidelines and procedures for research involving the collection of data through interaction with human subjects. The ethical issues are related to handling the participants' personal information, maintaining the integrity of the research, and being clear about the researchers' accountability and responsibilities (Creswell, 2014; Israel and Hay, 2006).

Participants were undergraduate and postgraduate students in Bangor University, all over 18 years of age. This research does not target any vulnerable groups of people. Both 10 Words Question and survey questionnaires contain no ethically problematic questions or particularly sensitive topics, which might cause participants emotional discomfort, or bring them any harm. In the survey questionnaire, there are questions of general demographic information such as age, gender, academic schools, ethnicity, nationality, disability, and receiving a Bangor Bursary. Any data which might directly or indirectly include this personal information is treated and analysed anonymously. Before starting data collection, ethical permission was granted by the College of Business, Law, Education and Social Sciences (CBLESS) Ethics Committee.

At the recruitment stage in the lecture room, the ethical conditions for the research were clearly explained to participants. Taking part in the survey was completely voluntary and on the understanding that the data would be held in strict confidence. The data was anonymously analysed and stored according to the university policy. Accessing to the data was allowed only to the researcher, as stated in the information sheet.

Participants were given the information sheet, and their consent was gained by completing and returning the survey questionnaire. Participants in the lecture room could decide not to take part, and to withdraw it any time during the data collection. The completed questionnaires and agreement to participate in further research were collected in separate containers.

Once the data was entered onto the database, the original forms were treated as a confidential waste and destroyed following standard University procedures. The data was stored on a secure, encrypted and password protected University server.

5.5 Data analysis plan

The research consists of two parallel, related studies, which are largely independent in terms of the sampling, data collection, and data analysis. The design calls for different types of data analysis both quantitative (the survey questionnaire) and qualitative (the 10 Words Question), hence the analysis will be performed independently, before the results are compared to see how far they correspond or support each other.

Questionnaire

The statistical analysis will be conducted on two stages: belonging and social capital analysis. At the first stage of belonging analysis, the prime focus will be students' sense of belonging in higher education, and the whole data will be analysed as it is. Multiple analysis methods will be applied, including descriptive analysis, correlation analysis, and comparing means using appropriate statistical tests.

Specifically, the entire data will be examined descriptively to understand how participants respond regarding various aspects of belonging. Then the correlation analysis will investigate whether there are any significant associations between these variables, including the strengths and directions of them. This stage is crucial, since it explores how variables are associated with each other, but also it will lead to the selection of main variables for the next analytic stage. The correlation analysis results will be presented as a correlation network map, using a visualisation programme.

The main variables, which are selected based on their associations, will be compared by using appropriate statistical methods (e.g. the Wilcoxon signed-rank test, the Mann-Whitney test, further details in Chapter 6). This analysis will help to understand whether there is any significant between certain groups. For instance, it can examine whether sense of belonging to the university is different from belonging to academic schools or not.

The focus of the analysis will then shift to social capital at the second stage. The research objective of this thesis is to explore how social capital and sense of belonging are related by investigating the concepts of social capital and belonging. In order to understand how trust, networks, participation, belonging, and life satisfaction are connected and influenced, the key variables will be selected accordingly, and examined by appropriate statistical methods.

10 Words Question

The 10 Words data will be analysed in two ways, to reflect belonging and social capital respectively. The whole data will be coded, and investigated by applying multiple methods including descriptive analysis, thematic analysis, content analysis, and contingency analysis. The descriptive and thematic analysis make it possible to uncover what students think about their belonging to the university in their own words and expressions. The systematic coding results will be visually summarised, by applying a visualisation software programme. Analytic procedures will reveal if there are main domains of students' belonging by grouping similar themes together. Lastly, contingency analysis will be conducted to explore the interrelationships between these main domains.

In the second social capital analysis part, the data will be investigated conceptually as well as statistically; to see whether and how the data of belonging can inform social capital. The literature review of this thesis establishes that belonging and social capital are quite closely related through their overlapping concepts. Firstly, the 10 Words data will be explored to see how it can be fitted into the conceptual framework of social capital. Secondly, the data will be examined statistically to show the relatedness of belonging and social capital.

Since the 10 Words Question is a newly developed method, the analytic procedure is being designed and executed for the first time. In order to show its reliability and validity, the entire analysis procedure is presented and explained in full detail.

Merging the data

The results of the survey questionnaire and the 10 Words Question will be studied comparatively. Although participants for both researches were recruited from the same population, it is impossible to confirm that they are identical, thus the data from the questionnaire and 10 Words Question cannot be directly merged. The investigation will focus on the similarities and differences in the findings from both sets of data, and aim to integrate them into a wider and general context later in the discussion chapter (Chapter 9).

5.6 Summary

This chapter has described the methodology used in this study, in terms of the institutional context of the research, its objectives, design, data collection procedures, and data analysis plans. Since the data consists of the survey questionnaire and the 10 Words Question, the results will be analysed separately for the next three chapters as follows: the questionnaire analysis (Chapter 6), the 10 Words analysis for sense of belonging (Chapter 7) and for social capital (Chapter 8). The reason for this breakdown of chapters is that the newly developed 10 Words Question called for a more complicated and thorough analytic procedure than the more conventional questionnaire survey.

Chapter 6. Questionnaire analysis results

6.1 Introduction

The main purpose of the questionnaire was to understand the current situation of students' sense of belonging in higher education. It was designed to explore how the main factors of belonging, namely academic and social engagement, and thoughts of leaving university were related to each other. Components of social capital including trust and civic participation were added to investigate whether belonging could inform social capital at the later stage of analysis.

The questionnaire data was analysed in two stages; belonging analysis and social capital analysis. The focus at the first stage was to study all the variables and analyse their associations, using descriptive analysis, correlation analysis, and further statistical tests.

At the second stage, the data analysis centered on the relation between variables of belonging and social capital. For the next step, the data was divided into pairs of sub-groups on the basis of social capital variables to investigate whether they led to significant differences.

6.2 Data preparation

Data input, screening and cleaning

The data from the survey questionnaire was saved in Excel format, then converted into the Statistical Package for the Social Sciences (SPSS) for analysis, since SPSS is one of the most popular, accessible and efficient software packages for data analysis in social sciences.

Data screening and cleaning was performed. Since missing values were typically small, and non-random, they were regarded as missing data without further treatments. Most variables were measured on a 5 or 6 point Likert scales, or as the nominal data, except for two variables, Question 19 (Number of close friends) and Question 23 (Age). Regarding Q19, the values of 98.9% data were spread between 0 and 50, while 3 responses were measured as 99, and 1 response was 118. Since they were valid values and meaningful, the data was included for analysis. However, the age variable had an outlier of 3, which was marked as an outlier and excluded for analysis.

6.3 Descriptive statistics

Demographics

Participants' demographic data showed that female students (n= 242, 63.7%) outnumbered male students (n= 130, 34.2%), and the age range of both was between 18 and 53. While the age range of the majority of participants (n= 280, 75%) was between 18 and 22, the rest were scattered evenly. The mature students were defined as age 21 and over, a total of 198 (51.1%).

Regarding academic schools, School of Social Sciences had the highest number of participants (n=76, 20.0%), followed by Psychology (n= 58, 15.3%), Healthcare Sciences (n= 44, 11.6%), and Biological Sciences (n= 30, 7.9%). Most participants were undergraduate (n=344, 90.5%) while others were PhD students (n= 16, 4.2%), and master students (n= 9, 2.4%). Most participants were full-time students (n=362, 95.3%).

The UK students were the majority (n=317, 83.4%), followed by international students (n=33, 8.7%), and EU students (n=13, 3.4%). Many participants declared themselves to be either English (n=163, 42.9%) or Welsh (n=138, 36.3%), while the rest (n= 68, 17.9%) consisted of Scottish, Irish, and others. The distribution of ethnicity also showed that the majority of participants were white-British (n=294, 77.4%), followed by other white background (n=21, 5.5%), and other Asian background (n=10, 2.6%).

Most participants responded No Disabled (n=308, 81.1%), whereas there were a small number of participants with Disabled (n=31, 8.2%), and Not wish to declare (n=19, 5%). The full demographic information is presented in Table 6.1.

The data partially represented the known population of students in Bangor University. Regarding academic schools, for instance, the School of Social Sciences was over-represented (20.0% of the total participants), since it was recorded as 482 (4.9% of the population). Participants who identified themselves as Welsh (36.3%), or undergraduate (90.5%) were also proportionally higher than the population (15.7% as Welsh; 78.2% as undergraduate). On the other hand, mature students (51.1%), and international students (8.7%) were under-represented compared to the population in the academic registry (78.0% as mature; 18.7% as international).

Table 6.1 Participants' demographic information

Variable	n = 380 (%)
Gender	
Female	242 (63.7%)
Male	130 (34.2%)
Age	Range : 18 -53 IQR: 20, 21, 22
Female	M=23.1 SD= 6.887
Male	M=23.4 SD=5.939
Academic school	373(98.2%)
School of Social Sciences	76 (20.0%)
School of Psychology	58 (15.3%)
School of Healthcare Sciences	44 (11.6%)
School of Biological Sciences	30 (7.9%)
School of Education	23 (6.1%)
School of English	19 (5.0%)
Joint degree	19 (5.0%)
School of Computer Sciences	18 (4.7%)
School of Electronic Engineering	14 (3.7%)
School of Creative Studies and Media	14 (3.7%)
School of Ocean Sciences	13 (3.4%)
School of Welsh	9 (2.4%)
Bangor Business School	8 (2.1%)
School of Music	7 (1.8%)
School of Law	7 (1.8%)
School of History, Welsh History and Archaeology	2 (0.5%)
School of Sport, Health and Exercise Sciences	1 (0.3%)
N/A	11 (2.9%)
Level of Study	369 (97.1%)
Undergraduate	344 (90.5%)
Master	9 (2.4%)
PhD	16 (4.2%)
Disability	358 (94.2%)
No	308 (81.1%)
Yes	31 (8.2%)
Not wish to declare	19 (5.0%)
Ethnicity	
White-British	294 (77.4%)
Other White Background	21 (5.5%)
Other Asian Background	10 (2.6%)
Chinese	7 (1.8%)
Black or Black British – African	6 (1.6%)
Mixed-White Black African	4 (1.1%)
Asian or Asian British – Pakistani	2 (0.5%)
White-Irish	2 (0.5%)
Asian or Asian British –Bangladeshi	1 (0.3%)
Other Black Background	1 (0.3%)
Mixed-White Asian	1 (0.3%)
Mixed-White Black Caribbean	1 (0.3%)
Other Ethnic Background	1 (0.3%)
I do not wish to declare	8 (2.1%)
Multiple	7 (1.8%)

(Due to missing data, the sum might not be always 100%)

6.4 Descriptive analysis of main variables

The survey questionnaire consisted of 34 questions in five sections; General Questions, Academic Engagement, Social Engagement, Leaving University, and Demographic Information. All the variables can be categorised into either university or general context. The university context refers to the specific aspects of students' belonging to their institution in higher education (e.g. belonging, some academic engagement, thoughts to leave the university and life satisfaction as a student). The general context includes the items which are not restricted to higher education, and can be applied on the broader level (social engagement, social and civic participation, and life satisfaction). This categorisation is particularly useful for interpreting the boundary of belonging, as addressed in the earlier chapter of measurement and linkage. The full discussion will be developed in Chapter 9.

In this section, the results from the descriptive analysis of the whole range of variables will be presented in sub-sections, with the relevant survey questions.

Sense of belonging

Q1. I belong to Bangor University

Q2. I belong to my academic school

Students' sense of belonging was measured by asking participants to indicate their agreement or not according to a 5 point Likert scale between 'strongly disagree' and 'strongly agree'. The strengths of belonging to the university and academic school were evaluated separately, and are summarised in Table 6.2. Regarding students' sense of belonging to Bangor University, approximately seven out of ten participants (n=262, 68.9%) responded positively (either 'strongly agree' n=143, 37.6% or 'agree' n=119, 31.3%). A slightly higher number of students (n=272, 71.5%) showed positive belonging to their academic schools. For both variables, ten or less percentage of participants responded negatively; either 'disagree' or 'strongly disagree', 35 participants (10.0 %) for Bangor university; 24 participants (6.4 %) for academic schools. The numbers of participants who agreed that they belonged to both Bangor University and academic schools appeared considerably higher than those who disagreed.

Table 6.2 Frequency of Sense of belonging to Bangor University and academic school

	Belonging to University n=	(%)	Belonging to School	
Strongly disagree	4	1.1	4	1.1
Disagree	34	8.9	20	5.3
Neutral	77	20.3	81	21.3
Agree	119	31.3	129	33.9
Strongly agree	143	37.6	143	37.6
Missing	3	0.8	3	0.8

Academic engagement 1.

Q7. My course fits my expectations

Q8. Completing my degree will help me achieve my future goals

Q9. The assessment on my course is what I expected it to be

Q11. I work with other students on course projects or assignments

Variables in Academic engagement were in the university context. However, they can be divided into two groups: one in the teaching and learning context, and the other in the social capital context. First, Academic engagement 1 consisted of four questions which were genuinely related with teaching and learning aspects of higher education. As shown in the results in Table 6.3, students' expectation of their course and assessments (Question 7 and 9) appears similar, with around 70 percent of positive responses (71.3% for course expectation; 67.6% for assessment expectation). According to Question 8, many students (81.9%) believed that a university degree will help them achieve the future goals. Regarding Question 11, many students experience group work on their course 'fairly many times' to 'always' (73.4%), while some had no or not enough chances to work with others ('never' or 'rarely', 26.3%).

Table 6.3 Frequency of academic engagement 1

	Course expectation		Degree for future goals		Assessment expectation		Work with other students*	
	n=	(%)						
Strongly disagree	6	1.6	5	1.3	6	1.6	43	11.3
Disagree	18	4.7	12	3.2	22	5.8	57	15.0
Neutral	85	22.4	52	13.7	95	25.0	97	25.5
Agree	184	48.4	134	35.3	187	49.2	135	35.5
Strongly agree	87	22.9	177	46.6	70	18.4	47	12.4
Missing	0	0.0	0	0.0	0	0.0	1	0.3

(* values of this question were 'never, rarely, fairly many times, very often, always')

Academic engagement 2.

Q3. I can talk to a lecturer if I have a problem

Q4. I can talk to my Personal Tutor if I have a problem

Q5. I can talk to my school administrator if I have a problem

Q6. I can talk to fellow students if I have a problem

Q10. My fellow students are supportive

Q12. I discuss my academic development with my personal tutor

The second group of academic engagement questions concentrates on social interaction and social relations in the academic sphere. According to the sum of positive responses which are described in Table 6.4, many participants feel comfortable to talk to their fellow students (n=328, 86.3%) when they have a problem, and they think fellow students are supportive (n=312, 82.1%). These sums of positive responses were relatively higher than for other variables in this group.

Participants agreed or strongly agreed that when they had a problem, they could talk to a lecturer (n=310, 81.5%), a personal tutor (n= 266, 70.0%), or a school administrator (n=206, 54.4%). In contrast, less than 60% of students (58.9%) report that they discussed academic development with their personal tutors, while around 20 % had no experience at all.

Table 6.4 Frequency of academic engagement 2

	Talk to lecturers		Talk to personal tutors		Talk to school administrators		Talk to fellow students		*Discuss academic development		Supportive fellow students	
	n=	%										
Strongly disagree	2	0.5	18	4.7	22	5.8	6	1.6	75	19.7	5	1.3
Disagree	19	5.0	41	10.8	53	13.9	17	4.5	59	20.8	20	5.3
Neutral	48	12.6	54	14.2	96	25.3	28	7.4	90	23.7	43	11.3
Agree	140	36.8	99	26.1	104	27.6	120	31.6	94	24.7	141	37.1
Strongly agree	170	44.7	167	43.9	102	26.8	208	54.7	40	10.5	171	45.0
Missing	1	0.3	1	0.3	2	0.5	1	0.3	2	0.5	0	0

(* values of this question were ‘never, rarely, fairly many times, very often, always’)

Social engagement

Q17. In the past 12 months, how frequently have you participated in the following activities?

Facebook/ other social network site

Clubs or societies at university

Visit the gym

Play a sport

Visit the pub

Visit nightclubs

Visit friends’ homes/halls

Play games

Watch TV

Read

Hobbies

Students’ Union

Unpaid volunteer work

Q18. How often have you met socially with the following groups of people in the past 12 months?

Friends / relatives / colleagues

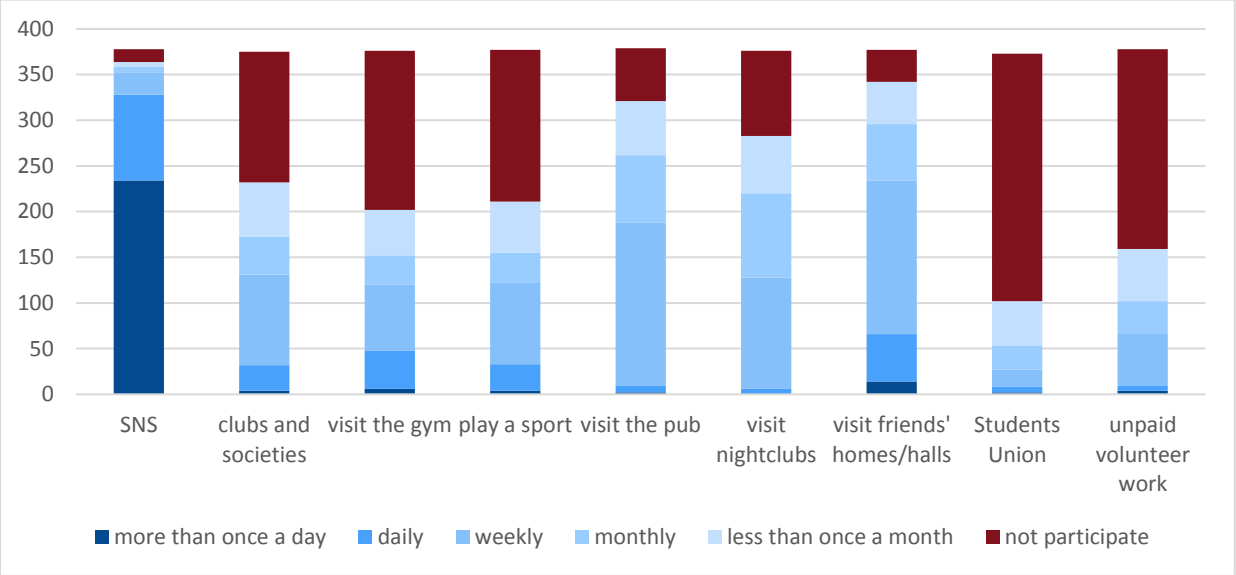
Q19. How many close friends do you have?

Social engagement was addressed via three questions: social participation in various activities, socialising, and close friends. In Question 17, there were 13 sub-items including on-line, university-based, individual, social, and voluntary activities. As described in the table of descriptive analysis results, the most popular activity was Facebook/ SNS because 86.8 percent of participants were using it at least once per day, followed by socialising activities such as Pubs, Nightclubs, and Visiting friends. On the other hand, there was the highest level of no participation (71.3%) in the Student Union (SU), followed by Unpaid volunteer work (57.6%). Overall participation rates for individual activities such as Games, TV, Reading, and Hobbies were higher than some activities such as SU, voluntary work, and sports activities. See Table 6.5 and Figure 6.1.

Table 6.5 Frequency of social engagement

	More than once a day		Daily		Weekly		Monthly		Less than once a month		Not participate	
	n=	%										
SNS	234	61.6	94	24.7	24	6.3	7	1.8	5	1.3	14	3.7
Clubs & societies	4	1.1	28	7.4	99	26.1	42	11.1	59	15.5	143	37.6
Gym	6	1.6	42	11.1	72	18.9	32	8.4	50	13.2	174	45.8
Sport	4	1.1	29	7.6	89	23.4	33	8.7	56	14.7	166	43.7
Pubs	2	0.5	7	1.8	179	47.1	74	19.5	59	15.5	58	15.3
Nightclubs	0	0	6	1.6	122	32.1	92	24.2	63	16.6	93	24.5
Visit friends	14	3.7	52	13.7	168	44.2	62	16.3	46	12.1	35	9.2
Games	25	6.6	58	15.3	97	25.5	57	15.0	58	15.3	80	21.1
TV	67	17.6	173	45.5	73	19.2	15	3.9	18	4.7	31	8.2
Reading	66	17.4	140	36.8	108	28.4	35	9.2	17	4.5	12	3.2
Hobbies	38	10.0	106	27.9	145	38.2	30	7.9	18	4.7	38	10.0
Student union	2	0.5	6	1.6	19	5.0	26	6.8	49	12.9	271	71.3
Volunteer work	4	1.1	5	1.3	58	15.3	35	9.2	57	15.0	219	57.6

Figure 6.1 Frequency of social engagement



The results of Question 18 in Table 6.6 show that participants preferred socialising with friends (71.3%, 'once' or 'more than once a day') than with relatives (21%) or colleagues (27.9%).

Table 6.6 Frequency of socialising with friends, relatives, or colleagues

	More than once a day		Daily		Weekly		Monthly		Less than once a month		Never	
	n=	%										
With friends	131	34.5	140	36.8	78	20.5	15	3.9	11	2.9	2	0.5
With relatives	29	7.6	51	13.4	79	20.8	104	27.4	104	27.4	11	2.9
With colleagues	25	6.6	81	21.3	107	28.2	42	11.1	61	16.1	53	13.9

Lastly, the question asking about the number of close friends (Q 19) was useful for exploring the size of their social networks, and is often found in other large-scale questionnaires including the Add Health study (The National Longitudinal Study of Adolescent to Adult Health) in the United States, or the What Works programme in the UK. The data from 357 participants shows that they have 10 close friends on average (M= 10.2, SD = 11.698). Only 5 participants (1.3 %) responded with no close friend at all. Although the numbers ranged widely from 0 to 118, the majority of participants (75%) had 10 or less close friends. The range suggests that the meaning of 'close friends' might be understood differently.

This data was collected on the interval scale, instead of the ordinal scale as with most other variables, making it difficult to compare results and conduct further statistical tests. Therefore the data was transformed into the ordinal scales of 5 values (1 = '0 close friend'; 2 = '1'; 3 = '2-6'; 4 = '7-10'; 5 = 'over 10'). This solution was adapted from the Understanding Society survey by Institute for Social and Economic Research, since it makes it possible to compare the current data from higher education and the general population. The new variable, 'Close friend ordinal' is presented in Table 6.7 and used for further statistical analysis.

Table 6.7 Frequency of numbers of close friends (ordinal)

	Close friends	
	n=	**(%)**
0	5	1.3
1	7	1.8
2-6	124	32.6
7-10	132	34.7
Over 10	89	23.4
Missing	23	6.1

Social capital variables

Q16. I can trust most people

Q17. In the past 12 months, how frequently have you participated in the following activities?

A business, professional or farmers organisation

Trade union

An organisation for humanitarian aid, human rights, minorities or immigrants

An organisation for environmental protection

Political party

Religious or church organisation

Social capital variables included Trust (Question 16) and Civic participation (part of Question 17), which were designed to capture the main components of social capital. These variables were considered to be conceptually less crucial, and separate from belonging in the higher education context, as the literature review showed in Chapter 4.

Regarding the level of generalised trust, 249 participants (65.5%) either agreed or strongly agreed that they can trust most people, whereas 44 of them (11.6%) disagreed or strongly disagreed. Table 6.8 shows that the negative responses seem to be relatively high, compared to belonging (6.4% for belonging to school; 10.0 % for belonging to university).

Table 6.8 Frequency of trust

	Trust	
	n=	**(%)**
Strongly disagree	11	2.9
Disagree	33	8.7
Neutral	86	22.6
Agree	177	46.6
Strongly agree	72	18.9
Missing	1	0.3

Table 6.9 Frequency of civic participation

	More than once a day		**Daily**		**Weekly**		**Monthly**		**Less than once a month**		**Not participate**	
	n=	**%**										
A business org	4	1.1	10	2.6	30	7.9	13	3.4	21	5.5	295	77.6
Trade union	1	0.3	0	0.0	1	0.3	6	1.6	21	5.5	346	91.1
Humanitarian org	0	0.0	5	1.3	4	1.1	8	2.1	21	5.5	329	86.6
Environmental org	0	0.0	0	0.0	7	1.8	6	1.6	26	6.8	332	87.4
Political party	0	0.0	1	0.3	2	0.5	9	2.4	17	4.5	345	90.8
Religious org	1	0.3	4	1.1	24	6.3	10	2.6	26	6.8	312	82.1

As summarised in Table 6.9, it is noticeable that overall participation rates appear quite low throughout all variables. The results of the descriptive analysis show that the proportional range of those who did not participate was between 77.6% (A business organisation) and 91.1% (Trade union), with the average of 83.8%. This figure was distinctive, especially

compared to social engagement variables (18.5%, on average). It could be a reflection of the low rates of civic participation of the general population; or driven by the student life styles. Further statistical analysis and discussion will follow later in the social capital analysis section.

Life satisfaction

Q13. Overall, I'm satisfied with my life as a student

Q14. I have an enjoyable social life as a student

Q15. Overall, I am satisfied with my life

Three variables to measure life satisfaction were adopted: general, as a student, and social life as a student. As shown in Table 6.10 below, participants either agreed or strongly agreed that they were satisfied with their life (77.6%), life as a student (75.0%), and had an enjoyable social life as a student (65.6%). Compared to low negative response to the two other life satisfaction variables (life satisfaction, 5.2%; life satisfaction as a student, 6.0%), the negative responses to Enjoyable social life as a student seemed to be relatively high (15.8%). It implies that all three variables should be applied to understand the complicated characteristics of life satisfaction, since they represent different parts of life satisfaction. Further analysis using correlation and the Wilcoxon signed-rank test will enable investigation of how these questions are related to other variables and in what ways.

Table 6.10 Frequency of Life satisfaction

	Life satisfaction as a student		**Enjoyable social life as a student**		**Life satisfaction**	
	n=	**(%)**				
Strongly disagree	5	1.3	20	5.3	10	2.6
Disagree	18	4.7	40	10.5	10	2.6
Neutral	71	18.7	69	18.2	62	16.3
Agree	173	45.5	134	35.3	162	42.6
Strongly agree	112	29.5	115	30.3	133	35.0
Missing	1	0.3	2	0.5	0.3	0.8

Considering leaving University

Q20. I have thought about leaving university

Q21a. If so, when did you consider leaving?

Q21b. Please indicate on the scale below which month(s) you considered leaving by crossing the box(es)

Q21c. Please tell us why you considered leaving

The questions in this section, Considering leaving University were added to meet the requirement of the Widening Access Fund. They were designed to investigate whether participants had considered leaving the university, when and why.

Although more than half of the participants said they had not considered leaving university (n= 227, 59.7%), there were striking numbers of those (n= 94, 24.8%) who said they had in the first or second year. This variable might not directly relate to students' retention, but it is a useful indicator, which helps to show how sense of belonging and other relevant factors such as academic and social engagement are associated.

Table 6.11 Frequency of Considering leaving University

	Leaving university	
	n=	**(%)**
Strongly disagree	149	39.2
Disagree	78	20.5
Neutral	54	14.2
Agree	47	12.4
Strongly agree	47	12.4
Missing	5	1.3
	What year to leave	
	n=	**(%)**
1	80	21.1
2	60	15.8
3	25	6.6
4	1	0.3
Missing	214	56.3

The rest of demographic variables

Q26. Are you studying..?

Full time / Part time / Distance learner

Q27. How would you describe your national identity

Welsh / English / Scottish / Irish / Other

Q28. What is your student status

UK student / EU student / International (non EU) student

Q29. Which type of accommodation do you occupy whilst studying

University halls/ Private halls of residence/ Privately rented or shared house/ Own home

Q30. How close you do live to the University

In Bangor / Within 5 miles of Bangor / Within 10 miles of Bangor / Further than 10 miles away

Q31. Who do you live with

Alone / Friends from university/ Other friends/ Partner / With school-age children/

With parents or guardians / Other

Q33. Do you consider yourself to have a disability

No, I have no known disability / Yes / I do not wish to declare

Q34. Do you receive a Bangor Bursary

Yes / No / I do not wish to declare

All the demographic variables were designed to give an understanding of students' identity, social status, and life styles in the context of higher education. As a brief summary, the descriptive analysis reveals that most participants were full time students (n=362, 95.3%), whereas only 1.1% participants (n=4) were part time. About half of participants were receiving a Bangor Bursary (n=192, 50.5%), whereas a little less (n=163, 42.9%) did not.

This figure compares closely with the official registry figure of students who received a bursary (48.0%).

Many students were living in Bangor (n=249, 65.5%). However, some students were travelling from further than 10 miles away (n=82, 21.6%), within 10 miles (n=20, 5.3%), or within 5 miles (n=13, 3.4%). Around half of participants were staying in privately rented/shared houses (n=197, 51.8%), whereas only 71 participants were living in university halls (18.7%). Around half of participants were living with friends from university (n=205, 53.9%), and 11.8% (n=45) were still living with their parents or guardians. A small number of participants (n=7, 1.8%) were living with school-age children. The full descriptive analysis results are presented in Appendix 5.

Questions of national identity (Q27), student status (Q28), and Bangor bursary (Q34) were selected as indicators for further analysis of the specific groups, namely Bangor bursary recipients, international students, and Welsh medium students.

6.5 Correlation analysis

Procedure

In order to explore how the above variables were related, correlation analysis was conducted. Since the data was measured on the ordinal scale, and not normally distributed, Spearman's correlation coefficient was applied. Spearman's rho, as a non-parametric statistic, can reveal how two variables are related, with degrees of strengths (Field, 2013). All of the variables for academic and social engagement, belonging, social capital, considering leaving university, and life satisfaction were statistically analysed.

The absolute values of *correlation coefficient r* were grouped according to the strengths, in the range from 'weak' ($r < 0.30$), 'moderate-lower' (between 0.30 and 0.40), 'moderate-upper' (between 0.40 and 0.50), to 'strong' ($r > 0.50$). To focus on the correlation more effectively, values of r over 0.30 were included. As a result, there were 88 associations between 31 variables, with correlation coefficients higher than 0.30. The direction of the correlation was mostly positive, however, Leaving university was the only variable which showed negative directions, since the question implied a negative meaning.

Sense of belonging

Students' sense of belonging to their university was significantly positively associated with belonging to their academic school (r= 0.646, n= 303, p < 0.01). This was the highest correlation amongst those which were related to the belonging variables. However, each university and school belonging seems to have associations with other variables in different ways. For instance, belonging to academic school has a larger number of associations with other variables than belonging to university. The School belonging variable was correlated with 10 other variables including academic engagement (5 variables), life satisfaction (3 variables), and trust, as shown in the table below. There were 5 associations between University belonging and other variables, which were all same as School belonging. Interestingly, both university and school belonging variables showed no or very weak associations with the rest of the variables such as social engagement –both social and civic participation-, and Considering leaving university.

The results seem to imply that the character of belonging is complicated. Although both School and University belonging are similar in terms of a correlation pattern, being associated with same variables, School belonging has more associations than University belonging. School belonging is densely correlated with many academic engagement variables, whereas University belonging has only one significant association. In addition, both belonging variables show no direct significant associations with any of social engagement variables. The meaning of the similarities and contrasts between these two belonging variables will be fully discussed in the later part of this chapter.

Table 6.12 Correlation analysis results of sense of belonging and other variables

	University belonging	School belonging	talk to lecturer	talk to fellow students	course expectation	degree	supportive follow	life satisfaction as a student	enjoyable social life as a student	life satisfaction	trust
University belonging	1.000	**.646****	.250**	**.330****	**.311****	.196**	.248**	**.442****	**.402****	**.302****	.283**
School belonging	.646**	1.000	**.402****	**.388****	**.413****	**.308****	**.387****	**.474****	**.374****	**.353****	**.353****

(p < 0.01, red > 0.50; blue > 0.40; black bold > 0.30)

Academic engagement

There are many positive correlations between the variables for academic engagement; for example, between Talk to fellow students, and Fellow students are supportive the association was particularly strong ($r= 0.656$, $p < 0.01$). Other variables, such as Fellow students are supportive (12 associations), Talk to fellow students (11 associations), and Talk to lecturers (10 associations) show moderate associations with most of the academic engagement variables.

Academic engagement variables tend to have positive associations with Life satisfaction and Trust variables, at moderate coefficient levels, whereas weak or no associations were found with the social engagement variables. There was only one moderate association between Talk to fellow students and Numbers of close friends ($r= 0.318$, $p < 0.01$).

It is noticeable that hardly any direct, strong, or significant association can be found between academic and social engagement. Instead, they seem to be linked through other variables such as life satisfaction and trust. This result suggests that academic and social spheres might not be directly related.

Social engagement

Social engagement can be divided into social and civic participation. Social participation refers to social activities and socialising, whereas civic participation relates to participation in the collective actions of various formal organisations.

Moderate associations can be seen amongst some social participation variables such as Visit pub, Visit nightclubs, Visit friends' homes, University clubs and societies, Socialising with friends, and Numbers of close friends. Visit pubs and Visit nightclubs are the most strongly correlated ($r= 0.739$, $p < 0.01$), in the entire set of variables. Social participation variables also show the tendency to be moderately and strongly correlated with Life satisfaction variables. For instance, Enjoyable social life as a student has positive associations with several social engagement variables (Visit pub $r= 0.530$; Visit nightclubs $r= 0.505$; Visit friends $r= 0.427$; University clubs and societies $r= 0.413$; Numbers of close friends $r= 0.405$; $p < 0.05$).

In contrast, there are no significant associations between social and civic participation variables. Civic participation variables are not or are only weakly related to other variables, except for the positive correlations amongst themselves. For instance, Humanitarian aid organisations is strongly associated with Environmental organisations ($r= 0.662$, $p < 0.01$). It turns out that civic participation is largely separate from other variables, without any strong attachments. The distinctively different patterns of social and civic participation appear consistent throughout the statistical analysis process, as one of the noticeable findings.

Life satisfaction

All three variables regarding life satisfaction appear to have strong positive associations between them, Life satisfaction as a student and Enjoyable social life as a student, with the highest correlation efficient ($r= 0.599$, $p < 0.01$).

These variables are moderately or strongly correlated with many other variables; Enjoyable social life as a student shows 14 positive correlations with variables from most social participation, some academic engagement, belonging, and trust. Life satisfaction as a student is positively associated 12 times in total, with most academic engagement, belonging, trust, and negatively with leaving university.

Overall, all life satisfaction variables tend to have the broadest range of significant correlations, including both academic and social engagement, as well as belonging to university and school, trust, and leaving university.

Considering leaving university

Leaving university turns out to have the least association; including weak negative correlations with a few variables from academic engagement, belonging, life satisfaction and trust. There is only one noticeable association, with Life satisfaction as a student ($r= - 0.426$, $p < 0.01$). In other words, the more deeply participants are satisfied with their life as a student, the less likely they are to have thought of leaving University. There is little or no association with social and civic participation.

Trust

Generalised trust is positively correlated with most academic engagement variables and School belonging. It consistently shows strong positive associations with all life satisfaction variables, with the highest correlation coefficient, being Life satisfaction ($r= 0.552$, $p < 0.01$). In addition, trust is positively related with a few social engagement variables, although the correlation strengths seem to be quite low.

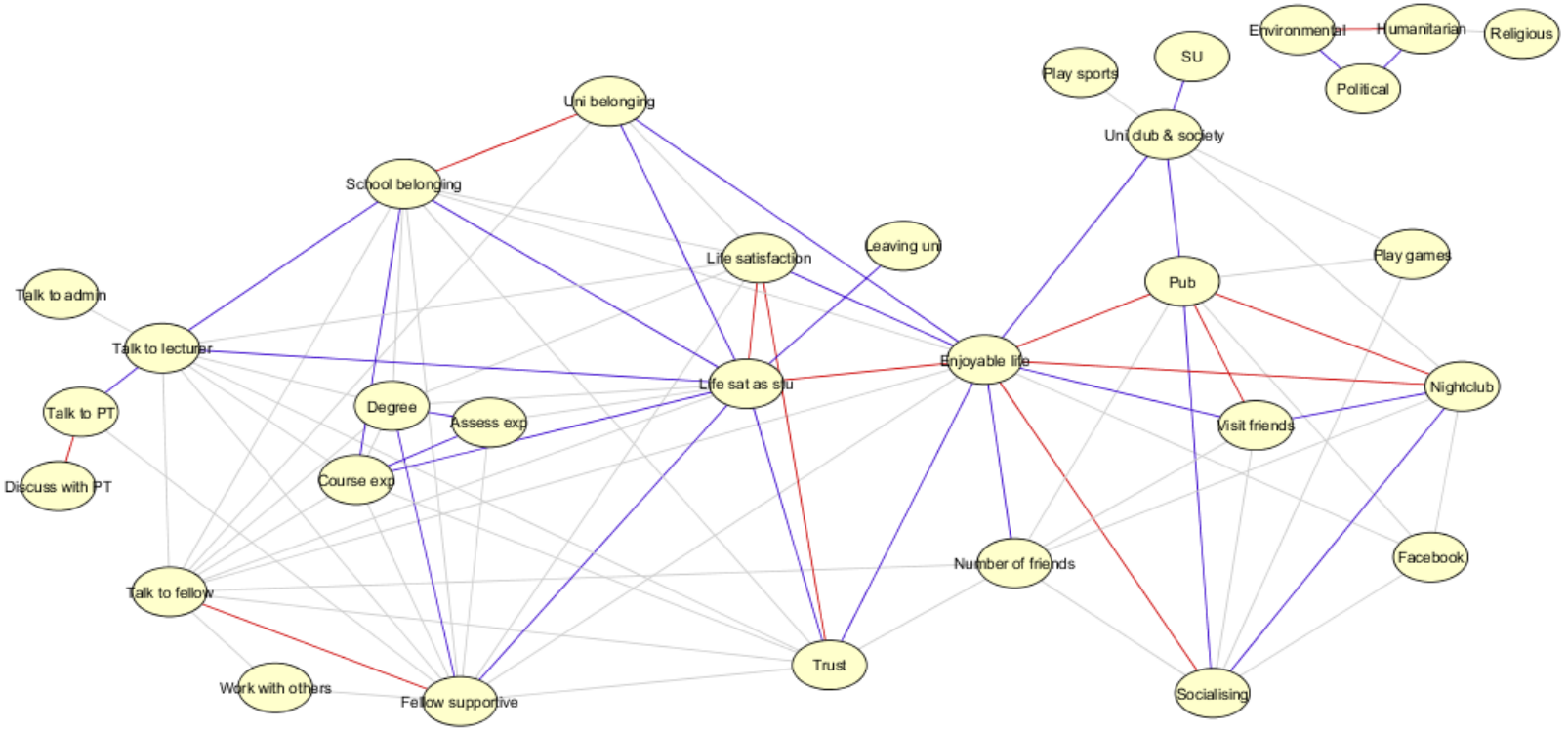
The literature review led to the conclusion that trust is more relevant in the context of social capital, rather than students' belonging. However, the present analysis reveals that trust is positively associated with many variables including School belonging, academic and social engagement, and life satisfaction. It suggests that trust underlies both concepts of social capital and sense of belonging. The evidence of the importance of trust appears to be a regular and consistent finding in this research.

Correlation network map

Based on the results of correlation analysis, the variables which showed moderate and higher strengths ($r > 0.30$) were selected; the associations between these 31 remaining variables were visually summarised as a correlation network map (Figure 6.2), using a web-based programme Cytoscape (http://www.cytoscape.org). The levels of correlation coefficient were divided into three groups with different colours: red ($r > 0.50$), blue ($r > 0.40$), and grey ($r > 0.30$). As mentioned above, most associations were positive, with the exception of the Leaving university variable.

All the variables were located on the basis of their meanings, density, frequency and strengths of correlation associations. Academic engagement, Belonging, and Leaving university variables were situated on the left side, whereas Social engagement variables were gathered on the right side. Life satisfaction and Trust variables remained in the centre, since they tended to link most variables from both left and right sides. Civic participation variables, on the other hand, were isolated since there was no strongly significant association, which could connect them with others.

Figure 6.2 Correlation network map of 31 questionnaire variables with correlation coefficient over moderate levels (r > 0.30; blue > 0.40; red > 0.50)



Enjoyable social life as a student variable has the most frequent count (14 times); followed by Life satisfaction as a student (12). Although these two variables are strongly positively correlated, shown as red ($r = 0.599$, $p < 0.01$), they have different patterns of correlations. In detail, they are both associated with certain variables such as Trust, Belonging, Talk to fellow students, and Fellow students are supportive. However, they also have different associations with other variables; Enjoyable social life is connected with social participation variables; while Life satisfaction as a student is related to academic engagement, and Leaving university. This result serves to demonstrate that these variables are independently meaningful to students' sense of belonging.

It seems striking that most variables are centred on Life satisfaction variables, which play the crucial role to link academic engagement and social participation. Trust turns out to be one of those hubs, which bridges various aspects of belonging and social capital. Trust is related to 9 other variables on this map.

The correlation network map displays the relationships between belonging variables. At first glance, University belonging and School belonging appear similar; both are positively correlated with all three Life satisfaction variables, and one academic engagement variable. There is a weak association or none with Social engagement (social and civic participation) and Leaving university. The correlation coefficient between University and School belonging is one of the highest ($r= 0.646$, $p < 0.01$). Despite these notable similarities, there is evidence that school and university belonging are different; school belonging is associated with more variables than University belonging. It is notable that various key academic engagement variables such as Talk to lecturers, Course and Assessment expectations, and Degree for future goals, appear to be connected with School belonging, not with University belonging. This complicated character of belonging will be investigated with further statistical tests later in this chapter.

6.6 Comparing means

The next analysis step was designed to explore whether there were any statistically significant differences between certain variables. Although descriptive analysis showed the detailed results for all the variables, it was difficult to interpret how similar or different they were at that stage (Field, 2013). For instance, as summarised in Table 6.13, the means of university and school belonging were calculated as 3.96 and 4.03. It is, however, uncertain

whether university belonging is lower than school belonging without statistical confirmation, because there might be no significant differences between them at all.

To compare the means of certain variables, the data was analysed by frequency count (e.g. the mean, standard deviation, positive responses), followed by appropriate statistical tests. Previous correlation analysis led to the selection of 14 main variables: Belonging (University belonging, School belonging), Academic engagement (Talk to lecturer, Course expectation, Fellow students are supportive), Social engagement (Visit pubs, Socialising with friends, Numbers of close friends, University clubs and societies, Unpaid volunteer work), Life satisfaction (Life satisfaction as a student, Enjoyable social life as a student), Trust, and Leaving university. The means of data (M) with standard deviation (SD) were calculated for the distribution patterns, and the sum of response percentages of 'strongly agree' and 'agree' were calculated for the positive responses proportions.

Table 6.13 Descriptive analysis of main variables with means (M), standard deviation (SD), and positive responses

	M	SD	POSITIVE RESPONSES (%)	N
BELONGING TO UNIVERSITY	3.96	1.020	68.9	377
BELONGING TO SCHOOL	4.03	0.951	71.5	377
TALK TO LECTURER	4.21	0.885	81.5	379
COURSE EXPECTATION	3.86	0.876	71.3	380
FELLOW STUDENTS ARE SUPPORTIVE	4.19	0.926	82.1	380
VISIT PUBS*	3.94	1.167		379
CLUBS AND SOCIETIES*	4.47	1.457		375
VOLUNTEER WORK*	5.10	1.252		378
LIFE SATISFACTION AS A STUDENT	3.97	0.89	75.0	379
ENJOYABLE SOCIAL LIFE AS A STUDENT	3.75	1.152	65.6	378
TRUST	3.70	0.970	65.5	379
SOCIALISING WITH FRIENDS*	2.05	1.030		377
CLOSE FRIENDS (ORDINAL)	3.82	0.878		357
NUMBER OF CLOSE FRIENDS	10.23	11.698		357
LEAVING UNIVERSIT	2.37	1.427		375

(* values are based on frequency of 'more than once a day, daily, weekly, monthly, less than once a month, never'. The sum of values from 'more than once a day' to 'weekly' was applied.)

Since the Likert scales consist of five values from 1 (‘strongly disagree’) to 5 (‘strongly agree’), when belonging variables have means around 4 (university belonging =3.96; school belonging = 4.03), participants, on average, seem to ‘agree’ that they feel they belong to Bangor University and their academic schools. All the main variables show that participants’ average responses are close to ‘agree’, including belongings, academic engagement, life satisfaction, trust, and close friends (ordinal).

The frequency of participation was measured on the 6-point scale from 1 (‘more than once a day’) to 6 (‘never’); Visit pubs, Clubs and societies, Volunteer work, and Socialising with friends. The results in the table suggest that on average, participants did socialise with their friends on a daily basis, and visited pubs monthly. On the other hand, they took part less frequently in University clubs and societies, once a month or less, and their responses seem to spread quite widely. Volunteer work shows even lower levels of participation, less than once a month. There seem to be distinctive differences in the means of the participation variables; further statistical analysis will follow to compare these means. The results of the Wilcoxon signed-rank test and the Mann-Whitney test are presented in Appendix 5.

Analysis by main variables: the Wilcoxon signed-rank test

In order to statistically examine whether participants responded differently to two different variables, the Wilcoxon signed-rank test was performed. The Wilcoxon signed-rank test is designed to compare a single group to see if there is any statistically meaningful difference between two variables, when the data is not normally distributed (Field, 2013). Applying this test, for instance, makes it possible to show whether belonging to university and academic schools is statistically different or not.

Between University and School belonging, the Wilcoxon signed-rank test suggested that there was no statistically significant difference (sense of belonging to university (Mdn =4, M=3.96), sense of belonging to academic schools (Mdn=4, M=4.03), T= 5,139.500, p= 0.148, r= 0.075). In other words, the average response of students’ belonging to the university is ‘agree’, which is statistically the same as belonging to their academic school.

The results of the Wilcoxon signed-rank test on all the main variables confirm that two academic engagement variables, Talk to lecturers (M= 4.21) and Fellow students are

supportive (M=4.19) are higher than both University and School belonging. These academic engagement variables are also higher than Course expectation (M=3.96).

Regarding Life satisfaction, although both variables might appear similar, Life satisfaction as a student (M=3.97) is higher than Enjoyable social life as a student (M= 3.75). In addition, the average response of Life satisfaction as a student is statistically the same as University and School belonging. However, they are all higher than the average of Enjoyable social life as a student. On the other hand, Trust (M=3.70) is lower than both belonging, academic engagement, and Life satisfaction as a student.

The application of the test on social engagement variables confirms that participants more often took part in socialising with friends (M= 2.05; 'daily') than visiting pubs (M=3.94; 'monthly') and participating in university clubs and societies (M=4.47; 'monthly').

The findings suggest that although the means might seem similar, there are some significant differences between main variables; the average responses of some academic engagement variables (Talk to lecturers and Fellow students are supportive) are the highest, whereas those of Enjoyable social life as a student and Trust are the lowest amongst main variables.

Analysis by sub-sets: the Mann-Whitney test

The next statistical analysis to compare means was conducted by sub-sets, based on specific target groups with characteristics such as mature, international and Welsh-medium students, and the Bangor Bursary recipients. This analytic process makes it possible to compare whether these groups of students are different from the paired groups.

Nine indicators are selected to divide participants into a pair of groups: age, Bangor bursary, national identity, student status, academic schools, University clubs and societies, volunteer work, trust, and numbers of close friends. As described in the table below, the total participants are divided into the pairs of sub-sets, however the sums of paired sub-sets do not always up to the total number of participants because the statistical test does not require that assumption. The Mann-Whitney test is a non-parametric statistical test, which examines whether there are any significant differences between two independent samples, same as the independent t-test for normally distributed data (Field, 2013). Since two samples were independently drawn from the same population for the Mann-Whitney test, it was possible to compare their means such as mature or young, English or Welsh, international or UK, and

Bangor bursary receiver or non-receiver. Four academic schools were included based on their sample sizes over 30 to run the test effectively.

Four variables, participating in the University clubs and societies, Unpaid volunteer work, the level of Trust, and the Number of close friends were the important indicators to understand social capital, and added for social capital analysis at the next stage.

Table 6.14 Sub-sets by variables

Age	**n**	**%**
Mature	206	54.2
Young	173	45.5
Bangor bursary		
Receiver	192	50.5
Non-receiver	163	42.9
National identity		
Welsh	138	36.3
English	163	42.9
Student status		
International	33	8.7
UK	317	83.4
Academic school		
Social Sciences	76	20.0
Psychology	58	15.3
Healthcare Sciences	44	11.6
Biological Sciences	30	7.9
Clubs & society		
Participate	232	61.1
Not-participate	143	37.6
Volunteer work		
Volunteering	159	41.8
Non-volunteering	219	57.6
Trust		
High	249	65.5
Low	130	34.2
Numbers of close friends		
10 and over	165	43.4
Less than 10	192	50.5

The descriptive analysis of all the sub-sets paired by nine variables is briefly summarised in Table 6.14 above. The group of mature students is slightly larger than the Young group; the

same as the Bursary receiver group, and the English group. The International group is noticeably smaller than the UK group.

The group of students participating in University clubs and society is larger than those who did not, whereas the group of the Unpaid volunteer work is smaller than the other. Since the question about generalised trust seems to be biased toward positive responses, the group of the higher level of trust consisted of positive responses ('agree' and 'strongly agree'), while the opposite group included the rest ('neutral', 'disagree' and 'strongly disagree'). The cut-off point to separate numbers of close friends was 10, since the arithmetic mean was 10.2 (SD= 11.7), where 75% of the total participants had less than 10.5 close friends. As a result, the group of many close friends was defined as 10 and over; whereas the pair was less than 10.

The Mann-Whitney test was performed on these nine sub-sets to examine whether there were any significant differences in 14 main variables such as belonging, academic and social engagement, life satisfaction, leaving university, and social capital. The results of sub-sets are presented in 'Table 6.15 Comparing means of main variables by sub-sets'. Since the sub-sets were compared as a pair, the means which were confirmed by statistical tests were highlighted with colours; blue numbers were lower means than their pairs, while red was for higher means. For instance, the Mature group showed five variables of means with blue colour (4.23, 4.67, 3.51, 2.27, and 3.69), which were lower than the Young group. As mentioned earlier, the variables measured on the frequency (4.23, 4.67, and 2.27) were interpreted as frequency, meaning that the Mature group has lower frequency of participating in those activities, although the actual data is higher. In order to avoid unnecessary duplication, the results of the pair were not written in the table, except for academic schools. Although four academic schools were compared, in order to highlight the contrast, only two schools are included in the table: Psychology and Healthcare. As reported earlier, in most cases, the gap between these groups is the largest, and statistically confirmed.

The first test results reveal significant differences between Mature and Young groups in 5 variables: Visit pubs, Clubs & society, Enjoyable social life as a student, Numbers of close friends, and Socialising with friends. The Mature group tends to take less part in social engagement, to have a smaller size of close friends, and to enjoy social life less than the Young group. The remaining variables including belonging and academic engagement showed no significant differences.

Table 6.15 Comparing means of main variables by sub-sets

	N	University belonging	School belonging	Talk to lecturer	Course expectation	Fellow students are supportive	Visit the pub*	University clubs and societies*	Unpaid volunteer work*	Life satisfaction as a student	Enjoyable social life as a student	Trust	Socialising with friends*	Close friends ordinal	Number of close friends**	Leaving university
Total	380	3.96	4.03	4.21	3.86	4.19	3.94	4.47	5.10	3.97	3.75	3.70	2.05	3.82	10.61	2.37
Mature	206	3.88	4.03	4.24	3.81	4.15	**4.23**	**4.67**	5.10	3.91	**3.51**	3.75	**2.27**	**3.69**	9.74	2.47
Bursary receiver	192	**3.82**	3.97	4.20	3.88	4.18	**4.04**	**4.61**	**5.29**	3.94	**3.60**	3.70	**2.17**	**3.72**	9.67	2.40
Welsh	138	**3.78**	**3.86**	4.18	3.80	4.25	3.86	**4.77**	**5.27**	**3.90**	**3.61**	3.68	**2.18**	**3.72**	**8.54**	2.40
International	33	3.72	4.03	4.12	3.82	**3.73**	**4.85**	4.85	5.42	3.76	3.45	3.52	2.39	**3.47**	7.76	2.33
Psychology	58	**4.41**	**4.28**	4.48	4.00	4.41	**3.57**	**4.07**	**4.36**	**4.36**	**4.26**	4.10	**1.62**	**4.00**	10.89	2.40
Healthcare	44	**3.14**	**4.09**	4.39	3.70	4.52	**4.52**	**5.66**	**5.64**	**3.52**	**2.86**	3.89	**2.82**	**3.63**	8.08	2.57
Clubs & societies	232	**4.10**	4.10	4.28	3.90	4.21	**3.57**	N/A	**4.90**	**4.11**	**4.09**	**3.85**	**1.86**	3.89	10.55	**2.23**
Volunteering	159	**4.15**	**4.19**	4.31	3.87	4.24	**3.67**	**4.08**	N/A	**4.09**	**3.92**	**3.84**	**1.90**	**3.93**	**12.37**	2.37
Trust	249	**4.11**	**4.23**	**4.42**	**4.04**	**4.43**	**3.81**	**4.27**	**4.98**	**4.22**	**4.04**	N/A	**1.94**	**3.98**	**11.67**	**2.13**
Close friends	165	**4.10**	**4.18**	4.23	**3.95**	**4.35**	**3.60**	**4.24**	5.00	**4.15**	**4.10**	**3.90**	**1.70**	N/A	16.07	2.34

(Blue & red numbers: differences between pairs of sub-sets detected by the Mann Whitney test) (Blue: lower than the other / red: higher)

Secondly, analysis of the Bangor bursary sub-sets leads to the conclusion that there are significant differences in Belonging to university, Visit pubs, Clubs & societies, Volunteer work, Enjoyable social life, Socialising with friends, and Numbers of close friends. Participants receiving a Bangor bursary are likely to show lower levels of belonging to university as well as enjoyable social life as a student; they are also less often visiting pubs, socialising with friends, participating in clubs and society, and voluntary work, and have a smaller number of close friends, than those who are not receiving a bursary.

The Welsh group expresses lower belonging to university as well as their academic schools, participates less frequently in clubs & societies, volunteer work, and socialising with friends, and has lower numbers of close friends. They are less likely to be satisfied with general and social life as a student than the English group. University clubs and society shows a considerable gap between Welsh (M= 4.77), and English (M= 4.11). In other words, the English group tends to take part more often (nearly monthly) than the Welsh group (less than once a month).

Regarding the fourth indicator, student status, the analysis shows that international students are no different from the UK students, apart from certain variables such as Fellow students are supportive, Visit pubs, and Numbers of close friends. This group is the only one which displays a difference in academic engagement. The gap in the frequency of visiting pubs between the International group (M= 4.85, 'less than once a month') and the UK group (M= 3.82, 'once a month') is substantial.

For this analytic stage, four academic schools were chosen, sufficient in size (n > 30): the School of Social Sciences, School of Psychology, School of Healthcare Sciences, and School of Biology Sciences. The statistical test was conducted for each pair of schools (six cases in total). Overall, Psychology and Biology were more likely to show positive responses in most variables than Healthcare and Social Sciences schools. Healthcare Sciences has the lowest levels in many variables such as Belonging to university, Clubs & society, Visit pubs, Life satisfaction as a student, Enjoyable social life, and Socialising with friends. Social Sciences is the lowest amongst all four schools, for the variables Talk to lecturer, Supportive fellow students, and Trust.

The gaps between the lowest and highest responses should be highlighted. The Healthcare group rarely takes part in University clubs & society (M= 5.66, 'never'), while the Psychology group is likely to participate monthly (M= 4.07, 'monthly'). Participants in

Healthcare show the weakest University belonging (M=3.14, 'neutral'), while the mean of other three groups is 3.96 ('agree'), with the highest mean of 4.41 in the Psychology group. Moreover, the Healthcare group has the lowest mean (2.86) in the Enjoyable social life as a student variable, and it has the lowest level amongst all sub-sets. In contrast, Psychology has the highest levels of means in Volunteer work, and Socialising with friends; and higher in Belonging to school, and Numbers of close friends than Social Sciences and Healthcare Sciences. The gap in the means between Psychology (the highest M= 1.62 'daily') and Healthcare (the lowest M= 2.82 'weekly') is notable. Further discussion about the differences and gaps between academic schools, and their meaning will follow later in this chapter.

Sixthly, those who participate in University clubs & society are more likely to show higher belonging to the university, more often visit pubs and socialise with friends, and get involved in unpaid volunteer works. Their satisfaction with life and social life, and trust are all higher than the others who are not participating at all. They are also less likely to consider leaving university. Amongst these differences, the biggest gap was found in Visit pubs. Students who get involved with clubs & society are likely to visit pubs monthly (M=3.57), whereas those who do not participate are visiting much less often (M= 4.52, 'less than once a month').

Statistical analysis of the seventh sub-sets, volunteering, confirms that there are significant differences in nine variables: both belonging to university and academic schools, all social engagement, trust, and life satisfaction. When students take part in unpaid volunteer works, they are more likely to feel stronger belonging to university and schools, have higher numbers of close friends, get involved more often in social engagements such as visiting pubs, and socialising with friends. In addition, their trust and satisfaction levels are more likely to be higher than those who are not volunteering at all. They participate more often in University clubs & society (M= 4.08, 'monthly') than those who are not volunteering (M= 4.76, 'less than once a month').

It is noteworthy that trust is the only one of nine indicators which shows significant differences in all main variables, according to the results of the Mann-Whitney test. The group consisting of the higher level of generalised trust shows higher levels of University and School belonging, and academic engagement, at the highest levels of all the sub-sets. They are also more likely to participate in all forms of social activity, and have more close friends than those with lower levels of trust. Both life satisfaction levels are much higher (Life satisfaction =4.22, Enjoyable social life= 4.04) than those with lower trust (Life satisfaction=

3.49, Enjoyable social life= 3.20). The higher trust group is less likely to have considered leaving the university, with the lowest level (2.13) of any of the sub-sets.

Finally, the group with the higher number of close friends (10 and over) shows higher levels in many variables including belonging to university as well as schools, some academic engagement (Course expectation, Supportive fellow students), social engagement (Visit pubs, University clubs & society, Socialising with friends), life satisfaction, and trust. Students who have more than 10 close friends are more likely to report having an enjoyable social life as a student (M=4.10 'agree') than those with less friends (M=3.45 'neutral').

The table confirms that the four indicators chosen for the purposive sampling were indeed important; all the results from Mature, Bursary receiver, Welsh, and International groups consistently showed negative results than their pairs. However, the patterns of differences across the 14 variables are not identical. For instance, the number of close friends is the only variable, where significant differences appear. On the other hand, two variables from academic engagement (Talk to lecturer, Course expectation), Trust, and Leaving university seem less crucial to these sub-sets, because there was no significant difference found in these four sub-groups.

The academic school is one of the best indicators to discriminate between variables. Eight out of nine variables have the highest (Psychology) and the lowest means (Healthcare). The gaps between Psychology and Healthcare are often the largest.

Regarding social capital indicators, the results reveal that all four chosen sub-sets are likely to show higher levels than their pairs. In other words, there seems to be a positive influence from taking part in University clubs and society, and Unpaid volunteer work, to have higher levels of generalised trust in others, and many close friends in the context of overall belonging, including academic and social engagement, life satisfaction, and considering leaving university. Social capital variables will be investigated further in the later part of social capital analysis.

The overall results appear to be consistent, without any unexpected patterns, except academic engagement. Most academic variables (Talk to lecturers, Course expectation, Fellow students are supportive) seem less influential except amongst the International group. This contrasts with the social engagement variables (University clubs and society, Socialising with friends,

and Numbers of close friends, as well as Enjoyable social life as a student) which seem to be vital in the belonging context, where the differences were found in most sub-sets. The results for three variables (University clubs and society, Socialising with friends, and Enjoyable social life as a student) identically match throughout all the sub-sets. In other words, these three variables appear to be very strongly related.

The analysis results confirm that sense of belonging is a complex concept, in which various aspects are intricately related. In order to interpret these findings further, a thorough examination focused on sense of belonging will be carried out in the next step.

6.7 Sense of belonging analysis

In order to explore the complexity of belonging, this section will concentrate on comparing means of belonging at two levels; firstly between a pair of sub-sets, then between University belonging and School belonging of those pairs. The Mann-Whitney U, and the Wilcoxon signed-rank statistical tests were used for this stage.

Comparing means of belonging by sub-sets

As summarised in Table 6.15, the Mann-Whitney test suggests that there are significant differences of belonging, either to university and / or to academic schools, between certain sub-sets, including Bursary, National identity, academic schools, University clubs & society, Unpaid volunteer work, Trust, and Numbers of close friends. The detailed results are presented in Table 6.16.

In the table, when there are statistical differences between the means of belonging, the figures are recorded as bold characters with different colours. If the means are written in plain, black colour, (e.g. Mature and Young groups), there is no significant difference. A higher mean (e.g. Non-receiver's Belonging to University, 4.19) is recorded in red, while blue is used for a lower mean (Bursary receiver's mean= 3.82).

Table 6.16 Comparing means of belonging by sub-set
(applying the Mann-Whitney U test)

	n	Belonging to Bangor university	Belonging to academic school
Total	380	3.96	4.03
Mature	206	3.88	4.03
Young	173	4.07	4.03
Bursary receiver	192	**3.82**	3.97
Non-receiver	163	**4.19**	4.14
Welsh	138	**3.78**	**3.86**
English	163	**4.27**	**4.28**
International	33	3.72	4.03
UK	317	4.02	4.06
Psychology	58	**4.41**	**4.28**
Healthcare	44	**3.14**	**4.09**
Clubs & society participate	232	**4.10**	4.10
Not-participate	143	**3.75**	3.94
Volunteering	159	**4.15**	**4.19**
Non-volunteering	219	**3.83**	**3.91**
Trust high	249	**4.11**	**4.23**
Low	130	**3.67**	**3.64**
Close friends 10 and over	165	**4.10**	**4.18**
Less than 10	192	**3.86**	**3.88**

(Significant differences only between bold characters; blue for lower and red for higher)

If it is assumed that belonging to university and schools is not generally different, the differences by sub-sets should be identical. However, Table 6.17 shows some variation and differences. For instance, some sub-sets such as Bangor bursary, and University clubs & society, only indicate differences in belonging to university, not to academic schools.

Table 6.17 Four patters of differences in University and School belonging by sub-set

Differences in both belonging
National identity (Welsh / English)
Academic school (Psychology / Healthcare)
Unpaid volunteer work (Volunteering / non-volunteering)
Trust (High trust / low)
Numbers of close friends (Close friends 10 and over / less than 10)

Differences in University belonging
Bursary receiver / non-receiver
Participate in clubs & society / not-participate

Differences in School belonging
N/A

No difference in both belonging
Total participants
Age (Mature / Young)
Student status (International / UK)

The actual gaps between each sub-set vary as well. The average size of the gaps between sub-sets is 0.44, while the range of gaps varies widely from 0.19 to 1.27. Both the smallest and the largest gaps amongst all nine sub-sets come from Psychology and Healthcare; the smallest gap (0.19) is School belonging, and the largest gap (1.27) is University belonging.

Comparing university and school belonging

In this step, University belonging was compared with School belonging using the Wilcoxon signed-rank test. As explained earlier, this statistic test is applied to compare the means of two variables from the same sample. Therefore it is possible to investigate if there are significant differences in University and School belonging across the entire set of 20 sub-groups. The results are summarised in Table 6.18 using the same colour coding.

Table 6.18 Comparing means of belonging between University and academic schools (applying the Wilcoxon signed-rank test)

	n	Belonging to Bangor university	Belonging to academic school
Total	380	3.96	4.03
Mature	206	**3.88**	**4.03**
Young	173	4.07	4.03
Bursary receiver	192	**3.82**	**3.97**
Non-receiver	163	4.19	4.14
Welsh	138	3.78	3.86
English	163	4.27	4.28
International	33	**3.72**	**4.03**
UK	317	4.02	4.06
Social Sciences	76	**3.91**	**3.74**
Psychology	58	4.41	4.28
Healthcare	44	**3.14**	**4.09**
Biological Sciences	30	4.27	4.07
Clubs & society participate	232	4.10	4.10
Not-participate	143	**3.75**	**3.94**
Volunteering	159	4.15	4.19
Non-volunteering	219	3.83	3.91
Trust high	249	**4.11**	**4.23**
Low	130	3.67	3.64
Close friends 10 and over	165	4.10	4.18
Less than 10	192	3.86	3.88

(Significant differences only between bold characters; blue for lower and red for higher)

The comparison between University belonging and School belonging reveals significant differences in some sub-groups (e.g. age, bursary, student status, academic schools, clubs and society, and trust), whereas no difference is found in others (e.g. national identity, volunteer work, and numbers of close friends).

First, the Wilcoxon signed-rank test reveals that Mature students (n=206) show a higher level of sense of belonging to their academic school (M= 4.03) than belonging to Bangor university (M= 3.88) (T= 1,842.000, p = 0.021, r = 0.161), whereas there is no difference for young students. Similar results apply to the Bursary receiver group, the International group, the Not-participating group, and the high trust group. These groups show higher School belonging than University belonging, with some differences (between 0.12 from trust and 0.31 from international, the average being 0.29).

Amongst the four academic schools, Social Sciences and Healthcare are the two groups with significant differences. Interestingly, the Social Sciences group is the only sub-group for which University belonging (M=3.91) is higher than School belonging (M=3.74). More importantly, the greatest difference amongst all the sub-sets between University and School belonging (0.95) is in the Healthcare group. University belonging in Healthcare has the lowest score (M= 3.14).

The several stages of analysis results and the approach based on sub-sets suggest that students' sense of belonging cannot be treated as a simple, one dimensional concept. University and school belonging each seem to have distinctive properties. A further discussion of the interpretation and implications of this for the higher education context will follow in Chapter 9.

6.8 Social capital analysis

The results of the sense of belonging analysis help to explain how all the variables are associated with each other. Certain variables appear to have more and stronger correlations than the others. For instance, Life satisfaction variables such as Enjoyable social life as a student, and Life satisfaction as a student seem to play the crucial role in bridging other variables. Further statistical tests have revealed that some variables indicate the differences on the basis of sub-sets more consistently than the others. For example, as a regular pattern, three variables of Enjoyable social life as a student, Socialising with friends, and University clubs and society display significant differences, measured by sub-sets.

For this second stage, the main focus will shift towards social capital; to explore how elements of belonging and social capital are interrelated. The previous correlation analysis revealed that civic participation is less associated than expected, although other variables

appear to be well related. Now that some variables have been identified as hubs, the analysis can be narrowed down to key variables. For this stage, correlation analysis will be conducted not only on those selected variables but also on civic participation variables, to examine whether or not meaningful associations exist. This will be followed by an investigation of sub-groups on the basis of social capital variables including Unpaid volunteer work, Trust, and Numbers of close friends.

Correlation analysis

Spearman's correlation coefficient was calculated for 12 main variables of belonging and social capital: University belonging, School belonging, Talk to lecturers, Fellow students are supportive, Visit pubs, University clubs and society, Unpaid volunteer work, Life satisfaction as a student, Enjoyable social life as a student, Trust, Socialising with friends, and Numbers of close friends. The results in Table 6.19 and the correlation network map (Figure 6.3) appear substantially similar to the previous correlation analysis on the total variables for belonging analysis.

Figure 6.3 Correlation network map of main variables for social capital
(r > 0.30; blue > 0.40; red > 0.50)

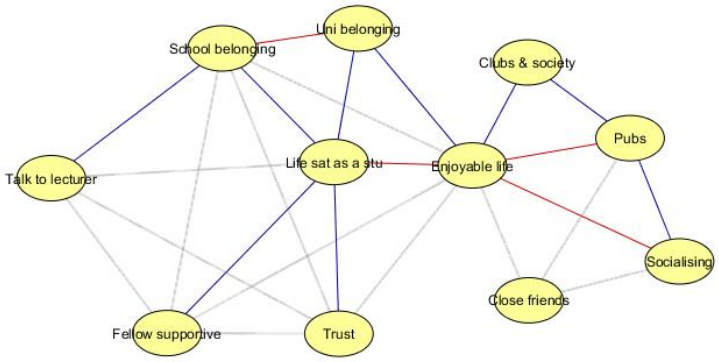


Table 6.19 Correlation analysis of social capital main variables

	belonging to Bangor university	belonging to school	can talk to lecturer	fellow students are supportive	University clubs and societies	visit the pub	unpaid volunteer work	life satisfaction as a student	enjoyable social life as a student	trust people	socialising with friends	close friends ordinal
belonging to Bangor university	1.000	**.650****	.245**	.213**	-.244**	-.180**	-.154**	**.425****	**.402****	.255**	-.159**	.138*
belonging to academic school		1.000	**.406****	**.371****	-.112*	-.095	-.149**	**.438****	**.351****	**.337****	-.160**	.157**
can talk to lecturer			1.000	**.371****	-.091	-.061	-.098	**.362****	.195**	**.342****	.013	.041
fellow students are supportive				1.000	-.045	-.149**	-.108	**.443****	**.349****	**.387****	-.137*	.211**
University clubs and societies					1.000	**.445****	.269**	-.271**	**-.424****	-.236**	.266**	-.168**
visit the pub						1.000	.180**	-.276**	**-.520****	-.141**	**.475****	**-.311****
unpaid volunteer work							1.000	-.165**	-.145**	-.153**	.124*	-.133*
life satisfaction as a student								1.000	**.620****	**.444****	-.259**	.216**
enjoyable social life as a student									1.000	**.387****	**-.510****	**.348****
trust people										1.000	-.172**	.258**
socialising with friends											1.000	**-.358****
close friends ordinal												1.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

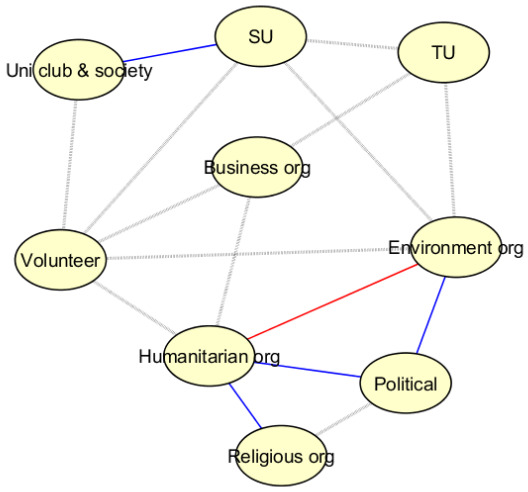
c. Listwise N = 346

(red > 0.50 blue > 0.40 bold >0.30)

The results in Table 6.19 and Figure 6.3 both reveal that sense of belonging and social capital are significantly correlated with each other, especially through overlapping spheres such as Life satisfaction and Trust. However, the analysis needs to address the uncertainty whether civic participation, as one of the key components of social capital, is meaningfully associated with other variables, due to the relatively weak correlation coefficient.

In order to explain civic participation in the social capital context, another correlation analysis was conducted, with 9 variables of civic participation and related elements: University clubs and society, Unpaid volunteer work, Business organisations, Trade Union, Student Union, Humanitarian organisations, Environmental organisations, Political party, and Religious organisations. This produced 5 associations with higher correlation coefficients than 0.30, after the minimum of the correlation strength was adjusted (decreased to 0.20) for further investigation.

Figure 6.4 Correlation network map of civic participation variables
(r > 0.20; blue > 0.40; red > 0.50)



The analysis in Figure 6.4 shows that civic participation variables themselves are densely interwoven, involving strong or moderate positive correlations. It is noticeable that Unpaid volunteer work is one of the most frequently associated variables (5 times). It links with other variables such as University clubs and society, acting as a gatekeeper to reach the remaining

variables such as Pubs, Enjoyable social life, and Play games in the total correlation network map.

Table 6.20 Descriptive analysis of 9 variables of civic participation and related elements

		University clubs and societies	unpaid volunteer work	Business org	TU	SU	Humanitarian org	Environmental org	political party	Religious org
n	**Valid**	375	378	373	375	373	367	371	374	377
	Missing	5	2	7	5	7	13	9	6	3
Mean		4.47	5.10	5.47	5.89	5.49	5.81	5.84	5.88	5.63
Median		5.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Not participate (%)		37.6	57.6	77.6	91.1	71.3	86.6	87.4	90.8	82.1
Std. Deviation		1.457	1.252	1.158	.446	.999	.653	.529	.468	.922

Table 6.20 shows that there is a wide range of differences between them, especially in their means and not-participating rates. First, the means vary from 4.47 (University clubs and society) to 5.89 (Trade Union). In order to confirm that these differences are statistically significant, the Wilcoxon signed-rank test was performed on every pair of those variables. The results show that University clubs and society have the highest frequency (M= 4.47, 'monthly'); followed by Unpaid volunteer work (M=5.10, 'less than once a month'). Student Union and Business organisations are the next, since with no significant difference between two; followed by Religious organisations, and the rest.

The percentages of those who do not take part in civic activities are between 77.6 % (Business organisations) and 91.1% (Trade Union). Compared to University clubs and society (37.6%), Unpaid volunteer work (57.6%), and the social engagement average (18.5%), the figures seem to be substantially higher. In addition, the median of civic participation variables is 6, which indicates 'not participating'. The average of missing data is also high (n=6), considering the fact that the average number of missing data from social engagement variables was 3. These facts might be a hint to explain why civic participation seems detached and less visible in the correlation network map. More discussion will follow in Chapter 9.

Further analysis by sub-set

As shown in Table 6.15, four indicators related to social capital were applied to the sub-sets analysis: Trust, Numbers of close friends, Unpaid volunteer work, and University clubs and society. University clubs and society was included, since it was one of the most important variables of social participation in the university context, and also because it is a vehicle for other civic activities (e.g. Women's society). Analysis results are presented in Appendix 5.

Firstly, 65.5% of participants (n= 249) were grouped as higher trust, whereas 34.2% (n=130) of them were labelled as the lower trust group. The results in the table show that trust is the only indicator with significant differences in all main variables. There are considerable gaps in well-being between the trust sub-sets; the High Trust group is more likely to be satisfied with their student life as well as social life, whereas the Low Trust group's response is close to 'neutral'.

Secondly, the sub-group with low numbers of close friends (less than 10) was counted as 165 participants (43.4%), while the high group (10 and over) had 192 participants (50.5%). The Mann-Whitney results suggest that the high group shows higher University and School belonging, academic engagement (Course expectation, Fellow students are supportive), social engagement (Visit pubs, University clubs and society, Socialising with friends), life satisfaction and trust.

Next, the sub-sets of those who 'participated in University clubs and society' or 'did not' were counted as 232 times (participate, 61%) and 143 times (Not participate, 37.6%) respectively. A higher proportion of female and mature students are found in those who do not participate. The results reveal that those who participate in clubs and society in university are more likely to have higher belonging to university, to visit pubs and socialise with friends more often, and to get involved with unpaid volunteer works. Their satisfaction with life and social life, and trust are all higher than the others who do not participate at all. They are also less likely to consider leaving university.

In terms of volunteering, a number of participants who are involved in unpaid volunteer work (n=159, 41.8%) is lower than those who are not (n=219, 57.6%). The statistical test confirms that there are significant differences in both University belonging and School belonging, Trust, all social engagement, and Life satisfaction. More interestingly, the participants who volunteer seem less likely to be in receipt of a Bangor bursary than those who do not. When participants take part in unpaid volunteer work, therefore, they are likely to feel stronger

belonging to university and schools, have greater numbers of close friends, engage more frequently in social activities such as visiting pubs, socialising with friends, and participate in University clubs & society. In addition, their trust and satisfaction levels are higher than those who do not volunteer at all.

Table 6.15 provides compelling evidence that belonging and social capital are positively related. All sub-sets on the basis of social capital demonstrate higher levels of University and School belonging, except for one case; there is no difference in School belonging in the clubs and society sub-sets, although the mean for participating (M=4.10) is higher than for the Not-participating group (M=3.94). The range between 0.24 and 0.59, which means that the sub-groups which include social capital components in their responses show, on average, 0.37 higher belonging than their pair sub-groups.

It is also noteworthy that all the results of variables appear consistent. In other words, the sub-groups with higher social capital elements show the expected tendencies of higher academic and social engagement, life satisfaction, and less likely to consider leaving university.

6.9 Summary

In this chapter, the questionnaire data was explored by applying various statistical analyses in a series of stages. First of all, the descriptive analysis revealed that participants *agreed* that they felt sense of belonging to both university and school. It also demonstrated how strongly they could agree about other variables including academic and social engagement, life satisfaction, trust, and considering to leave university. The later stages of analysis (e.g. the Wilcoxon signed-rank test) confirmed that there were significant differences in certain variables, although they seem less apparent in the descriptive analysis; the level of students' generalised trust was lower than belonging, life satisfaction, and academic engagement. In addition, students tended to participate in socialising more often than other forms of activities such as University clubs and society, and volunteering.

Correlation analysis of the entire set of variables revealed more detailed aspects of academic and social engagement. There was no direct, strong correlation association between variables of academic and social engagement. Those variables were mostly linked through other

variables such as life satisfaction and trust. Secondly, the analysis suggested that University belonging had a different correlation pattern from School belonging. Students' belonging to their academic school was more intensely associated with academic engagement than their belonging to the university. In contrast, civic participation seems to be separate from the other variables. The correlation network map was used to visualise how certain variables tend to have more associations than others.

Further analysis on the basis of various sub-sets found consistent statistical tendencies. These sub-groups were purposively chosen to investigate factors of social disadvantage in students' belonging. They were less likely to participate in social activities, and to have less enjoyable life as a student. Contrary to the literature review, emphasising the importance of academic engagement to belonging, academic variables seemed to be less likely to affect these sub-sets. In addition, three variables, Enjoyable social life as a student, University clubs and society, and Socialising friends, showed the consistent pattern of analysis results; differences of these variables by all sub-groups were identical; either positive or negative in the same direction.

The results of the sense of belonging analysis suggested that students' belonging to Bangor University was different from their academic school. Although both types of belonging were strongly correlated, the correlation network map effectively demonstrated their association patterns were different. School belonging showed more correlation especially with the academic engagement variables. The Wilcoxon signed-rank test confirmed that there were significant differences of many sub-groups between University and School belonging. Although the average of the actual gaps between both belonging was 0.29, the range spread widely from 0.12 (Trust High or Low) to 0.95 (Healthcare school). Most sub-groups showed stronger belonging to the academic school than to the university, except the school of Social Sciences. In addition, the Mann-Whitney test revealed that there were differences in University belonging by sub-sets. For instance, the gap between the means for Psychology and Healthcare was 1.27, which was the largest amongst all sub-groups. The significant differences existed in School belonging, but in a different way from University belonging, by sub-sets. The results of the various statistical analyses led to an important conclusion about the character of students' sense of belonging; its complexity compared with the simple assumptions of previous research. This characteristic of students' sense of belonging in higher education will be studied further in the discussion chapter (Chapter 9).

The next analytic stage revealed that components of belonging as well as social capital were significantly associated. The correlation analysis of the main variables suggested that these components were linked through the hubs such as life satisfaction and trust. Trust was one of the key hubs which provided the link between academic and social engagement of belonging.

Although civic participation variables seemed detached from the rest of variables, there was dense correlation within this set. When the cut-off point of the correlation coefficient was decreased to 0.20 instead of 0.30, it showed that the Unpaid volunteering work was the hub-variable which could link civic participation to the rest.

The analysis by sub-sets led to consistent significant differences. It confirmed that social capital components played the crucial roles, and were positively related with belonging. Notably, generalised trust was the only variable which showed meaningful differences in all elements of belonging and social capital. The implications of this will be considered in the discussion chapter (Chapter 9).

The following two chapters will focus on the 10 Words Question. The 10 words data will be analysed by applying mixed methods from both quantitative and qualitative approaches. Following on from the questionnaire analysis, this thesis will explore the 10 words data on the sense of belonging perspective (Chapter 7), and examine the conceptual and statistical linkage between belonging and social capital (Chapter 8).

Chapter 7. 10 Words Question analysis results 1: on sense of belonging perspectives

7.1 Introduction

The 10 Words Question was the newly developed instrument for this thesis to understand students' sense of belonging to their institution in higher education by eliciting personal thoughts and feelings. In this chapter, the data is analysed by applying a sequence of analytic methods including In Vivo coding, systematic coding, clustering, and contingency analysis. Since the technique is being used for the first time, the procedure and results are reported in full detail.

7.2 Preparation

Data preparation

Since the 10 words Question is an instrument to collect data on participants' opinions, thoughts, and feelings in an open-ended way, participants' responses may be expressed in unexpected ways. Initial screening of response sheets indicated that some participants chose to record their responses in different ways, including phrases, sentences, or drawings. To respect participants' intentions, and keep the integrity of the data, responses were divided into two types: *words* and *narrative* data. The words data consists mainly of individual words, while the narrative data is defined as those written in the form of phrases, sentences, and paragraphs.

Although the initial categorisation was based on the manifest content of the data, there were other characteristics to distinguish between these two types of data. In separating them, the main criterion was to consider participants' intentions. For example, the response, 'a chance to have my voice heard (student union)' would be difficult to reduce into 'chance', 'voice' or 'student union'. This participant seemed to feel a sense of belonging to Bangor University by getting involved with the student union, which worked as a tool to express his/her opinions. This phrase should be treated differently from a response written as separate words such as chance, voice, and

student union. The narrative data has a more intentional, descriptive, informative, and story-telling quality.

The words data consists of one or more word(s), which are not necessarily directly linked. This type of data about thoughts, feelings, facts, and arguments can be scattered, or disjointed. Although some responses were written as phrases, they could be categorised as words data, when they are coded into a word, without losing meanings. The details of the coding process will be presented in the analytic stage.

A total of 372 cases were classified as words data; while the remaining 54 cases were grouped as narrative data. The responses written in Welsh were translated into English by professionals[5], then treated as equivalent. There were 5 responses in Welsh; 4 words data and 1 narrative data.

To keep the design of the research and consent agreements as simple as possible, the only personal information collected was the module code. Participants' academic schools and their school years were inferred from the module codes. For instance, 76 responses were collected from the lecture of SXY-1007, and 8 from SXU-2001; both modules were run by the School of Social Sciences. The former module is for first-year students, the latter for the second year. Thus the data was recorded as Social Sciences 1, and Social Sciences 2, accordingly.

Table 7.1 shows the frequency of participants and the breakdown by words and narrative data per module. The 426 participants are broadly spread over 14 academic schools, from the total population of 9,772 students in 19 academic schools. The first year Social Sciences group is the largest participants (76); followed by second year Sports Sciences (56), first year Psychology (52), first year Law (46), first year Linguistics (36), and second year Healthcare Science (36).

In most cases, the number of participants providing words data was higher than for narrative data, except for those from the school of Education. There are two schools without narrative data: Sports Sciences and Chemistry. Considering the overall ratio of narrative data to words data, Healthcare displays the highest level of narrative data

[5] The translation was done by Canolfan Bedwyr Uned Gyfieithu (Bangor University Welsh translation unit).

(38.9%). The significance of participants' schools will be discussed in more detail later.

Table 7.1 Frequency of participants by words and narrative data, by modules from the 10 Words Question

Academic school & year	Total number of participants	Words data	Narrative data
Social Sciences 1	76	71	5
Sports Sciences 2	56	56	0
Psychology 1	52	44	8
Law 1	46	40	6
Linguistics 1	36	28	8
Healthcare 2	36	22	14
Chemistry 2	22	22	0
Geography 3	22	21	1
History 2&3	21	20	1
Business (master)	17	14	3
Modern Language 2	12	10	2
Social Sciences 2	8	8	0
Computer Science 1	7	6	1
Education 1	6	2	4
Electronic Engineering 1	6	5	1
Social sciences (master & PhD)	3	3	0
Total	426	372 (87.3%)	54 (12.7%)

Data input

The main objective of the data screening and cleaning was to preserve the integrity of the data; all response sheets were recorded precisely as given by participants, including punctuation marks (brackets, hyphens, commas, quotation marks, and so on), abbreviations, acronyms, colloquialisms, customary words, idioms, and even spelling mistakes. For words data, some responses indecipherable due to participants' handwriting. They remained as given, and were recorded separately.

In order to conduct the first stage of analysis, Pre-coding, the entire data was screened and cleaned; adding the correction of spelling mistakes, rewriting acronyms and abbreviations. Some examples were:

Common spelling mistakes:

accommodation, privileged, accessible, attendance

Acronyms:

SU (students union)

BU Bangor University

SSHES School of Sport, Health and Exercise Sciences: school of sport sciences

BUFC Bangor University Football Club

AU athletic union club

SVB Student Volunteering Bangor

SENRGY School of Environment, Natural Resources and Geography

Geog Soc Geographical Society

UMCB Welsh Students' Union

AGM annual general meeting

SONA Student Panel in Psychology

Abbreviation:

Uni university

For the analysis, the Microsoft Excel and Microsoft Word were selected for the words and narrative data respectively. They are straightforward, versatile, transferable, and

convenient for later transformation into different analytic and visualisation programmes[6].

The words data was typed into the Excel sheet with the case identification number with the module titles. For example, when participants wrote 'pride, fraterinity (fraternity), sorority, comrades, acceptance, identification, welsh, honour, graduate, alumni', all these words were typed as they were, with a separate column for each word.

Since the narrative data consisted of phrases, sentences, and paragraphs, they were recorded in the Word file. A range of lengths of the data varied from a single sentence (e.g. 'Bangor is so small it is hard not to feel you belong'), up to 3 paragraphs with 73 words. The 54 items of narrative data were typed into a table with the case identification number and module titles. The original scripts were typed as they were written; including various punctuation marks (brackets, hyphens, commas, and quotation marks), and formats such as bullet points and numbering. Participants' drawings were described as they were (e.g. 'drew a smiling face').

The analysis of the words and narrative data was conducted separately, before they were merged at the last stage. The analysis process and results of words data are described next; followed by the narrative data.

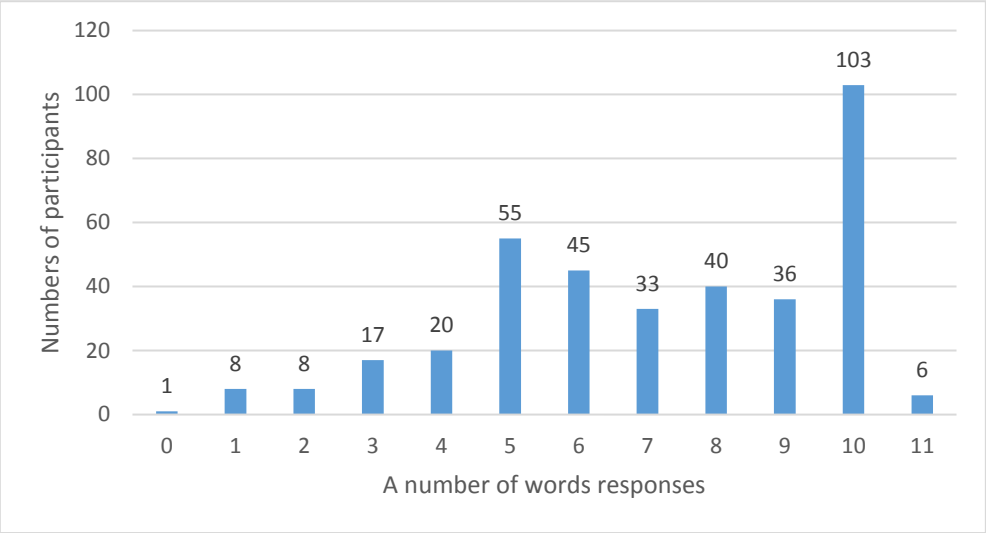
7.3 The first stage: In Vivo coding or Pre-coding

Overall descriptive statistics

[6] The option of using software for qualitative data analysis such as NVivo was considered. NVivo is an effective tool to support researchers to manage, analyse, and visualise qualitative data. It is specifically useful for work on unstructured or semi-structured data, which contains a high level of complexity and ambiguity. For example, the raw data from in-depth interviews with participants can be typed and scripted into this programme for further analysis. In the current case, however, the lengths of individual data were relatively short; for words data, the average number of responses were 7, while the maximum words count of narrative data 73 words. Besides, the system of NVivo requires saving each participant into a separate file, which would lead to 426 individual files. In order to deal with the data which contains compact content, but from a large number of individual participants, the value of NVivo is questionable. In contrary, the Excel is suitable for this type of data, since it can display the entire words data in a single table. It is also convenient for data analysis, because it has functions such as 'find' and 'change' for the coding process; and NVivo is not compatible with Excel data.

The total number of words items was 2,671 from 372 participants; and the average number of words per participant was 7 (M= 7.2), with a range from 0 to 11[7]. As shown in Figure 7.1, 103 participants wrote down 10 words, which was the most frequent number of the responses (27.7%), followed by 5 (14.8%), 6 (12.1%), and 8 (10.8%).

Figure 7.1 Numbers of participants by numbers of words data for 10 Words Questions



In Vivo coding, or Pre-coding procedures

The words data was coded using the In Vivo coding method, which prioritises participants' own freely chosen linguistic terms (Rapley, 2011). In Vivo coding is an efficient way to capture the key essence of words data, without losing any nuance of the participants' responses. The term 'pre-coding' can be also used, since this is preliminary coding, prior to the full-scale coding on the next stage.

Most words responses are nouns or adjectives as a single word (e.g. 'friends', 'society', 'happy', 'connected'); while as a phrase, they consist of two or more words, combining nouns, adjectives, adverbs, and verbs, such as 'student support', 'helpful

[7] There was one response sheet returned as blank. This case was recorded, since the participant handed in the sheet by him or herself; when students decided not to take part, they chose not to receive the form at the beginning of the survey.

academic staff', 'promoting community education', and 'being able to email at all times'.

The aim at this stage was to group data with similar meanings under one *representative word*. Words responses which either shared the same semantic roots, or included that specific original word, were put into the same group with the representative word. For instance, 'friendly' appeared 17 times and was appointed as the representative word; 'friendliness' was also counted, since the word came from 'friendly'. In addition, 'friendly faces', 'friendly environment', 'friendly people', 'welcoming/ friendly', 'societies/lecturers-friendly' were added, because the responses contained the specific word (friendly), and also because that representative word played the key role. The table below describes the contents belonging to the representative word, 'friends', since that was the most frequent word in this stage.

Table 7.2 Samples of In Vivo coding, with a representative word, 'friends'

Representative word	**Contents on response sheets**
friends (154 times)	friends (143 times) course friends (2 times), making friends (2 times), new friends, finding friends, friends-your year & others, friends alike, friends general, friends / flat mates part of university family and friends,

This process began with some main keywords, then expanded by applying a snow-balling technique. The data screening led to the main keywords which were the most visibly frequent, including 'friends', 'societies', 'social', 'clubs', 'community', 'support', 'mates', 'lectures', 'study', 'work', 'student', 'university', 'halls', 'wales', 'night out', and 'fun'. This initiated the snow-balling method; for example, 'friends' can coheres with 'friendly', 'friendship', 'colleagues', 'family', 'member', 'team', 'groups', and 'together'. The next example, 'lectures', is linked by association to other institution-related words such as 'lecturers', 'course', 'seminar', 'tutor', 'tutorials', 'attending', 'learning', 'essay', 'exam', and 'assignments'.

There was one rule for this process; each word should be counted only once. When responses consisted of more than two words, it was decided that they belonged to the one specific representative word, which described the most important meaning (e.g., 'social event' was recorded as 'event', not 'social'). Most cases appeared straightforward, while a few responses had two equally meaningful words such as 'clubs/societies', which was recorded as 'clubs'. At the later analysis stage, these representative words were merged into the same category.

In Vivo coding results

In Vivo coding led to 2,072 words (77.6 %) with 133 representative words, leaving 655 words (22.4%) to be excluded at this stage. Although the frequency count was applied to 77.6% of the total data, it was large enough to conduct descriptive analysis at this stage. It started to reveal notable findings about belonging, and the most frequent words were already included[8]. It would be pointless to proliferate categories for all the data at this In Vivo coding stage.

There were 655 excluded words, which were described as 'left-over'. The frequency of the leftover words was less than 4 for each; for example, 'summer ball' was counted four times. Instead of making a representative word of 'summer ball', it remained as 'left-over' until the next stage. Later at the systematic coding stage, 'summer ball' belonged to the representative word of 'activities', together with other similar words such as 'peer guide', 'open days', and 'Alumni'. At the pre-coding stage, it was a deliberate choice to ignore the left-over words, since these individual words seemed less meaningful at this stage, but became more significant at the next stage. Some themes became more visible and meaningful when similar words were brought together (e.g. the names of sports -football, American football, rugby, hockey, lacrosse, judo, jitsu).

[8] If a specific word is found more often than 20 times, it was agreed that the word appeared considerably significant, therefore it should be included. It was 20 times as a minimum standard, because one percentage of the number of words (2,072) was 20.

Table 7.3 Examples of Representative words with the highest frequency counts from In Vivo coding

Representative word	Actual words on response sheets	Frequency
friends	friends (144) course friends (2), making friends (2), new friends, finding friends, friends-your year & others, friends alike, friends general, friends / flat mates part of university family and friends,	155
societies	societies (77) society (12) societies & clubs (8), club/society socials, part of a/some/ society/societies/clubs, trying clubs /societies, clubs/societies (the general spectrum is good) welsh community (UMCB) UMCB - Undeb Myfyrwyr Cymraeg Bangor Singapore society, law society (3), being part of a society/athletics club, sports societies societies-sports + non sports societies (athletic union in particular) societies – non athletic societies (BUBB, BUCB, symphony orchestra, BU musoc) societies free to join lots of society watching other societies work (e.g. sport/productions) a difference in societies hard to find societies I want to join	126
community	community (47) community feeling (2) community + friends student community (2), good student community academic-community sense of community (around halls) university environment/community community → in terms of respect /values → team building community promoting community education	59

clubs	club(s) (23) club socials (2) club/society socials social clubs student club sports club(s) (12), Bangor university sports club outdoor persuits club Bangor women's basketball club AU clubs (3) riding club Bangor badminton club triathlon club Bangor hockey club (2), hockey club Bangor windsurf club, surfclub tennis club sticky floored clubs	56
halls	hall(s) (42) halls of residence (3), Living in halls (2) Seniol hall halls/flats (2) Uni halls, JMJ-John Morris Jones Halls (2)	54
lectures	lectures (48) studying and going to lectures ease of lectures lectures & academic work Welsh lectures and opportunities	52
social	social(s) (40) social life (5) social side to social interaction social aspects social gatherings social (network) going out on 'socials'	51

As demonstrated in Table 7.3 above, the representative word '**friends**' was the most frequently used word (155 times, 5.8%); followed by 'societies' (126 times, 4.7%). In addition, as a single word, 'friends' occurred the most often, 144 times. In other words, when participants were asked what came to their minds, thinking about their sense of belonging to Bangor University, the word 'friends' came up more than any other. For approximately 1 in 10 (35 participants, 9.4%), this was the first word to appear.

Next, ‘societies’ was counted 126 times, which included any words containing the word ‘society’ or ‘societies’. For instance, ‘Welsh society (UMCB)’ and ‘law society’ were added; including expressions such as ‘being part of a society’, and ‘a difference in societies’. Although the frequency count was slightly lower than for ‘friends’, it exceeded ‘friends’ as the first word; 45 participants (12.1 %) wrote down ‘societies’ at the beginning of their 10 words responses. Since ‘societies’ and ‘clubs’, as commonly used terms on campus, both meant ‘Bangor University clubs and societies’ in this context, they occurred 182 times altogether. It became one of the most frequent representative words amongst the words data (182 times, 6.8%) and first words (64 times, 17.2%).

It is striking that three words, ‘friends’, ‘clubs and societies’, are dominant in students’ minds regarding their belonging. They account for more than 12 percent (337 times, 12.6%) of the entire words data; and around 1 out of 4 participants (26.6%) bring up these words as the first response, when they think about their sense of belonging to Bangor University.

The majority of representative words (113 representative words, 85.0%) are nouns, while the rest (20 representative words) are adjectives and adverbs, such as friendly, involved, happy, welcoming, connected, secure, together, close, small, enjoyable, comfortable, academic, international, accessible, open, different, included, isolated, separate, and beautiful. Some words describe actions and behaviours such as socialising, drinking, attending, or running, while others are related to emotional status such as happy, fun, welcoming, pride, and isolated. Words relating to the natural environment were also found: rain, hill, atmosphere, and sea.

Some words are straightforward and direct, such as ‘sports, fun, mates, student union, library, family, lecturer, study, seminar, learning, blackboard, and exams’. On the other hand, others are abstract (e.g. independence, atmosphere, career, knowledge, diversity, challenge, respect, and academic), or generic (e.g. participation, volunteering, experience, opportunity, language, freedom, and accessible). When the meanings of words are less straightforward or definite, they are interpreted in the context of other expressions in the response sheets.

Complexity of the words data

In order to present the results of the In Vivo coding, a specific programme, 'Word It Out' (http://worditout.com/) was used. Amongst existing word clouds generators, which can create various visual formats, it was the only one compatible with the Excel data. When the raw data was provided with the selection of colour, font sizes, and font styles, this web-based programme generated results. The sizes of words are proportionally calculated based on frequency, while their location is random. It is an effective tool to visualise 133 representative words in one snapshot.

Figure 7.2 Results of In Vivo Coding with 133 representative words as Word Clouds

(http://worditout.com/)

It reveals the complexity of the data; the most frequent representative words and others related to social aspects such as 'sports', 'friendship', 'support', 'fun', 'friendly', 'team', and 'mates' are visibly noticeable. On the other hand, numerous words data in small sizes is dispersed and fragmented, showing how complicated and detailed the data is.

Most representative words seem to refer to social aspects of students' life, whereas words related to academic engagement are less prominent. The words directly and indirectly related to academic engagement are: lectures (52 times), work (34), study

(23), education (22), library (21), learning (20), lecturer (20), tutorials (19), degree (14), school (13), seminar (12), research (11), tutorials (10), course (9), essay (8), assignments (8), blackboard (8), knowledge (8), attending (7), academic (7), exams (6), grade (4), academic school (4), graduation (4), career (4), and university (3). The sum of the frequency counts is 352 (13.2%), and occurrences as the first word is 45 (12.1%).

This result suggests an interesting point in the context of academic engagement; academic-related words are less often found than might be expected from the review of previous research. Academic engagement has been assumed to be a prominent aspect of students' sense of belonging to institutions in higher education. Compared to three representative words of 'friends', and 'clubs and societies' (337 times, 12.6 %), the sum of frequency of academic words (352 times, 12.1%) is less than expected. Nevertheless, more than 1 in 10 participants came up with one of these words as the first word.

At this first stage of analysis, it is notable that social engagement is one of the most robust factors in students' sense of belonging. This finding is confirmed repeatedly throughout this study. The detailed results are presented in Table 7.4.

7.4 The second stage: Systematic coding

Systematic coding procedures

The findings from In Vivo coding are limited in three ways; firstly, they are based on incomplete coverage of the data (approximately 78%); secondly, the number of representative words (133 words) is still too large to cluster into themes; and lastly, some data are scattered as fragments. At this second stage, systematic coding was applied to the entire dataset; including the existing representative words and the left-over words, which were excluded at the previous stage. The coding was conducted using a thesaurus technique, based on synonyms and common sense understandings.

Table 7.4 Results of descriptive analysis of In Vivo coding with 133 representative words

friends	155	family	17	books	9	Open	6
societies	126	happy	17	belonging	9	Peep	5
community	59	independence	16	safety	9	going out	5
clubs	56	event	15	enjoyable	9	people	5
Halls	54	drinking	15	stress	9	countryside	5
lectures	52	Wales	15	relationship	8	food	5
social	51	communication	14	essay	8	diversity	5
sports	49	degree	14	assignments	8	encouragement	5
friendships	38	activity	13	knowledge	8	different	5
student	37	socialising	13	blackboard	8	member	4
work	34	school	13	sea	8	grade	4
support	33	participation	13	hills	8	academic school	4
fun	29	welcoming	12	volunteering	8	graduation	4
friendly	28	alcohol	12	laugh	8	career	4
team	26	bar Uno	12	comfortable	8	accommodation	4
academi	25	seminar	12	party	7	surrounding	4
mates	25	experience	12	attending	7	environment	4
varsity	25	opportunity	12	academic	7	heritage	4
student union	24	connected	12	main arts	7	culture	4
study	23	secure	12	atmosphere	7	challenge	4
union	22	together	11	Bangor	7	included	4
education	22	research	11	international	7	freedom	4
pride	22	mountains	11	respect	7	motivation	4
group	21	local	11	peer guide	6	isolated	4
library	21	close	11	Facebook	6	separate	4
Welsh	21	representing	11	exams	6	network	3
learning	20	pubs	10	understanding	6	university	3
lecturer	20	tutorials	10	building	6	beautiful	3
home	19	Ffriddoedd site	10	rain	6	history	3
tutor	19	language	10	competing	6	development	3
involved	19	money	10	gym	6	trust	2
help	18	emails	9	accessible	6		
bitch hill	18	course	9	achievement	6		
night out	17	small	9	commitment	6		

Firstly, representative words with similar meanings were gathered into one group. For instance, **'societies'**, at the previous stage, was counted 126 times. At the systematic

coding stage, similar words including ‘clubs’ (56 times), ‘sports’ (49), and ‘union’ (22) were added; thus the total became 289. In addition, it was extended to similar left-over words such as sports (e.g. football, tennis, kayaking, surfing, and judo), and any actions related to the university clubs and societies (e.g. annual general meetings, and elections). As a result, the representative word ‘societies’ stood for the entire range of clubs and societies, and their related activities at the university level.

‘**Student union’**, on the other hand, was kept separate, and was not absorbed into the entity of ‘societies’, since the student union can be treated symbolically and politically, as being active and participatory; it leads student policy making, and collectively represents students’ opinions. As mentioned in the literature review, according to Gordon and Babchuk (1959) who adapt Weber’s typology of action, the student union seems to be located under ‘instrumental participation’. This type of action generally targets specific purposes, mostly for collective goals, while other clubs and societies are conceptually and practically geared to ‘expressive participation’.

The other example, **‘lecture**’ appears 52 times; joined by other similar representative words which are directly or indirectly related to lectures such as ‘work’ (34 times), ‘study’ (23), ‘learning’ (20), ‘seminar’ (12), ‘research’ (11)’, ‘tutorials’ (10), ‘course’ (9), ‘assignments’ (8), ‘essay’ (8), ‘attending’ (7), ‘exams’ (6), and ‘grade’ (4). There are a number of relevant leftover words: deadlines (3), field trips (2), feedback (2), placement supervision, mentoring, revisions, training, classes, and discussions. All these words are closely related to the teaching and learning experiences in higher education. Although the word ‘lecture’ is used as the representative word based on the first coding, the actual meaning is closer to ‘curriculum’.

There are certain words to describe students’ social life in a broad sense, such as ‘party’ (7 times), ‘night out’ (17), ‘going out’ (5), ‘drinking’ (15), and ‘alcohol’ (12). These activities frequently occur at specific places such as bars (e.g. Bar Uno), pubs (e.g. Paddy, The Globe, Mikes Bites, Wetherspoons) or night clubs (e.g. Peep). Adding up all the words (including ‘hangover’, ‘clubbing’, ‘beer’, ‘Jack Daniels’), the representative word, ‘**pubs**’ occurs 102 times.

Maintaining the essential meaning of students' accommodation at university, **'halls'** (54 times) is extended to other students' residences such as 'Friddoedd site' (10), 'Normal site' (3), 't-block', and 'glider', and more general words (e.g. 'accommodation', 'housing', 'kitchen', 'common rooms', and 'dormitory').

'Life satisfaction' consists of positive and negative expressions; 'happy' (17 times), 'enjoyable' (9), 'fun' (29), 'laugh' (8), and 'comfortable' (8) are positive expressions, whereas 'unsure', 'lost', 'middle of nowhere', 'ignored', 'indifferent', 'trapped', 'stuck', 'unorganised', 'confusion', and 'insanity' are grouped as dissatisfaction.

Three cases combine two similar words: 'friendly' (28 times) and 'welcoming' (12); 'support' (33) and 'help' (18); and 'family' (17) and 'home' (19). These words share similar contextual meanings in the responses, so the pair is treated as a single representative word.

The systematic coding led to the extension of boundaries of meanings, as shown in most representative words, while a minority remained same including 'friends', 'friendship', 'community', 'together', 'education', 'participation', 'experience', 'opportunity', and 'independence'. Although the principle of In Vivo coding was no longer applied at the current systematic coding stage, participants' own linguistic terms continued to be respected by keeping the original form of the representative words.

Complete details of a few examples of representative words are set out in Table 7.5. While some representative words were grouped together according to the similarity of meanings, new representative words were created: 'subject', 'logo', 'hobby', and 'service'. In detail, '**subject**' in this context refers to academic subjects, including those directly and indirectly related words such as 'psychology', 'social sciences', 'ODA (sports sciences)', 'geography', 'street law', and 'mooting'. Another example, **'logo'** contains any words which stand for Bangor University, in a symbolic or indirect way such as 'university logo', 'Bangor Uni hoodies', or merchandise (e.g. 'Bangor Uni', 'jumper'). Another new representative word, **'service'** means services and facilities provided by the university such as 'blackboard', 'library' and 'parking'. **'Hobby'** indicates a wide range of individual activities based on personal interests, such as 'reading', 'gym', 'books', 'concert', 'comedy', and 'computer'. They are

different from ‘societies’, since they are individual and privately-organised activities, mainly motivated by personal interests, without official involvement in university clubs and societies. The new representative words are: ‘subject’, ‘logo’, ‘time’, ‘future’, ‘equality’, ‘change’, ‘importance’, ‘nice’, ‘confidence’, ‘life’, ‘human’, and ‘unhappy’.

Table 7.5 Examples of representative words with the highest frequency counts from systematic coding

Representative word	**Contents**
Society (289)	Pre-coding Representative words: Society, clubs, sports, union Leftover words: football, American football, rugby, hockey, handball, lactrosse, judo, athletics, jitsu, cycling, diving, climbing, kayaking, rock climbing, running, swimming, athletic, bicycle, basketball, surfing, paint ball, judo Annual general meeting, meeting Election, voting
Lecture (226)	Pre-coding representative words: lectures, work, study, learning, course, attending, exams, essay, assignments, tutorials, seminar, research, grade Leftover words: placement, Supervision, Speaking to supervisor-meetings, mentoring, Literature, heading, deadlines, Assessment, Revision, Feedback, Training, classes, Class discussions, discussion, Field trips
Friends (149)	Same as pre-coding representative word
Pubs (102)	Pre-coding representative words: night out, Bar Uno, alcohol, drinking, pubs, party, Peep, going out Leftover words: hangover, booze, clubbing, paddy, the globe/paddies, wetherspoons, Mikes bites, beer, Jack daniels, jim beam, Quad vod
Halls (85)	Pre-coding representative words: halls, Ffriddoedd site, accommodation, Leftover words: Normal site, kitchen, common rooms, common spaces, dormitory, warden, housing, house, flat, t-block, glider, love notes through kitchen windows
Happy (82)	Pre-coding representative words: happy, fun, laugh, comfortable, enjoyable, Leftover words: relax, relaxing, wellbeing, interesting, lovely, excited, content, fulfilment

At the systematic coding stage, the representative words are intended to capture a range of common-sense meanings within their groups. Some words (e.g. 'natural environment', 'unhappy', 'future', 'confidence', and 'life') are simple to understand, whereas others (e.g. 'human' and 'logo') might require contextual explanations. 'Human' indicates instinctive behaviours such as 'eating', 'sleep', 'sex', and 'hungry', which amount to just 4 words in total. At the next clustering stage, this representative word will be grouped with further similar words such as money, food, time, and life, and will appear as one of the main themes of 'living essentials'. The meaning of some representative words gradually becomes more unequivocal throughout the analytic process.

The residual data was grouped separately as 'names of people', 'colour', 'opposite', 'not recognisable', 'meaningless', and 'unsorted'. These residuals were either impossible to recognise because of spellings, or difficult to put into meaningful categories. For example, names such as 'James Maker', 'sam', 'Marcus', or 'weber' were on the response sheets, however, there was no clue to track down the meaning of these words[9]. Other examples (e.g. 'modern', 'FIFA', 'trains', 'UK', 'temporary', 'memories', and 'norm') have their own definitions, but little connection to any of the 82 representative words. As a result, 57 unsuitable words were marked as residuals.

Systematic coding results

Table 7.6 presents the full results of the systematic coding; with 82 representative words and their frequency counts, and 57 residuals. 'Society' (societies) is the most frequent representative word (289 times, 10.8 %), followed by 'lecture' (226 times, 8.5%), 'friends' (149 times, 5.6%), 'pubs' (102 times, 3.8%), 'halls' (85 times, 3.2%), and 'happy' (82 times, 3.1%). These six representative words account for more than one third of the whole data (34.9 %), while the rest consists of 76 representative words.

[9] In two cases, the names belonged to lecturers in the geography and engineering departments respectively. Hence, these words were included under 'lecturer'

Table 7.6 82 representative words and 57 residuals from systematic coding

society	289	secure	26	development	11
lecture	226	building	25	small	10
friends	149	student union	25	career	9
pubs	102	logo	24	volunteering	9
halls	85	atmosphere	24	challenge	9
happy	82	money	24	encouragement	9
activity	77	lecturer	23	achievement	9
school	74	education	22	international	8
natural environment	73	stress	22	accessible	8
support	67	tutor	21	time	7
social	65	unhappy	21	people	6
team	62	degree	18	future	6
community	59	belonging	17	change	6
local	49	important	16	nice	6
communication	47	independence	16	confidence	6
friendly	42	culture	15	passion	6
representing	42	connected	15	life	6
Wales	40	respect	14	open	6
student	39	language	13	equality	5
friendships	38	participation	13	diversity	5
home	36	commitment	13	different	5
hobby	36	relationships	12	graduation	4
service	35	experience	12	freedom	4
involved	31	opportunity	12	human	4
mates	30	together	11	old	3
pride	29	university	11	trust	2
knowledge	27	close	11	Total	2614
isolated	27	food	11		

Residuals

names	8	colour	4	not recognisable	7	meaningless	4	unsorted	31
missing	1	Total	57						

The frequency counts of some representative words increased sharply at this coding stage; for instance, **‘society**’ is one of the distinctive cases, with a large difference from 126 times to 289 times. Another word, **‘activity’** originally consisted of 13 words. The addition of other similar representative words such as ‘Academi’ (25), ‘event’ (15), ‘peer guide’ (6), as well as left-over words such as ‘summer ball’ (4),

'outdoors' (4), 'Welcome week' (3) gives a frequency of 77 times for 'activity'. This is followed by 'school' (from 13 to 74 times) and 'happy' (from 17 to 82 times).

Other words such as '**lecture**' (from 52 to 226) and '**pubs**' (from 10 to 102) demonstrate the value of the systematic coding. Without it, these significant words would have remained unnoticed. This second coding stage discloses these significant themes. Although the differences in frequency are smaller, some others also increased dramatically: 'halls' (54-85), 'team' (26-62), 'communication' (14-47), 'building' (6-25), 'local' (11-49), 'isolated' (4-27), 'representing' (11-42), 'Wales' (15-40), 'atmosphere' (7-24), 'hobby' (36), and 'involved' (19-31).

Lastly, one of the most distinctive changes was the advent of new representative words: **'natural environment', 'subject', 'logo', 'hobby',** and **'service'**. 'Natural environment' (73 times, 2.7 %), for instance, was created to cover a range of responses describing natural environments such as 'mountains' (11), 'sea' (8), 'hills' (8), 'countryside' (5), 'beautiful' (3), 'rain' (6), 'cold' (3), 'warm' (3), 'sheep' (3)', '(bad) weather', and 'beach'.

Figure 7.3 Results of Systematic Coding with 82 Representative Words

Figure 7.3 visualises the results of the systematic coding with 82 representative words, the proportional sizes corresponding to frequency. Social engagement appears to be more salient than academic engagement, since representative words related to social aspects are more visible than academic activities. Some words belong to neither category, such as 'natural environment', 'happy', 'halls', 'local', 'student', and 'hobby'.

One of the main values of the systematic coding is that it enables dominant representative words to emerge clearly, with a reduced number of representative words. Some representative words such as 'society' and 'lecture' account for approximately one in fifth of the whole words dataset, with other small representative words having a wide scatter. The findings underline the complicated characteristics of the data.

Comparison of In Vivo and systematic coding

Table 7.7 Differences between In-Vivo and systematic coding

	In Vivo coding	**Systematic coding**
Main purpose	A literal record, keeping the original words	Grouping similar words, identifying patterns and themes
Coverage	2,072 words (77.6 %) 655 words left (22.4%)	2,670 words (97.9%) 57 words residuals (2.1%)
Representative words	133 words	82 words
Most frequent words	'friends'(155), 'clubs and society' (182)	'society' (289), 'lecture' (226), 'friends' (149), 'pubs' (102), 'halls' (85), 'happy' (82)
Characteristics	Specific, primary definition	General, implicative meaning

Since the In Vivo coding was designed to keep the original data intact, the representative words were chosen for their literal, primary definition. The second

stage of systematic coding, on the other hand, was applied to identify patterns and themes in the data. It resulted in 82 implicative representative words, which subsumed the entire set of words data. The strength of systematic coding at the second stage was to widen the coverage of coding from the limited data (78%) to the complete set of data. While the data tended to have specific meanings derived from primary definitions at the pre-coding coding stage, the representative words became more general and implicative after the second coding. A summary of these two analysis methods is shown in Table 7.7.

7.5 The third stage: Clustering and thematic analysis

Clustering procedures

The third analytic stage aimed to categorise the 82 representative words into themes. The similarities between certain representative words were developed into natural themes. The prime concern of this clustering process was that each group should contain genuine consistency and homogeneity, following the words and meanings deliberately chosen by the participants. The clustering was conducted based on the interpretation of the data in the context of participants' responses; comparing them in the response sheet.

The main decision criteria for this stage were relevance, differentiation, proximity, context, and comprehensiveness. First, clustering was performed based on the relevance rule; words with similar meanings were grouped together (e.g. friends, mates). The differentiation rule was applied to distinguish contrasting meanings such as 'satisfied' and 'dissatisfied'. The proximity rule allowed non-identical, but similar words to be grouped (e.g. homely, friendly). Fourth, words were thematically categorised in the individual and higher education context. When 'athletic society, running, participating, team' were written on the response sheet, they could be understood as part of university clubs and society, considering the participant's intention. In addition, 'clubs and societies' is one of the most popular customary expressions in the university. The fifth rule was comprehensiveness, which aimed to ensure that all the data would be subsumed under the themes.

Applying these rules, **'team'** could be added to 'clubs and societies', or 'community feelings'. However, the meaning of 'team' is not specified or restricted to the university clubs and societies. Having considered other words written in the response sheets, it seems to imply the meaning of doing some activities together, as a group, emphasising solidarity. The actual responses were expressed as 'team work', 'group work', 'unity', and 'unified'. Therefore, a separate, independent category of 'team' was created, instead of adding it to an existing category.

'Socialising' was another example. This word refers to the literal meaning of socialising, since more than 50 responses (52 times) give no further explanations. On the other hand, the representative word **'pubs'** appears to represent a place to have fun, with its related actions: party, drinking, alcohol, night out, going out, Peep, and Bar Uno. Both words shared some common factors, especially socialising activities, however, 'pubs' specifies a certain set of actions related to drinking in this context. Moreover, the word 'pub' seems to include some metaphorical meaning, as the place where people can gather. The purposes of 'pubs' can be socialising, or drinking, dancing, or eating, whereas 'socialising' itself clearly indicates its purpose. Therefore, 'socialising' and 'pubs' are treated as separate categories.

Labelling thematic clusters is a critical process, since it should summarise a range of similar but different representative words belonging to a theme. Simultaneously, the name should logically imply what the words stand for. Consequently, some representative words were given new titles; for instance, **'lecture'** expanded from the literal and primary definition to the general, implicative meaning throughout In Vivo and systematic coding stages. At the clustering stage, its characters and meanings changed significantly, and it was replaced by 'curriculum'. The detailed definition of all the clusters will now follow.

Clustering results: labelling themes

As a result of clustering, 28 thematic categories were generated based on the five criteria for clustering. Some categories sit within a clear boundary of meaning and interpretation (e.g. friendship, student, culture, accommodation). Others, in contrast, require clarification with detailed definitions and examples, because they broadened

out (e.g. society, curriculum, university, pubs) or took a new direction (e.g. participation). Some new themes emerged (e.g. locality and community feelings), from being scattered and hidden in the data, despite their importance in the context of students' university life and belonging. The next stage will reveal that these findings play a significant role.

Detailed descriptions of thematic categories are as follows.

Societies

'Societies' refers to any group or organisation, as well as their activities and events, mainly organised by clubs and societies at university. It comes from a customary phrase, 'Clubs and Societies at University'. For instance, the representative word 'activities' refers to various forms of events, designed for students' participation, mainly facilitated by university clubs and societies, within the boundary of the university. The boundary means these activities should be related to the university geographically as well as symbolically; outdoor activities, coffee breaks, and extra-curricular events are all included. Other official events organised by the university are also added such as Academi, peer guiding, and welcome weeks, since students' participation is critical to these events, and clubs and societies generally play significant roles.

Locality

'Natural environment', 'atmosphere', 'local', 'Wales', 'small', and 'old' are closely intertwined to explain participants' surroundings; geographical locations, regions, and local areas. The meaning starts from specific places such as 'Wales', 'Bangor Pier', or 'Bitch hill'; then can be extended to more general and abstract levels including 'mountains', 'countryside', 'sheep', 'rain', and 'dragon' (symbol of Wales).

Community feelings

A range of words describing participants' emotional and social status of being related to 'community' and 'belonging'; it includes mainly positive expressions and feelings such as 'involved', 'connected', 'together', 'friendly', 'home', 'accessible', 'close', and 'open'.

Curriculum

A wide range of activities related to teaching and learning experiences in higher education, including university lectures. The word can stand for academic occasions such as 'lectures', 'seminars', 'exams', 'placement'; contents such as 'literatures' and 'knowledge'; as well as related actions such as 'study', 'work', and 'understanding'.

University

This refers to words which point directly, indirectly, physically, or symbolically to the university as well as academic schools; it includes services and facilities provided such as 'library', 'blackboard', 'scholarships', 'parking', as well as buildings such as 'Main Arts', 'chemistry towers', and 'Hogwarts'. In addition, the meaning can be expanded to symbolic levels, which covers Bangor university badge, hoodies, and logos. In addition, it includes any words related to academic schools, their subjects, and subject-related expressions: 'psychology', 'mooting', 'Asbestos', 'business', and 'being able to participate in (the) different event in the school'.

Pubs

This word contains the literal meaning of pubs, and any similar places to gather for socialising, and related actions such as 'party', 'drinking', 'alcohol', 'night out', and 'going out'.

Accommodation

Students' main residences during academic terms. This title is developed from the representative word, 'halls', which refers to student halls and dormitories. Since 'halls' was used both as a metaphor and to refer to actual places, it was replaced by a more general word. It includes any types and names of students' residences such as university halls, private dormitories, 'Friddoedd site', 'kitchen', and 'common rooms'.

Personal interest

It refers to any personal activities based on personal interests. Like hobbies, it is not necessarily related to university or group activities. Representative words include 'gym', 'books', 'walking', and 'cooking'.

Support

It refers to all forms of informal and formal support, help and caring, and related descriptions which are provided on the personal and institutional levels: 'support', 'help', 'supportive', 'helpful', and 'advice'.

Team

In addition to the literal meaning, 'team' refers to being a team; being part of a team, a group; or being a member. It includes doing something together as a single group, emphasising solidarity.

Socialising

It refers to any informal, private social gathering for the purpose of socialising, not organised and facilitated by formal organisations or the university.

Communication

It includes any form of networking, especially through internet technologies, including ‘network’, ‘emails’, ‘facebook’, ‘internet’, ‘wifi’, ‘interaction’, and ‘informed’.

Pride

‘Pride’ in the higher education context, refers to students’ feelings of being proud to be a (Bangor) student; such as ‘pride’, ‘privileged’, and ‘honour’.

Lecturer

The word refers to the entire academic staff who are involved in teaching.

Friends

Similar words such as ‘mates’ and ‘people’ (close individual acquaintances) are added. It specifically refers to an actual person, excluding the types of relationships between them.

Satisfaction

It refers to any positive emotional expressions, (in)directly related to life satisfaction, such as ‘happy’, ‘secure’, and ‘nice’.

Respect

It refers to attitudes and behaviours of respect for, or being respected by others; including ‘equality’ and ‘diversity’.

Challenge

In the higher education context, its meaning is specified and defined as personal challenges involved in being a student, and the changes which it brings: ‘challenge’, ‘adventure’, ‘change’, and ‘different term times’.

Independence

It refers to being independent and free.

Dissatisfaction

With the opposite of ‘satisfaction’, it is defined as negative feelings at the personal level, such as ‘isolated’, ‘stress’, and ‘unhappy’.

Education purpose

It includes a series of terms such as ‘education’, ‘degree’, ‘career’, ‘future’, and ‘graduation’, which are united by a sense of purpose of the university. In this context, one of the students’ common aims is getting a job, or starting a career in the future with the degree.

Attitudes towards goals

It refers to personal attitudes such as being ‘committed’, ‘passionate’, and ‘encouraged’, orientated to developing oneself to reach personal goals.

Living essentials

This category consists of essential requirements for living as a human being; ‘money’, ‘food’, ‘time’, and ‘life’.

Participation

The definition specifies it as forms of collective action including participating in group activities for collective goals and benefits. It covers any opportunities for ‘participating’, ‘representing’, and ‘volunteering’.

Culture

It refers to broad cultural aspects such as ‘culture’, ‘heritage’, ‘languages’ and ‘multiculturalism’.

Student

It refers to students’ self-identification and descriptions, including ‘student’, ‘student ID’, ‘student discount’, and ‘experience’.

Friendship

It refers to positive relationships with specific persons, based on strong trust, such as ‘friendships’, ‘relationships’, and ‘trust’.

Important

The criterion for definition is personal feelings and judgment such as important, useful, and valued in student life; ‘highly rated’, ‘quality’, ‘efficient’, ‘useful’, ‘gains’, and ‘resources’.

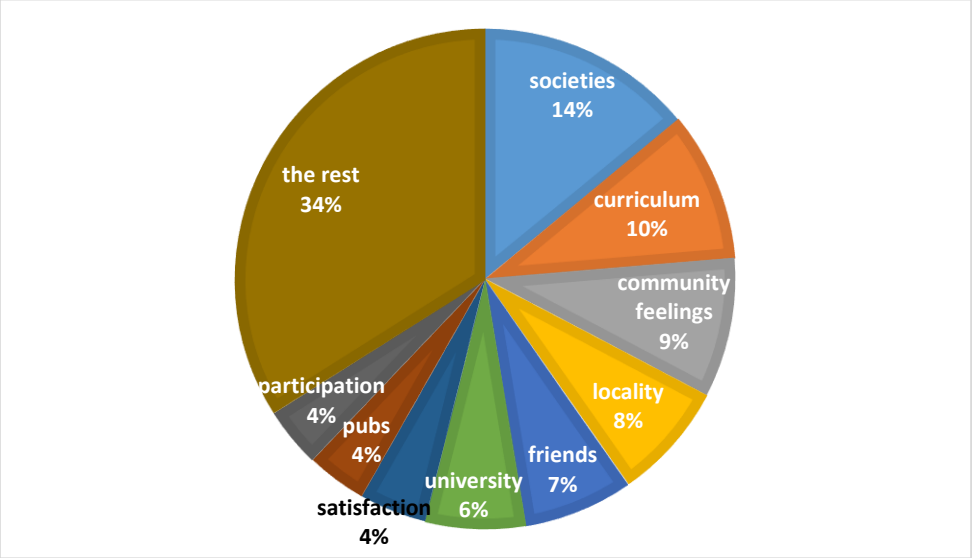
Clustering results: descriptive statistics

The 82 representative words from the 2,614 words data were reduced to 28 categories, as shown in Table 7.8.

Table 7.8 Results of clustering with 28 categories from 2,614 words data

Societies	366	Dissatisfaction	70	Lecturer	44
Curriculum	253	Support	67	Culture	36
Community feelings	236	Socialising	65	Personal interest	36
Locality	199	Team	62	Pride	29
Friends	185	Education purposes	59	Respect	24
University	169	Friendship	58	Challenge	20
Satisfaction	114	Living essentials	52	Independence	20
Pubs	102	Student	51	Important	16
Participation	101	Attitude towards goal	48		
Accommodation	85	Communication	47		

Figure 7.4 Descriptive analysis results of clustering with words data



University clubs and societies, and all their related activities are the most frequent theme, since Societies mentioned 366 times (14.0%). The top 9 categories (Curriculum (253), Community feelings (236), Locality (199), Friends (185), University (169), Satisfaction (114), Pubs (102), and Participation (101)) amounted to two thirds of the entire words data (1,725 words, 64.6%), as shown in Figure 7.4. Most categories belonged to the social spheres, and were expressed as various activities associated with the university (Societies), students' social life (Friends, Pubs), and emotional, or physical bonding (Community feelings, Participation). On the other hand, there were two academically related categories: Curriculum and University.

Newly emerging themes included positive expressions of life satisfaction (Satisfaction) such as being happy, secure, and comfortable (114 words), and the negative category (Dissatisfaction, 70 words). In total, student's life satisfaction accounted for 194 words (7.0%), which suggested the significance of the theme in the higher education context. One of the most important findings was the frequency of Locality (199 words, 7.6%), which were the descriptions of surroundings such as natural environment, geographic locations, physical spaces, and feelings related to those elements.

7.6 The fourth stage: Contingency analysis

Further categorisation

The same five principles of clustering proceeded with 28 categories. For instance, Curriculum, University, and Lecturer were all important elements of academic engagement, while categories such as Education purpose and Important were students' rational explanations and opinions about higher education. All five categories, therefore, were grouped as academic engagement. In case of university clubs and societies, and their various activities (Societies), participation, and socialising with friends, all these categories were related to students' social engagement. Table 7.9 presents a summary of this further clustering.

Table 7.9 13 sub-domains of words data with 28 categories and its frequency

Sub-domains		Categories	Frequency
Academic engagement	University	Curriculum, University, Lecturer	466
	Higher education	Education purpose, Important	75
Social engagement	Society	Societies	366
	Participation	Participation	101
	Friends	Friends, Friendship, Pubs, Socialising	410
Network		Communication	47
Solidarity		Community feeling, Support, Team	365
Living space		Accommodation	85
Location		Locality, Culture	235
Life satisfaction		Satisfaction, Dissatisfaction, Living essentials	236
Life attitudes		Attitudes towards goals, Pride, Respect, Challenge, Independence	141
Identity		Student	51
Personal interest		Personal interest	36

Table 7.10 Four domains of belonging with 13 sub-domains and 28 categories

Domains	Sub-domains	Categories
Academic (541)	Academic engagement	Curriculum, University, Lecturer Education purpose, Important
Social (1,289)	Social engagement	Societies Participation Friends, Friendship, Pubs, Socialising
	Network	Communication
	Solidarity	Community feeling, Support, Team
Surroundings (320)	Living space	Accommodation
	Geographical & cultural location	Locality, Culture
Personal space (464)	Life satisfaction	Satisfaction, Dissatisfaction, Living essentials
	Life attitudes	Attitudes towards goals, Pride, Respect, Challenge, Independence
	Identity	Student
	Personal interest	Personal interest

This completes the last stage of categorisation, which consists of four conceptually independent domains: **academic and social engagement, surroundings, and personal spaces**. Table 7.10 describes how these four domains were derived from 28 categories through thematic analysis and clustering. To enhance their clarification, these four domains are colour-coded; red for academic engagement, yellow for social engagement, green for surroundings, and blue for personal space.

Several features stand out. Firstly, the domain of social engagement appears more dominant and complicated than the academic domain. Students' sense of belonging within the social sphere has many strands; from social and civic participation through the medium of informal and formal groups at the university, to social relations at more general and personal levels. It ranges from emotional involvement (e.g. solidarity) to communicational methods (e.g. IT skills and SNS). The social engagement domain contains the largest proportion of the words data (1,289 words, 49.3%).

Secondly, it is noticeable that the domain of Surroundings consists of a wide range of meanings such as natural, environmental, physical, cultural, and local surroundings. Lastly, students' personal space explains important elements including their attitudes, recognition, and feelings about themselves as well as their life. These two domains, Surroundings and Personal space, are rarely mentioned in the existing literature on students' belonging in higher education, despite their importance revealed in this research.

Contingency analysis procedures

The contingency analysis was performed at the final analytic stage. The idea and methodology of contingency analysis comes from Osgood's (1959) 'Contingency Analysis: Validating Evidence and Process'. As one of the content analysis methods, the contingency refers to 'co-occurrences of symbols', and contingency analysis aims to draw inferences about the 'association structure' of the data (Osgood 1959: 109). This method focuses on investigating the co-occurrences of certain key elements; those which can be identified and detected simultaneously from the source by the researchers, presumed to be part of a person's association structure.

In order to apply contingency analysis, the data is first re-coded by domains. They are labelled recognisably, and independently from each other. Next, the analytic process consists of generating two sequential matrices: the raw data matrix and contingency matrix. The contingency matrix includes two types of probabilities, which are 'expected' and 'obtained' (full details in Osgood 1959: 114). For this thesis, to produce the raw data matrix, the entire words data was re-coded based on the four domains: Academic and Social engagement, Surroundings, and Personal spaces. The frequency of words responses which belonged to each domain was counted as demonstrated in Table 7.11 below.

Table 7.11 The raw data matrix of words data with frequency counts of four domains

Case	Academic	Social	Surroundings	Personal	Residuals	Total N of Responses
1	1	6	0	0	0	7
2	1	7	1	1	0	10
3	2	1	4	2	1	10
4	0	6	2	2	0	10
5	3	2	1	2	0	8
…	…	…	…	…	…	…
Total	541	1289	320	464	57	2671

This raw data matrix was transformed into an unweighted version, of which the frequency counts were re-calculated as a binary system. Now it contains essential information of either '0' (no responses) or '1' (one or more responses) for each domain. Both the raw and binary data matrix were generated by SPSS for the further statistical analysis.

Contingency analysis results

The process of generating the contingency matrix led to a shift in the main focus from words data to participants. Up to the previous stage of clustering, the analysis was performed on the whole set of responses. The value of contingency analysis is that it allows the data to be approached from participants' side. According to the results of

descriptive analysis in Table 7.12 below, 351 participants (94.4%) wrote down one or more words of the social engagement domain; followed by 263 participants (70.7%) of the academic engagement. Although the number of participants who mentioned academic engagement was quite high, it was social engagement aspects which were the most frequently occurring. In addition, other two domains, Surroundings and Personal space appeared equally important, judging by frequency of participants (51.1% for Surroundings, and 56.5% for Personal spaces).

Table 7.12 Descriptive analysis results of the binary data matrix of words data for four domains by participants

	Academic	**Social**	**Surroundings**	**Personal**
Yes	263 (70.7%)	351 (94.4%)	190 (51.1%)	210 (56.5%)
No	109 (29.3%)	21 (5.6%)	182 (48.9%)	162 (43.5%)

The main purpose of the binary data matrix is to investigate the statistical relationship between the four domains. For instance, the number of participants who mention both academic and social engagement is 249 (66.9%), which is the highest frequency. In contrast, only 7 participants (1.9%) wrote down nothing related to academic or social engagement. The table above shows that 21 participants (5.6%) did not write down any words in the social engagement domain, which was particularly small. The frequency of their words data was 4 on average. Interestingly, their responses in relation to personal aspects (49%) were higher than others (31 % for academic; 20% for surroundings).

The cross tabulation analysis of the raw and binary data both confirms that there is no statistically significant association between the four domains (see Appendix 6). In other words, these four domains derived from the words data by contingency analysis are independent from each other. This result will be compared with the narrative data, then both sets of data will be merged in the final stage. Contingency analysis will be performed on the whole data to examine whether these four domains are still

independent. The interpretation of the main findings will follow later in the discussion.

7.7 Narrative data analysis

As explained earlier, the 426 participants who completed the 10 Words Question produced two groups of data: words (372 participants) and narrative data (54 participants, 12.7%). As shown in Table 7.1, the participants with narrative data are spread over 12 academic schools, not including Sports Sciences, and Chemistry. It is notable that one of the academic schools had a higher level of narrative responses than others: the Healthcare school. More than one-third of participants in Healthcare (14 out of 36, 38.9%) provided narrative data. This distinctiveness of the Healthcare school emerges repeatedly in the results of the analysis.

To keep methodological consistency, the previous analytic procedure for the words data was applied identically to the narrative data. It enabled the results from both datasets to be compared, and also to be merged later. Although the words data was analysed through four stages, the narrative data started from systematic coding, since the nature of the narrative data did not require In Vivo coding.

Systematic coding procedures and results

Systematic coding aimed to cover the entire data by identifying patterns and themes, which resulted in general and implicative meanings of representative words. The narrative data was coded by extracting keywords from the responses, which became representative words. Figure 7.5 shows an example;

Figure 7.5 An example of the narrative data

I feel connected to my friends by phone + texts. *I receive all the info I need from clubs/socities* on facebook + email* (*‘socities’ is the literal record from the response sheet.)

This participant wrote down two sentences in the response sheet, where several words related to ‘communication’ were found: ‘phone’, ‘texts’, ‘facebook’, and ‘email’. Instead of counting them four times, the representative word ‘communication’ was recorded once at this stage. The frequency count was applied to the participants, not the representative words, since the same or similar expressions can be used several times in a single response.

The systematic coding led to 52 representative words, including ‘university’ (15), ‘societies’ (15), ‘belonging’ (13), ‘service’ (12), and ‘isolated’ (12). Most representative words were fitted to existing 82 representative words from the words data, except one, ‘student nurse’. 8 participants (14.8%) deliberately described themselves as a student nurse. Table 7.13 shows 52 representative words from the narrative data with frequency counts of participants.

Some representative words belong to academic engagement (e.g. ‘university’, ‘service’, ‘school’, ‘lecture’, ‘lecturer’), whereas others are related to social aspects (e.g. ‘societies’, ‘belonging’, ‘support’, ‘communication’, ‘activities’). Academic engagement words are found considerably less often than social engagement. Unlike the results from the words data, ‘university’ and ‘service’ rank highly, mentioned by 15 participants (27.8%) and 12 participants (22.2%) respectively.

There are many negative expressions in the responses. For instance, although ‘university’ is one of the most frequent words (15 participants), it is negatively described by 11 participants (73.3%) such as: *‘This is the university I need, not that I deserve’; ‘No attachment to university’; ‘As a student nurse, I don’t feel a sense of belonging to the university’*.

Other representative words such as ‘belonging’ (9 out of 14), ‘isolated’ (12 out of 12), ‘service’ (5 out of 12) are also mentioned with negative meanings. Although the 10 Words Question might be biased in a positive direction, nonetheless, negative responses were discovered. Since it was a new finding, negative responses were coded and analysed separately.

Table 7.13 52 representative words of narrative data after systematic coding

university	15	local	7	home	3	achievement	1
societies	15	lecturer	6	happy	3	opportunity	1
belonging	13	student	6	small	3	mates	1
service	12	pubs	6	wales	3	involved	1
isolated	12	halls	5	logo	2	accessible	1
school	9	connected	5	participation	2	confidence	1
support	9	community	5	experience	2	independence	1
communication	9	social	4	respect	2	old	1
activities	8	team	4	pride	2	freedom	1
student nurse	8	people	4	international	2	language	1
lecture	7	stress	4	tutor	1	food	1
friends	7	building	3	knowledge	1	culture	1
friendly	7	student union	3	representing	1	natural environment	1

The results of systematic coding of narrative data are presented by applying the same visualisation programme in Figure 7.6.

Figure 7.6 Results of systematic coding of narrative data with 52 representative words

Clustering procedures and results

Next, clustering was applied to the 52 representative words of the narrative data, based on the same five criteria: relevance, differentiation, proximity, context, and

comprehensiveness. The results are presented in Table 7.14 with 24 categories and 4 domains, and participant frequency.

The results of clustering reveal that there are no representative words in four categories: educational purposes, important, personal interest, and challenge. In addition, the category for dissatisfaction, seems more significant than in the words data. Since the categories were derived from clustering of words data, the differences suggest that the two sets of data are not identical. Further investigation of the similarities and contrasts will follow later in this chapter.

Table 7.14 Four domains with 28 categories of clustering of 52 representative words, and frequency from narrative data

Domains	Categories	Representative words of narrative data
Academic	University	university(15), service(12), school(9), building (3), logo (2)
	Curriculum	lecture (7), knowledge (1)
	Lecturer	lecturer (6), tutor (1)
	Education purposes	N/A
	Important	N/A
Social	Societies & clubs	societies (15), activities (8)
	Community feelings	belonging(13), connected (5), involved(1), community (5), home(3), friendly (7), accessible (1)
	Friends	friends (7), people (4), mates(1)
	Support	support (9)
	Communication	communication (9)
	Participation	student union (3), participation (2), opportunity (1), representing (1)
	Pubs	pubs (6)
	Socialising	social (4)
	Team	team (4)
	Friendship	confidence (1)
Surroundings	Locality	local(7), Wales(3), small(3), old (1), natural environment (1),
	Accommodation	halls (5)
	Culture	international (2), culture (1), language (1)
Personal space	Student	student nurse (8), student (6), experience (2)
	Dissatisfaction	isolated (12), stress (4)
	Satisfaction	happy (3)
	Pride	pride (2)
	Respect	respect (2)
	Independence	independence (1), freedom (1)
	Living essentials	food (1)
	Attitude towards goals	achievement (1)
	Personal interest	N/A
	Challenge	N/A

Contingency analysis procedures and results

The narrative data was transformed into the binary data by applying the frequency counts of participants. The results are summarised in Table 7.15 below. 50 participants (92.6%) wrote down responses related in some way to social engagement; followed by 37 participants for academic engagement (68.5%). The finding of a strong emphasis on social engagement appears to be consistent with the words data analysis. In contrast, only 18 participants (33.3%) mentioned Surroundings, which was lower than the words data result (51.1%).

Table 7.15 Descriptive analysis results of the binary data matrix of narrative data for four domains by participant

	Academic	**Social**	**Surroundings**	**Personal**
Yes	37 (68.5%)	50 (92.6%)	18 (33.3%)	27 (50.0%)
No	17 (31.5%)	4 (0.4%)	36 (66.7%)	27 (50.0%)

Two interesting points emerge from this data analysis: the consistency of analytic results, and the appearance of negative responses. Firstly, the results of both words and narrative data are quite consistent. The analytic procedure started with the larger, words dataset. The results for the narrative data which followed are robust, and overlap with the words data with only minor differences. It confirms that narrative data can be used as a validity-checker for the 10 Words Question. Further discussion of the methodology will follow in the final chapter (Chapter 10).

Secondly, a substantial number of negative responses was discovered. Since the 10 Words Question was oriented towards positive responses based on the implication that belonging has positive attributes, the discovery of students' dissenting, dissatisfied, and pessimistic responses should be highlighted. The narrative data seem more suitable than words data to accommodate criticisms or complaints. The next analytic stage will investigate the negative responses in both words and narrative data.

7.8 Negative data

Words data analysis

The first step was to clarify the meaning and boundary of the negative data. For this thesis, 'negative data' refers to data which either includes any negative expression, or has an implied negative meanings. There are 43 instances of the former, in responses such as 'lack of', 'not enough', or 'no'. Words which are negative by implication, include 'isolated' (27 times), 'stress' (22), and 'unhappy' (21).

Table 7.16 22 Representative words and expressions in the negative words data

Representative words with frequencies	Negative expressions
Isolated (27)	isolated, separate, away from main campus, remote, segregated, alone, non-existant, alone
Stress (22)	stress, stressful, pressure, worry, fear, tired
Unhappy (21)	unsure, lost, not individuals, ignored, trapped, prion, retreat, snob
Money (9)	no money, lack of money, costly(time, money), poor, skint, expensive
Work (6)	hard work (3), hardworking, heaving workload (2)
Service (6)	blackboard failing, blackboard always down, no joined library, no parking (3)
Involved (3)	excluded-pocket, excluded, unappreciative
Belonging (2)	no sense of belonging to main university, no sense of being unified university,
Connected (2)	disconnected, disconnected from main university
Natural environment (2)	way too many hills, hilly (so many hills)
Team (2)	clique (2)
Society (1)	hard to find societies I want to join
Student union (1)	student union lack there of
Communication (1)	non communication
Lecturer (1)	unhelpful lecturers
University (1)	university facilities often closed during our term time
Halls (1)	unaccommodating
Building (1)	Pontio-unfinished
Local (1)	outsider to locals
Equality (1)	unfair
Food (1)	less food selection
Important (1)	non appliance to real life

The frequency of negative words is 113 (4.2%) out of the total of 2,614. The frequency of participants who wrote down one or more negative responses is 62 (16.7%). The average number of negative words per participant is 1.8 words. The descriptive analysis reveals that 38 participants (62.3%) use only one negative response, while the range of negative data per participant is from 1 to 8.

Table 7.16 contains details of the negative words data from participants' own expressions. There are 22 representative words equivalent to 26.8% of 82 representative words. Apart from three representative words, 'isolated' (27 times), 'stress' (22), and 'unhappy' (21), financial issues ('money', 9 times) seem to be the biggest concern for students, followed by heavy workloads ('work', 6) and services and facilities provided by the university ('service', 6).

Table 7.17 Negative words data and their domains with frequency

Domains	**Negative representative words after systematic coding**
Academic engagement (16)	work (6), service (6), lecturer (1), university (1), building (1), important (1)
Social engagement (13)	involved (3), belonging (2), connected (2), team (2), society (1), student union (1), communication (1), halls (1)
Surroundings (3)	natural environment (2), local (1)
Personal space (81)	isolated (27), stress (22), unhappy (21), money (9), equality (1), food (1),

As Table 7.17 reveals, the 22 words which represent negative responses are spread over the four domains of belonging. Negative words data seem to be particularly closely related to the personal space domain, especially regarding Dissatisfaction.

Narrative data analysis

The boundary of negative responses expanded further to include 'little', 'dull', 'limited', 'barrier', 'out of touch', 'disconnected', and 'outsides'. In addition, the contextual interpretation was considered, as shown in one of the narrative response, 'Healthcare sciences seem to the separate to the University' (Healthcare sciences seems to be separate from the main university). Many cases were close to complaints; 'annoying Welsh emails', 'Not aloud (allowed) to bring your own food to the Bistro', 'Other teachers don't interact with each other'.

‘Student nurse’ was discovered only in Healthcare (8 participants). The content of their responses is similar, consisting of negative words such as ‘isolated’, ‘no belonging to university’, or ‘stress’. One in four participants (25.9%) in the narrative data belong to Healthcare (14 participants). Only 1 participant in Healthcare did not include any negative responses.

Table 7.18 Negative narrative data and their domains with frequency by participants

Domains	**Negative representative words after systematic coding**
Academic engagement	university (11), service (5), lecturer (1)
Social engagement	belonging (9) activities (3) societies (2) support (2) communication (2) student union (1) social (1)
Surroundings	Wales (2), language (1)
Personal space	isolated (12), stress (4)

Amongst the total of 54 participants in the narrative data, 26 (48.2%) gave negative responses. The negative responses were coded as 14 representative words (26.9%) out of 52 representative words in total. Table 7.18 summarises the descriptive analysis results of the negative narrative data. ‘Isolated’ (12), ‘university’ (11 times) and ‘belonging’ (9) are most frequently mentioned by participants. The social engagement domain contains the largest number of representative words (7) amongst the four domains of belonging; followed by academic engagement, and personal space.

There is another interesting aspect; the complicated emotional meanings of the 10 words data. It turns out that some participants describe their belonging with emotionally mixed expressions; such as positive, negative, and neutral. Although the question itself can be regarded as being biased to the positive side, the negative responses unexpectedly appeared. Amongst 88 participants (20.7%) who purposively wrote down negative responses, interestingly, the proportion of negative responses per participant varies.

'Involuntary, trapped, temp, unfair, detached, small, prison' (Case 1)

'Fun, societies, friendship, education, the SU - lack there of, lecturers, multi culturalism' (Case 2)

'Nice location, wind and rain, Blackboard FAILING, adventure, pubs, cycling, shrubs, sports, training, friends' (Case 3)

'I feel belonging to my school, but not the whole university' (Case 4)

'I don't 'belonging' to anybody but myself. Bangor does make me feel if I had a problem then there is always somebody easily contactable.' (Case 5)

'I don't feel like I belonging, I don't feel like I don't belong.' (Case 6)

In fact, as the case examples showed above, some wrote down dominantly negative expressions (Case 1), while the others' responses consisted of most positive words, with only one or two negative words (Case 2 and 3). Responses of the narrative data reveal more complicated meanings of belonging. As Case 4 showed, some of participants clarified what they felt strong belonging about and what they did not in the response sheets. Sense of belonging, however, did not seem to be always straightforward to the other participants, as discovered in Case 5 and 6. This co-occurrence of positive and negative responses in one person supports the complexity of belonging from the other angle in this study. The meanings of belonging could be complicated, perplex to some participants, which, the 10 Words Question, as a method, is effectively able to capture.

7.9 Merging words and narrative data

The words and narrative data were analysed separately, since they contain different qualities and characters, which result from participants' own choice of expression. At the final stage of analysis, words and narrative data were merged, as both had been transformed into binary data. The binary data matrix by participants shows 1 (yes) or 0 (no), and enables a contingency analysis to examine whether the four domains are independent as well as how they compare with each other.

Comparison of words and narrative data

As Table 7.19 demonstrates, the words and narrative data are different in appearance; the formats, styles, participants' intentions and tendencies are visibly distinct. The table illustrates how the narrative data can be coded equivalently to the words data.

Table 7.19 Examples of differences between words and narrative data

Narrative data	**Words data**
Bangor is so small it is hard not to feel you belong	local, small, belonging
Being a student of Bangor University, I feel connected with not only the uni, but also the rich cultural heritages of Wales. Cordial, helpful, social, welcoming-sums up my life@Bangor Uni. A HOME AWAY FROM HOME.	home, 2nd home, heritage
Belonging to a community means that; You are respected by those around you and that you are free to express yourself openly Feeling like you belong there/here	respect, free
Random people that you see out and about that you know for some reason or other	meeting new people
As an international student it is such a great experience to study in this university.	experience

In addition to the manifest differences, a statistical comparison of the words and narrative data results in some contrasts. These are displayed in Table 7.20. The narrative data has fewer representative words (52 words, 63.4%) than the words data (82 representative words, 100%), provided by fewer participants (54 persons, 12.7%) than for the words data (372 persons, 87.3%). The most frequent words from both data sets are not precisely the same, except for 'societies'.

Table 7.20 Comparison of words and narrative data, after systematic coding

Words data	Narrative data
372 participants (87.3%)	54 participants (12.7 %)
2,671 words in total; 56 words residuals (2.1%), 1 missing	Frequency counts unavailable
82 representative words: 'societies' (289), 'lecture' (226), 'friends' (149), 'pubs' (102), 'halls' (85), 'happy' (82)	52 representative words (including 'student nurse'): 'university' (15), 'societies' (15), 'belonging' (13), 'service' (12), 'isolated' (12)

There are more marked distinctions between them regarding negative responses, as shown in Table 7.21 below. The number of negative representative words in the words data (22) is higher than in the narrative data (14), however, the ratio to the total representative words is similar (26.8% for the words data; 26.9% for the narrative data). In contrast, the ratio of participants providing negative responses in the narrative data (26) relative to the total participants (54) is nearly 50%; while the ratio in the words data is much lower (16.7%). As to the content, the negative responses in the words data are mainly about Personal space (Dissatisfied category), whereas in the narrative data, it extends to Social and Academic engagement, as well as Personal space. Participants in the School of Healthcare were most likely to write down negative responses in both the words and narrative data.

Table 7.21 Comparison of words and narrative data for negative responses

Words data	Narrative data
22 negative representative words (26.8%) out of 82 total representative words Total 113 words (4.2%), Average 1.8 Dominantly in personal space	14 negative representative words (26.9%) out of 52 total representative words Between social, academic, and personal
62 participants (16.7% of total 372)	26 participants (48.2% of total 54)
Isolated (27), stress (22), unhappy (21),	Isolated (12), university (11), belonging (9)
Healthcare (14), Social sciences1 (12),	Healthcare (13)

Table 7.22 Numbers of participants by the total, words, narrative, and negative data by academic school

Academic school & year	Frequency of participants	Words data	Narrative data	Negative data
Social Sciences 1	76	71	5	**13**
Sports Sciences 2	56	56	**0**	9
Psychology 1	52	44	8	5
Law 1	46	40	6	8
Linguistics 1	36	28	8	6
Healthcare 2	36	22	**14**	**27**
Chemistry 2	22	22	**0**	2
Geography 3	22	21	1	3
History 2&3	21	20	1	1
Business (master)	17	14	3	4
Modern Language 2	12	10	2	1
Social Sciences 2	8	8	**0**	2
Computer Science 1	7	6	1	2
Education 1	6	2	4	3
Electronic Engineering 1	6	5	1	2
Social Sciences (master & PhD)	3	3	**0**	**0**
Total	426	372 (87.3%)	54 (12.7%)	88 (20.7%)

Table 7.22 summarises the frequency counts of participants by school for the total, words, narrative, and negative data. Participants in Healthcare provide higher levels of

narrative and negative data. Out of the total 88 participants with negative data, 27 participants studied in Healthcare (30.7%).

Merging words and narrative data

The combined contingency matrix is an effective way to show how many participants responded within the four domains of students' sense of belonging. The results are summarised in the table below.

Table 7.23 Descriptive analysis results of the binary data matrix of the merged data for four domains

	Academic	**Social**	**Surroundings**	**Personal**
Yes	300 (70.4%)	397 (93.2%)	208 (48.8%)	237 (55.6%)
No	126 (29.6%)	29 (6.8%)	218 (51.2%)	189 (44.4%)

Table 7.23 reveals that most participants (397 participants, 93.2%) mentioned at least one word related to social engagement; followed by academic engagement (300 participants, 70.4%). Social engagement is the most frequently mentioned aspect of students' sense of belonging to their institution. However, the combination of social and academic engagement is important: 280 participants (65.7%) mention both academic and social engagement, and almost all participants (98.1%) respond with either academic or social engagement. Two domains, Surroundings and Personal space are also mentioned by around half of the participants (48.8% and 55.6%). More importantly, these results remained consistent throughout the analytic stages.

The contingency matrix and analysis of four domains confirms that these four domains are independent from each other. The results of this analysis are presented in Appendix 6, which shows that there is no significant association between all six cases of any two domains.

7.10 Summary

In this chapter, the data from the 10 Words Question was analysed. Two different types of data, words and narrative, were identified after the initial screening. The analysis was applied to both sets of data in a series of steps: In Vivo coding, systematic coding, clustering, and contingency analysis. The results indicate students' sense of belonging to university is broadly based, although social engagement is the most salient factor.

Existing research into students' belonging in higher education has a strong tendency to focus on academic and social engagement, but this thesis has identified two more emerging themes: Surroundings and Personal space. Surroundings refers to geographic locations, natural environments, living spaces, and cultural aspects, while Personal space refers to the domain of self-identifications, self-esteems, and life satisfaction.

The analysis of narrative data led to some additional findings. The descriptive analysis shows that the representative words of the narrative data are spread over three domains (Academic and Social engagement, and Personal space), instead of four. More importantly, the representative words from the narrative data contain numerous negative responses. While negative responses are less visible in the words analysis, it is striking that around half of the participants who responded with narrative data expressed dissenting, dissatisfied, and pessimistic responses. These unexpected findings led to further investigation of the negative data, which suggested that certain sub-groups of participants (especially Healthcare) were more likely to offer negative responses.

The final analytic stage was to merge both words and narrative data into a set of binary data. The analysis by participants highlighted the importance of social engagement, since most participants mentioned one or more words related to the social engagement, when they thought about their sense of belonging to the institution. This finding was consistent throughout the analysis stages.

The contingency analysis provides confirmation that the four domains are independent of each other. This result poses a fundamental challenge to existing research on students' belonging, because it suggests that the phenomenon is more

complex and multi-dimensional than current ideas allow. Further discussion about the research findings and their implications will follow in the discussion chapter (Chapter 9).

The next chapter will focus on the relationship between sense of belonging and social capital. The belonging data will be re-analysed from the social capital perspective, and the empirical evidence of the four domains of belonging will be re-constructed into a conceptual framework which combines both belonging and social capital.

Chapter 8. 10 Words Question analysis results 2: on social capital perspectives

8.1 Introduction

This chapter will address the question of how belonging and social capital are related to each other, both conceptually and statistically. In the first part, the data is analysed thematically to explore how belonging is relevant in the social capital context. In the second part, based on this conceptual framework, the data is examined statistically by words and narrative data, participants, and sub-sets. The chapter examines the possibility of applying belonging as the proxy for social capital.

Part 1. Conceptual approach

8.2 Rationale

It is important to point out that the data was originally collected to investigate *students' belonging to their institution in higher education*. As discussed in the literature review chapter, sense of belonging is defined and measured in different ways in various disciplines such as psychology, education, and sociology. This thesis concentrates on sense of belonging in the higher educational context, which gives clarity to the boundary and definition. The synthetic perspectives lead to the geographical, cultural and organisational boundary of belonging, as discussed in Chapter 4. The physical territory is the property of Bangor University, which can be expanded to include the wider surroundings, from the natural environment including the locality of Bangor to Welsh culture and history. In addition, the university, as an institution, has certain distinctive features, such as its educational programmes and institutional habitus. The university can also be interpreted as a temporary platform to move on, rather than a permanent home. Every participant's identity as a student is linked to these influential factors.

In the 10 Words Question, the participants had a chance to express their feelings and opinions about belonging to Bangor University. It should be remembered that the concept of social capital is implicative, abstract and versatile, and should be

interpreted primarily as a metaphor; not a measurement tool. Belonging, in contrast, is a more concrete and tangible concept that is more amenable to the measurement.

In order to compare the data between social capital and belonging perspectives, the aim has been to maintain methodological consistency. The analytic procedure of belonging applied to the belonging data exactly parallels the procedure applied to social capital: initial scanning, systematic coding, and clustering.

8.3 Analytic procedure

Following the same steps as in the previous chapter, the social capital data was divided into words and narrative data, and analysed separately through In Vivo and systematic coding stages. From the thematic analysis stage, the data was investigated and coded in the social capital context.

The representative words originated by In Vivo coding, which pre-coded words data. As mentioned in the previous chapter, In Vivo coding was applied to respect participants' own freely chosen linguistic terms (Rapley, 2011). Words from the same semantic field were grouped under one representative word. This resulted in 133 representative words, following their primary, specific definitions. Next, the representative words were systematically coded. One of the strengths of the systematic coding was that it was applied to the entire words data. It led to 82 representative words with minor residuals. Since the data was categorised according to themes, the meanings became more general and implicative than In Vivo coding.

At the third stage, the themes were clustered into consistent and homogeneous groups of representative words. The same five criteria were applied as in the previous chapter: relevance, differentiation, proximity, context, and comprehensiveness. As a result, social capital related themes were derived from the representative words, which were distinguishable from the belonging approach.

For instance, the category, 'university' consisted of certain representative words such as 'university', 'curriculum', and 'lecturer' in the belonging analysis. These words were directly or indirectly, physically or symbolically, specifically or broadly related

to the university; including academic staff, their activities in the teaching and learning environment, and university buildings and services. Within the social capital perspective in this chapter, however, it was difficult to group them into one theme, since the meanings were interpreted separately and independently. 'Lecturer' meant all the academic staff who were involved in teaching such as lecturers, tutors, and teaching assistants. In the belonging analysis, they were highlighted as people who were *academically related to the university*. The prime focus in the social capital perspective, on the other hand, was on *people* standing for social relations between students and staff.

Secondly, the representative word, 'university' included 'school', 'service', 'building', and 'logo', which implied not only the meanings of the university and academic school as physical entities, but also the conceptual, symbolic, and generic aspects of the university. When participants mentioned words such as 'university building', 'blackboard', 'academic school', or 'Bangor university hoodies', they signified institutional loyalty and membership in the context of belonging. Therefore, it was regarded as institutional trust, as in Barber (1983)'s interpretation of trust, which relates to people's expectation of others, systems, and institutions. 'University' was labelled as trust in the institution in the social capital analysis.

The last word, 'curriculum', was removed during the social capital analysis. Although these academic activities of learning and teaching at the university are important in the context of belonging, they are conceptually less connected to social capital. The same logic applied to 'attitudes towards goals', 'challenge', 'independence', 'living essentials', 'student', 'personal interest'. It was decided to label them as a separate 'excluded group'. Similarly, the relevant part of 'life attitudes' consisted of words which denoted shared value ('pride', 'respect'), while the rest were excluded from the social capital analysis.

Some themes are of no or little relevance in the social capital perspective: curriculum, identity, personal interest, living essentials, and life attitudes. Apart from the curriculum as an expression of academic engagement, the remaining items are from the personal space domain of belonging. A participant's subjective sense of belonging to his or her institution is very likely to be determined by his or her personal feelings or self-identification, attitudes towards future goals, challenge, and independence, in

daily life. However, as a macro construct, social capital is less likely to be affected by these personally random elements.

The next category, ‘friends’, was re-assembled as two groups: social relations, and trust in others. The belonging analysis led to this theme with various aspects of friends and friendships, including people (‘friends’), activities (‘socialising’, ‘pubs’), and relationship (‘friendship’, ‘relationship’). Since part of ‘friendship’ such as ‘confidence’ and ‘trust’ corresponded to more generalised trust, they were distinguished from this category.

Some representative words were kept as a single category, but their titles were changed. For instance, ‘participation’ was called instrumental participation, whereas ‘society’ was labelled as expressive participation. ‘Societies’ was another example of the representative word with a broad spectrum of content, but mainly consisting of clubs and societies and any events and activities in those groups, taking place within university boundaries. As explained earlier, expressive participation stood for this form of activity. On the other hand, representative words such as ‘representing’, ‘participation’, ‘volunteering’, and ‘student union’ were related to instrumental participation directed towards collective goals.

The higher education category was named as individual social capital, because representative words such as ‘education’, ‘degree’, ‘career’, and ‘important’ denote a person’s resources to achieve certain personal goals. This category demonstrates students’ attitudes and views towards the purposes of higher education including future careers.

Clustering within the social capital perspective led to 16 categories: trust in others, trust in institutions, social relations, informal socialising, network, expressive participation, instrumental participation, support, community, solidarity, neighbourhood, surroundings, culture, perception of shared value, individual social capital, and life satisfaction.

At the next stage, categories were thematically analysed and labelled as domains. Some categories such as community, support, and solidarity can be grouped together

as a single item, community feelings and their related actions. These are socially meaningful feelings felt by members of a group, community or society, and supportive actions based on their solidarity. They are not necessarily rooted in a geographic location, or a specific locality.

Living space and locality are assigned to a different item, the perception of locality and surroundings. Here, 'halls' refers to students' accommodation, and their neighbourhoods. 'Natural environment', 'local', 'Wales' were also added because they stand for participants' views on the physical environment and locality, which are more general and diffuse geographic concepts. 'Culture' was included because it relates of locations and surroundings at the more abstract level. For example, the social capital measurement guideline from the Office of National Statistics (ONS) describe the perception of locality as a question involving views of the local area, views on the physical environment, and facilities in the area (Harper and Kelly 2003).

The results of the conceptual clustering and categorisation in terms of the social capital perspective are summarised in Table 8.1. First, three main components of social capital, namely trust, network, and participation are strikingly noticeable. Apart from trust, the core overlapping concepts of social capital and belonging are social network and participation. Evidently, social network consists of various types and forms of social relations and activities; and participation includes expressive as well as instrumental actions. Arguably, only these three domains should be considered as components of social capital (the restricted definition), according to the definition in Chapter 4.

On the other hand, the rest of representative words were clustered as 'associated concepts' including five items: community feeling and support, the perception of locality and surroundings, shared value, individual social capital, and life satisfaction. These associated concepts seem to be intrinsically relevant to, but analytically different from social capital according to the definition. Although they are less directly related to social capital, concepts such as community, locality, and value are often included in other research measuring social capital (the inclusive definition). As discussed in the literature review, the definition of social capital varies from being specific, particular, and limited, to being elastic, flexible and versatile. Therefore, it is

worth including these concepts, to investigate whether the result might differ from the restricted definition with three main components.

Table 8.1 Results of categorisation according to the social capital perspective with 82 representative words from the 10 words data

Social capital domains	**Social capital categories**	**Representative words**
Trust	Trust in others	Trust, Confidence
	Trust in institutions	Service, School, Building, Logo, University
Social network	Social relations	Friends, Mates, Lecturer, Tutor, People
		Friendships, Relationships
	Informal socialising	Pubs, Social
	Network	Communication
Participation	Social / expressive	Societies, Activity
	Civic / instrumental	Participation, Representing, Opportunity,
		Volunteering, Student union
Associated concepts		
Community feeling & support	Support	Support
	Community	Community, Belonging
		Involved, Connected, Accessible, Together
		Friendly, Home, Close, Open
	Solidarity	Team
Perception of locality & surroundings	Neighbourhood	Halls
	Surroundings & Views of locality	Natural environment, Atmosphere
		Local, Wales, Small, Old
	Culture	Culture, Language, International
Shared value	Perception of shared value (ONS)	Pride, Respect, Equality, Diversity,
Individual social capital	Individual social capital (resources for personal goals)	Education, Degree, Career, Future, Graduation Important
Life satisfaction	Life satisfaction,	Happy, Nice, Secure
	Safety	Stress, Unhappy, Isolated
Not included		
Academic engagement	Curriculum	Lecture, Knowledge
Personal space	Identity	Student, Experience
	Personal interest	Hobby
	Living essentials	Money, Food, Time, Life, Human
	Life attitudes	Independence, Freedom, Commitment, Development, Encouragement, Achievement, Passion, Challenge, Change, Different

The ‘Not Included’ section shows that some elements are irrelevant in the social capital context: mainly academic engagement and personal spaces. This is consistent

with the conceptual argument that sense of belonging occupies its own independent sphere, separate from social capital, as established in the linkage discussion (Chapter 4).

8.4 Developing a conceptual framework from belonging and social capital perspectives

The last step of the analysis was to construct a conceptual framework to combine the perspectives of sense of belonging as well as social capital. The aim was to merge the main themes generated within both perspectives, and to synchronise the findings of thematic analysis from the words data. The belonging analysis in the previous chapter revealed that results of thematic analysis of words data encompass those of narrative data. Therefore, the construction process uses the current 82 representative words.

Table 8.2 shows the conceptual framework based on a synthesis of the two perspectives. On the left side, there are the four main domains of sense of belonging: academic and social engagement, surroundings, and personal space, containing 13 sub-domains thematically analysed. The middle column of the table contains the data from the 10 Words Question. These representative words are grouped into different categories, which correspond to the social capital perspective on the right side. These social capital themes include the core components such as trust in others and institutions, various forms of social network, instrumental and expressive participation, associated concepts, and the data not included for social capital analysis. The table highlights how sense of belonging can be conceptually linked to social capital with the priority given to the overlapping concepts.

In this conceptual framework, life satisfaction is included, and treated as connected but independent, since both belonging and social capital are significantly related to it, as the literature review established. In addition, a level of life satisfaction is often used as a barometer to indicate the level of happiness and health of a society.

Table 8.2 Conceptual framework of the 82 representative words (middle) of the 10 Words data on the perspectives of belonging (left) and social capital (right)

Sense of belonging domains	Sense of belonging sub-domains	Overlapping representative words and categories	Social capital themes	Social capital domains
Academic engagement	Higher education	Education purpose (education, degree, career, future, graduation) Important (important)	Individual social capital	Associated
	University	Curriculum (lecture, knowledge)	Not included	Not included
		University (university, school, service, building, logo)	Trust in institution	Trust
		Lecturer (lecturer, tutor)	Social relations	Social network
Social engagement	Friends	Friends (friends, mates, people), Socialising (social), Pubs (pubs), Friendship (friendship, relationship)		
		Friendship (confidence, trust)*	Trust in others	Trust
	Participation	Participation (representing, participation, opportunity, volunteering, student union)	Instrumental participation	Participation
	Society	Clubs & societies (societies, activities)	Expressive participation	
	Network	Communication (communication)	Network	Social network
	Solidarity	Community feeling (involved, connected, community, belonging, together, home, friendly, accessible, close, open), Support (support), Team (team)	Community feelings & support	Associated
Surroundings	Living space	Accommodation (halls)	Perception of locality & Surroundings	
	Geographical & cultural location	Locality (natural environment, atmosphere, local, wales, small, old), Culture (culture, language, international)		
Personal space	Life attitudes	Pride (pride), Respect (respect, equality, diversity)	Shared value	
		Attitudes towards goals (commitment, passion, encouragement, development, achievement), Challenge (challenge, change, different), Independence (independence, freedom)	Not included	Not included
	Life satisfaction	Satisfaction (happy, secure, nice) Dissatisfaction (isolated, stress, unhappy)	Life satisfaction	Life satisfaction
		Living essentials (money, food, time, life human)	Not included	Not included
	Identity	Student (student, experience)	Not included	
	Personal interest	Personal interest (hobby)	Not included	

The procedures used to derive these themes of belonging and social capital from the data are different. On the left side, the four domains are derived from the data empirically, in a process designed to explore sense of belonging; whereas on the right side, social capital themes resulted from a synthesis of the theoretical and empirical literatures. Highlighting these distinctions in the conceptual framework is important, because the results could have been otherwise. For instance, if a theoretical approach was applied to both belonging and social capital, the framework might appear differently. It would not include four domains, but only the two domains of academic and social engagement, since these are the two categories highlighted in the existing literature about belonging in higher education. It turned out that they are not an adequate basis for understanding the relationship between belonging and social capital.

Zooming in on the definition of social capital in Table 8.2, the applicable contents are trust, social network, and participation, according to the restricted definition. The representative words in these categories cover the most essential elements of social capital. On the other hand, when the inclusive definition is applied, it was expanded to associated concepts. The difference between applying the social capital definition inclusively and restrictedly confirms how flexible the concept can be interpreted in various contexts. It may also raise a question of potential limitations of adopting the restricted definition of social capital. Further discussion will follow later in this chapter.

By drawing this simplified conceptual map, it is possible to explore how adequate is the restricted definition to represent the correspondence between sense of belonging for measuring social capital. Comparing both inclusive and restricted versions of the definition is the strategy at the next stage designed to use statistical analysis to validate the conceptual framework. The results will also verify how well the conceptual and statistical analyses synchronise.

Part 2. Statistical approach

In order to examine the differences between social capital and belonging in statistical terms, it was essential to apply exactly the same analytic strategies and methods that were used in the previous chapter. The data from the 10 Words Question was statistically analysed by sequential stages of In Vivo and systematic coding, clustering and contingency analysis. Frequency counts on the words data and narrative data was performed separately; then on the merged data. At each stage, the separate or merged data was also analysed by participants and by definitional boundaries (restricted and inclusive).

8.5 The first stage: analysis of the whole data

Words data analysis

As the descriptive analysis of the systematic coding in the previous chapter revealed, the total frequency count of words data was 2,671, including residuals (57 words). For this chapter, words data was re-categorised according to the conceptual framework of social capital in Table 8.2; 2,134 words (79.9%) were clustered into 16 categories, and 480 words (18.0%) were eliminated, since they were less relevant in this context. Out of 82 representative words, 62 words (75.6%) were included for social capital analysis, while 20 words (24.4%) were excluded. The results are presented in Table 8.3.

Two domains, social network and participation, show the highest frequencies: 493 words (18.9%) for social network and 463 words (17.7%) for participation. The words data for trust amount to 177 (6.8%). The core components of social capital account for 1,137 words (43.5 %) in total. Frequency counts of the words data for both social network and participation are similar, and a result suggests that both network and participation are equally important to participants. In detail, there are 279 words for social relations including ‘friends’, ‘lecturer’, and ‘friendships’, more than half of the total count for social network (56.6%). Words for ‘social’ including ‘societies’ formed the majority of the participation domain (366 words, 78.4%), whereas participants were less likely to mention civic participation (101 words, 21.6%).

Table 8.3 Results of descriptive analysis of words data on the social capital perspective

Social capital domains			
Trust	Trust in others	8	177
	Trust in institutions	169	
Social network	Social relations	279	493
	Informal socialising	167	
	Network	47	
Participation	Social / expressive	366	467
	Civic / instrumental	101	
Associated concepts			
Community feeling & support	Support	67	365
	Community	236	
	Solidarity	62	
Perception of locality and surroundings	Neighbourhood	85	320
	Surroundings & Views of locality	199	
	Culture	36	
Shared value	Perception of shared value	53	53
Individual social capital	Individual social capital	75	75
Life satisfaction	Life satisfaction & Safety	184	184
Total			2134
Not included			480

Trust contained considerably less data (177 words), compared to social network and participation. It is divided between trust in others (8 words) and trust in institutions (169 words). The proportional share of words data for trust seems relatively small, since sense of belonging was less directly related to generalised trust, as shown in the literature review. This result suggests that participants tend to regard trust as institutional trust in the belonging context. This important finding will be re-visited in the discussion chapter.

Approximately one-third of words data (813 words, 31.1%) are categorised as associated concepts. This section consists of four domains: community feelings and support (365 words, 14.0%), the perception of locality and surroundings (320 words, 12.2%), shared values (53 words, 2%), and individual social capital (75 words, 2.9%). ‘Community’ occurs most frequently (236 words, 64.7%) amongst other categories in the same category, like ‘surroundings’ (199 words, 62.2%).

The results reveal the importance of the associated concepts both conceptually and statistically. The inclusive definition of social capital contains 2,134 words (79.9%) with 62 representative words (75.6%), whereas the restricted definition results in a much smaller group (1,137 words, 43.5 %). The results support the conclusion of the conceptual discussion which suggests that there is a significant difference between the broad and narrow interpretations of social capital.

Narrative data analysis

54 narrative data was coded into 52 representative words in the previous chapter. Table 8.4 describes the results of clustering the narrative data, with frequency counts of participants. Representative words in bold are used for this analysis, while the other words are only relevant to the words data analysis. The table demonstrates the differences between words and narrative data. For instance, in the trust domain, one representative word, 'trust', was not found in the narrative data, but only in the words data.

The results of clustering led to 43 representative words (82.7%), while 9 representative words were excluded as no longer relevant. Most representative words from the narrative data are spread evenly over all the categories, except for individual social capital, which is the only category without any representative words.

Trust has the highest frequency (42 participants, 18%) amongst the three core components of social capital. Most participants (41) included responses related to trust in university (e.g. 'university', 'service', 'school'). The narrative data appears to show a high level of negative data about institutions, which the belonging analysis revealed previously.

Results from narrative data analysis are similar to the words data analysis. For example, the proportions of representative words included for social capital are 82.7% for the narrative data and 75.6% for the words data. Since it was inappropriate to merge and compare narrative and words data at this stage, the data was re-coded at the next stage.

Table 8.4 Results of descriptive analysis of narrative data on the social capital perspective

Social capital domains		Representative words
Trust	Trust in others	**Confidence(1),** Trust
	Trust in institutions	**Service (12), School (9), Building (3), Logo (2), University (15)**
Social network	Social relations	**Friends(7), Mates(1), Lecturer(6), Tutor(1), People(4)** Friendships, Relationships
	Informal socialising	**Pubs (6), Social (4)**
	Network	**Communication (9)**
Participation	Social / expressive	**Society (15), Activity (8)**
	Civic / instrumental	**Participation (2), Representing(1), Opportunity(1), Student union (3)** Volunteering
Associated concepts		
Community feeling & support	Support	**Support (9)**
	Community	**Community (5), Belonging (13) Involved(1), Connected (5), Accessible(1), Friendly (7), Home (3),** Close, Open, Together
	Solidarity	**Team (4)**
Perception of locality and surroundings	Neighbourhood	**Halls (5)**
	Surroundings & Views of locality	**Local (7), Wales (3), Small (3), Old(1), Natural environment(1),** Atmosphere
	Culture	**Culture(1), Language(1), International (2)**
Shared value	Perception of shared value (ONS)	**Pride (2), Respect (2),** Equality, Diversity,
Individual social capital	Individual social capital	Education, Degree, Career, Future, Graduation Important
Life satisfaction	Life satisfaction, Safety	**Stress (4), Isolated (12), Happy (3),** Nice, Secure, Unhappy,
Not included		
Academic engagement	Curriculum	**Lecture (7), Knowledge (1)**
Personal space	Identity	**Student (6), Experience (2), Student nurse (8)**
	Personal interest	Hobby
	Living essentials	Money**, Food(1)**, Time, Life, Human
	Life attitudes	**Independence(1), Freedom(1)**, Commitment, Development, Encouragement, **Achievement(1),** Passion, Challenge, Change, Different

8.6 The second stage: analysis by participants

Both words and narrative data were re-coded based on the frequency count of participants for the domains of social capital and associated concepts. For instance, when a participant wrote ‘friends’, this data was coded and counted as one item under

'social network', since the representative 'friends' belonged to the social network domain. The data was descriptively analysed, separately as words and narrative data.

Words data analysis by participants

The results in Table 8.5 show that social network has the highest frequency (270 participants, 72.6 %). The spread of responses is between 1 and 8 per participant. This finding of social network as a dominant concept in the social capital is consistent with the previous results. Participation is the next most popular domain; 235 participants (63.2%) mentioned words related to social and civic actions between once and six times. Relatively fewer participants (122 participants, 32.8%) mentioned trust in their responses, while trust did not occur to the remaining 250 participants (67.2%) when they thought about belonging to the university.

Table 8.5 Frequency counts of participants in social capital domains with words data (%)

	Trust	**Social network**	**Participation**	**Community**	**Surroundings**	**Shared value**	**Individual**	**Life satisfaction**
Yes	122 (32.8)	270 (72.6)	235 (63.2)	180 (48.4)	190 (51.1)	44 (11.8)	62 (16.7)	109 (29.3)
No	250 (67.2)	102 (27.4)	137 (36.8)	192 (51.6)	182 (48.9)	328 (88.2)	310 (83.3)	263 (70.7)

Surroundings (190 participants, 51.1%) and community (180 participants, 48.4%) have a relatively high frequency; whereas the values for life satisfaction (109 participants, 29.3%), individual social capital (62 participants, 16.7%) and shared value (44 participants, 11.8%) are lower. Overall, the results appear to be similar to the previous frequency analysis with the words data.

The figures shown in Table 8.3 exclude 480 items of words data (18.0%) because they were irrelevant in this context. Most come from the personal space domain and some from the academic engagement domain. Analysis by participant shows that the 'removed data' accounted for only four participants (0.9%). Those 4 participants

wrote down one or less response, and their responses were categorised as the irrelevant academic engagement domain in the social capital context. The analysis also reveals that 144 participants (38.7%) had no 'removed data'. In other words, it did not matter to those 144 participants whether the analysis was from the social capital or the belonging perspectives; their responses remained the same. The remaining 228 participants used certain words (from one up to seven per participant) which were removed for social capital analysis. Amongst them, 161 participants (43.3%) had only one or two 'removed data'. This result suggests that differentiating between the social capital perspective and the sense of belonging perspective produces a weaker contrast than in the previous analysis.

Narrative data analysis by participants

The descriptive analysis of the narrative data is summarised in Table 8.6. Words about community were used by 34 participants (63.0%), while references to trust were used by 32 participants (59.3%). These two domains have the highest frequency within the narrative data. Social network (24 participants, 44.4%) and participation (20 participants, 37.0%) are considerably lower, especially compared to the words data (72.6% for social network; 63.2% for participation). Like the findings in the previous chapter, this result suggests that the content of the narrative data is different from the words data.

Table 8.6 Frequency counts of participants in social capital domains with narrative data (%)

	Trust	**Social network**	**Participation**	**Community**	**Surroundings**	**Shared value**	**Individual**	**Life satisfaction**
Yes	32 (59.3)	24 (44.4)	20 (37.0)	34 (63.0)	18 (33.3)	4 (7.4)	0	15 (27.8)
No	22 (40.7)	30 (55.6)	34 (63.0)	20 (37.0)	36 (66.7)	50 (92.6)	54 (100.0)	39 (72.2)

This finding of a higher level of trust responses is consistent with the results of the narrative data analysis at the first stage. On the other hand, the proportional patterns

of those three components did not appear similar, since the frequency of participants with trust responses was much higher than others in narrative data.

At this second stage of analysis, all 54 participants use one or more representative words relevant to social capital, so none are excluded. Compared to the results of the first analytic stage, the difference in results from the belonging and social capital perspectives diminished. However, one could argue that the definition of social capital at this stage was inappropriate and too broad. To investigate this, a restricted definition of social capital will now be applied.

8.7 The third stage: analysis using the restricted definition of social capital

As explained in the discussion of the conceptual framework for social capital, the restricted definition of social capital involved scaling down the number of representative words. They consist of three main components; trust, social network, and participation. The list of representative words applicable to the restricted definition of social capital was in the table of the conceptual framework (Table 8.2, p.199). Although trust in others and institution were regarded as generalised trust in the belonging context, the participant analysis will only include trust in others to highlight the differences of two definitions.

With this conceptual framework in mind, words and narrative data relevant to the restricted social capital will be analysed. It will focus on the differences in these restricted and inclusive boundaries of social capital.

Words data analysis

The descriptive analysis was applied to the words data according to the restricted definition of social capital. Table 8.7 shows that 968 words remained (45.4%) out of 2,134 words data which corresponded for the inclusive social capital. It accounted for 36.2% of the whole words data (2,671 words). Only 19 representative words remained out of 82 total representative words (23.2%) or 62 inclusive cases (30.7%).

Table 8.7 Results of descriptive analysis of words data according to the restricted definition of social capital

Social capital domains			Frequency
Trust	Trust in others	8	8
Social network	Social relations	279	493
	Informal socialising	167	
	Network	47	
Participation	Social / expressive	366	467
	Civic / instrumental	101	
Total			968

The frequency of trust decreases sharply from 177 words to 8 words, while social network and participation remain the same. It appears that the participants express trust in institutions substantially more than trust in others, when they think about belonging.

This result shows a significant difference in the frequency of words data depending on whether the inclusive or restricted definition of social capital is applied. When moving from the inclusive to the restricted definition, there is a large divergence in the frequency of the representative words (62 for inclusive, and 19 for restricted). It implies that there are substantive differences between participants' opinions and expressions.

Figure 8.1 Results of descriptive analysis with 19 representative words from words data according to the restricted definition of social capital

Figure 8.1 is a visual summary of the 19 representative words from the words data, when the restricted definition of social capital is applied. There are a number of salient representative words relating to participation, such as ‘society’ and ‘activity’, followed by social network words such as ‘friends’, ‘pubs’ and ‘social’.

Narrative data analysis

The results of the descriptive analysis of narrative data based on the restricted social capital definition are shown in Table 8.8. Out of 52 representative words from the narrative data, only 15 remained (28.4%). These 15 representative words account for 34.9% of the 43 representative words which were derived in the inclusive social capital procedure. The sharp decrease is consistent with results of the words data analysis.

Table 8.8 Results of descriptive analysis of narrative data according to the restricted definition of social capital

Social capital domains		**Representative words**
Trust	Trust in others	Confidence
Social network	Social relations	Friends, Mates, Lecturer, Tutor, People
	Informal socialising	Pubs, Social
	Network	Communication
Participation	Social / expressive	Society, Activity
	Civic / instrumental	Participation, Representing, Opportunity, Student union

The results of both words and narrative data reveal that the volume of pertinent data decreased sharply when the restricted definition of social capital was applied. The analysis also points to the consistency between both types of data, which helps to confirm the reliability of this research.

8.8 The fourth stage: analysis using the restricted definition of social capital by participants

The third analytic stage revealed that some participants had no relevant responses of social capital such as trust in others, social network or participation. Those 75 participants were marked separately. At this fourth analytic stage, these two groups of participants, either with or without main social capital components, were labelled as 'Included' (with one or more social capital components) and 'Excluded' (without any social capital component).

Words data analysis by participants

319 participants out of the 372 in total (85.8%) were deemed relevant, since they wrote down at least one word belonging to the restricted definition of social capital (Included), while 53 participants (14.2%) were ruled out, since all of their responses were irrelevant in this context (Excluded).

Table 8.9 Frequency counts of participants of words data by Included and Excluded groups according to the restricted social capital definition (%)

	Trust	Social network	Participation	Community	Surroundings	Shared value	Individual	Life satisfaction
Included	112 (35.1)	270 (84.6)	235 (73.7)	147 (46.1)	167 (52.4)	34 (10.7)	49 (15.4)	84 (26.3)
Excluded	10 (18.9)	0 (0)	0 (0)	33 (62.3)	23 (43.4)	10 (18.9)	13 (24.5)	25 (47.2)

Descriptive analysis in Table 8.9 reveals a striking difference between Included and Excluded groups. First, in the Included group, social network (84.6%) and participation (73.7%) have a high frequency of participants, followed by surroundings (52.4%), and community (46.1%). The remaining domains such as shared value, individuals, and life satisfaction are relatively less frequent. This result is consistent with other previous findings.

The Excluded group with 53 participants shows the highest frequency (33 participants, 62.3%) in community, followed by life satisfaction (25 participants,

47.2 %) and surroundings (23 participants, 43.4%). Community is the only domain mentioned by more than half of the participants in this group.

The comparison between the groups of Included and Excluded reveals interesting differences. For instance, community ranks as the third for the Included group (52.4%), while it is the most frequent domain for the Excluded group (62.3%). In addition, it confirms that aspects of social capital such as support, community, or solidarity are significant even in the belonging context. In other words, even those who did not write down any relevant responses of the core components of social capital regard community feelings as important when they think about belonging. As shown in literature review, community feelings is often one of the items of social capital measurement instruments (e.g. Office for National Statistics survey).

Interestingly, 119 participants (32.0%) did not have any irrelevant responses; all of their responses were pertinent to the restricted definition of social capital. It suggests that the data from these participants remains the same, since it contains no differences between sense of belonging and social capital, and none between the inclusive and restricted definitions of social capital.

Narrative data analysis by participants

32 participants (59.3%) remained (Included) when the restricted social capital definition was applied to narrative data, while 22 participants (40.7%) were ruled out (Excluded). The results of descriptive analysis are presented in Table 8.10.

Table 8.10 Frequency counts of participants of narrative data by Included and Excluded groups according to the restricted social capital definition (%)

	Trust	**Social network**	**Participation**	**Community**	**Surroundings**	**Shared value**	**Individual**	**Life satisfaction**
Included	21 (65.6)	24 (75.0)	20 (62.5)	20 (62.5)	13 (40.6)	2 (6.3)	0 (0)	7 (21.9)
Excluded	11 (50.0)	0 (0)	0 (0)	14 (63.6)	5 (22.7)	2 (9.1)	0 (0)	8 (36.4)

The table highlights the importance of the core components of social capital to the Included group, since social network (75.0%), trust (65.6%), and participation (62.5%) all have high frequencies. This group also has a similar emphasis on community (62.5%). Amongst those who were excluded, community has the highest frequency (14 participants, 63.6%), followed by trust (11 participants, 50%), and life satisfaction (8 participants, 36.4%).

21 participants (65.6%) have no irrelevant data, since all of their responses fit not only with sense of belonging, but also with the inclusive and restricted social capital analysis.

8.9 Comparison of words and narrative data using the inclusive and restricted definitions

The descriptive analysis results are summarised in Table 8.11. The first part presents the frequency and percentages of representative words, and the second half shows the frequency and percentages of participants by words, narrative and total data. The two sections reveal different results when the inclusive and restricted definitions of social capital are applied.

Table 8.11 Results of descriptive analysis of words and narrative data by representative words and by participants, according to the inclusive and restricted social capital definitions (%)

	Words data	**Narrative data**	**Total data**
By representative words			
Inclusive	62 / 82 (75.6)	43 / 52 (82.7)	
Restricted	19 / 82 (23.2)	15 / 52 (28.9)	
By participants			
Inclusive	368 / 372 (98.9)	54 / 54 (100)	422 / 426 (99.1)
Restricted	319 / 372 (85.8)	32 / 54 (59.3)	351 / 426 (82.4)

The first part shows a significant drop in the frequency of representative words from both words and narrative data when using the restricted definition. Out of the total 82 representative words, 62 (75.6%) were relevant for the inclusive social capital analysis of words data and 43 (82.7%) of narrative data. The decline was large in both words and narrative data, when the restricted definition was applied (75.6% to 23.2% for words data; 82.7% to 28.9% for narrative data).

In contrast, when the analytic approach based on participants was applied, the differences became less significant: 368 participants decreased to 319 participants (from 98.9% to 85.8%) for the words data. Although the narrative data showed larger drop rates (from 100% to 59.3%), the gap was rather smaller than when representative words were used (82.7% to 28.9%). In addition, 82.4 % of the total 426 participants still remained pertinent when social capital was defined restrictedly with three core components of trust, social network and participation.

Due to the conceptual difference between social capital and belonging, the reduction in frequency of the relevant data was anticipated. The analysis includes some irrelevant data (Excluded) in both words and narrative data. As the table shows, however, the differences between social capital and belonging perspectives appear less significant and even marginal when comparing them by participants (99.1% of the total participants were relevant).

Employing the restricted definition of social capital leads to a noticeable decrease in representative words, in both words and narrative data. However, when the same data is analysed by participants, the gaps diminish. In other words, the majority of participants (82.4%) give one or more responses related to the core components of social capital such as trust in others, social network, and participation. This is the crucial evidence that the data for belonging can be effectively used to understand social capital. These findings will be fully discussed later.

8.10 The fifth stage: merging words and narrative data

At the fifth and final stage, both words and narrative data were transformed into the binary system; participants' responses were re-coded into two types ('yes' (1) or 'no'

(0)), as performed in the previous chapter. This made it possible to merge both words and narrative data and analyse them as a unified dataset. It led to some new findings, which were hidden in the separate data.

The aim of this analysis of the merged data is to fit the data into the social capital framework, and divide them into sub-groups for comparison.

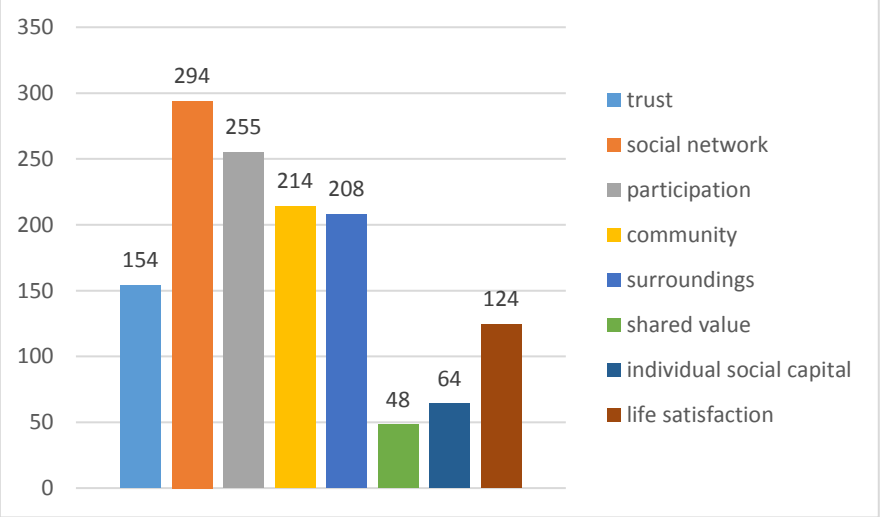
Analysis of the merged data

The responses from the entire set of 426 participants were categorised based on the main components of social capital and its associated concepts: trust, social network, participation, community feelings, surroundings, shared values, individual social capital, and life satisfaction. The results are shown in Table 8.12 and Figure 8.2.

Table 8.12 Frequency counts of participants of the full dataset on the social capital perspective (%)

	Trust	**Social network**	**Participation**	**Community**	**Surroundings**	**Shared value**	**Individual**	**Life satisfaction**
Yes	154 (36.2)	294 (69.0)	255 (59.9)	214 (50.2)	208 (48.8)	48 (11.3)	62 (14.6)	124 (29.1)
No	272 (63.8)	132 (31.0)	171 (40.1)	212 (49.8)	218 (51.2)	378 (88.7)	364 (85.4)	302 (70.9)

Figure 8.2 Frequency counts of participants of the full dataset on the social capital perspective



The table and the figure summarises the results of a frequency count of participants, who provided any relevant responses in each category of social capital. For instance, in the second column, there were 154 participants who wrote down one or more responses related to trust, while 272 participants gave no response. As the previous analysis of words and narrative data showed separately, the most frequently mentioned category was social network. Approximately 7 in 10 participants (294 participants, 69.0%) wrote down one or more responses related to social network; followed by participation (255 participants, 59.9%), community (214 participants, 50.2%) and surroundings (208 participants, 48.8%). These four categories appear relatively more often than others including trust and life satisfaction. This pattern closely matches the results for the words data. It indicates a strong linkage between social capital and belonging.

Negative data

Negative data emerged through the process of data analysis in the previous chapter. It is striking that some participants, especially those who responded with the narrative data, tended to write down more negative expressions than the others. As explained in the previous chapter, the negative data refers to either negative words including ‘no’, ‘lack of’, and ‘less’, or negative representative words such as ‘unhappy’, ‘isolated’, and ‘stress’. Negative data appeared from 88 participants. Once the data was merged, it was possible to analyse the negative data as a whole.

The focus of this analysis was to investigate how the data was related to the main components of social capital. In this section, all participants were divided into either ‘With negative data’ (88) or ‘Without negative data’ (338), to explore whether these two groups displayed any noticeable differences in the social capital context. The results are summarised in Table 8.13.

The group of participants with negative data has a distinctive profile in terms of the social capital categorisation. Life satisfaction appears to be the most important theme, since approximately 7 in 10 (69.3%) expressed their opinions in this category; followed by social network (50.0%), trust, community (both 45.5%), and participation (44.3%). Considering the content of the negative data, this group seems to be less

satisfied with their student life and experiences in the university. On the other hand, the highest frequency of those without negative data are for social network (74.0%), followed by participation (63.9%), surroundings (53.0%) and community (51.5%).

Table 8.13 Frequency counts of participants with or without negative data (%)

	Trust	Social network	Participation	Community	Surroundings	Shared value	Individual	Life satisfaction
With	114	250	216	174	179	40	41	63
-out	(33.7)	(74.0)	(63.9)	(51.5)	(53.0)	(11.8)	(12.1)	(18.6)
With	40	44	39	40	29	8	21	61
	(45.5)	(50.0)	(44.3)	(45.5)	(33.0)	(9.1)	(23.9)	(69.3)

It is noticeable that other sub-groups, especially narrative data, and Excluded were distinctively different from the data as a whole. Further investigation of similarities and contrasts between the participant groups will follow next.

Comparison between sub-sets of the merged data

Since the data was merged, it became possible to divide the whole data into different sub-sets and explore how they fit into the social capital domains and whether there are any distinctive patterns. This comparative approach was designed to examine the consistency and reliability of the data. It also aimed to capture new aspects of the data and possibly challenge existing research.

At the last analytic stage, the data was compared by sub-sets: Words and Narrative data, Included and Excluded groups, and With and Without negative data. To compare the results between these sub-sets, all the results are brought together and summarised in Table 8.14.

Table 8.14 Frequency counts of participants of the total and various sub-sets on the social capital perspective (%)

	Trust	Social network	Participation	Community feelings	Surroundings	Shared value	Individual social capital	Life satisfaction
Total N=426 (100)								
Yes	154	294	255	214	208	48	62	124
	(36.2)	(69.0)	(59.9)	(50.2)	(48.8)	(11.3)	(14.6)	(29.1)
No	272	132	171	212	218	378	364	302
	(63.8)	(31.0)	(40.1)	(49.8)	(51.2)	(88.7)	(85.4)	(70.9)
Words data N=372								
Yes	122	270	235	180	190	44	62	109
	(32.8)	(72.6)	(63.2)	(48.4)	(51.1)	(11.8)	(16.7)	(29.3)
No	250	102	137	192	182	328	310	263
	(67.2)	(27.4)	(36.8)	(51.6)	(48.9)	(88.2)	(83.3)	(70.7)
Narrative data N=54								
Yes	32	24	20	34	18	4	0	15
	(59.3)	(44.4)	(37.0)	(63.0)	(33.3)	(7.4)	(0.0)	(27.8)
No	22	30	34	20	36	50	54	39
	(40.7)	(55.6)	(63.0)	(37.0)	(66.7)	(92.6)	(100.0)	(72.2)
Included N=351								
Yes	133	294	255	167	180	36	49	91
	(37.9)	(83.8)	(72.6)	(47.6)	(51.3)	(10.3)	(14.0)	(25.9)
No	218	57	96	184	171	315	302	260
	(62.1)	(16.2)	(27.4)	(52.4)	(48.7)	(89.7)	(86.0)	(74.1)
Excluded N=75								
Yes	21	0	0	47	28	12	13	33
	(28.0)	(0.0)	(0.0)	(62.7)	(37.3)	(16.0)	(17.3)	(44.0)
No	54	75	75	28	47	63	62	42
	(72.0)	(100.0)	(100.0)	(37.3)	(62.7)	(84.0)	(82.7)	(56.0)
Without Negative N=338								
Yes	114	250	216	174	179	40	41	63
	(33.7)	(74.0)	(63.9)	(51.5)	(53.0)	(11.8)	(12.1)	(18.6)
No	224	88	122	164	159	298	297	275
	(66.3)	(26.0)	(36.1)	(48.5)	(47.0)	(88.2)	(87.9)	(81.4)
With Negative N=88								
Yes	40	44	39	40	29	8	21	61
	(45.5)	(50.0)	(44.3)	(45.5)	(33.0)	(9.1)	(23.9)	(69.3)
No	48	44	49	48	59	80	67	27
	(54.5)	(50.0)	(55.7)	(54.5)	(67.0)	(90.9)	(76.1)	(30.7)

Results for the total 426 participants are shown in the first row by social capital domains. Frequency counts were calculated for responses in the binary form for each trust, social network, participation, community feelings, surroundings, shared value, individual social capital, and life satisfaction. Social network is the most frequent domain (294 participants, 69.0%), followed by participation (255 participants, 59.9%), and community feelings (214 participants, 50.2%).

The second part consists of results of words and narrative data for each category. The results of the words data seem similar to the total data, while the narrative data has a

different pattern. In the other sections, Included and Excluded groups, and With and Without negative data, the pattern of results seems distinctive

Visualising summaries

In order to capture the distinctive patterns more effectively, the results are visualised by applying appropriate formats (Figure 8.3 and Figure 8.4)

Figure 8.3 Frequency counts of participants of the total and various sub-sets on the social capital perspective

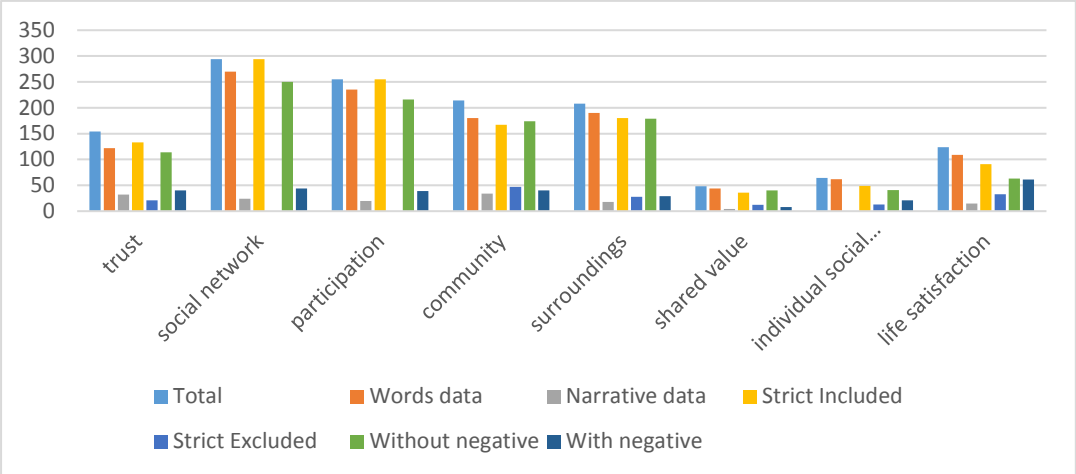
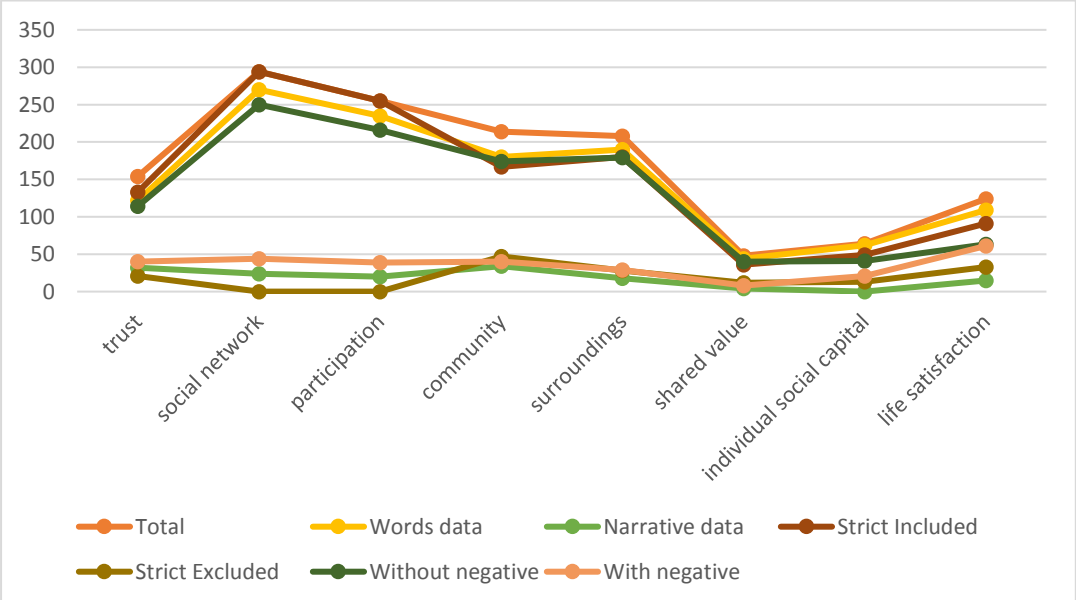


Figure 8.4 Frequency patterns of participants of the total and various sub-sets on the social capital perspective



The chart (Figure 8.3) describes the patterns of participant frequencies by each domain. For example, frequency in the trust domain is evidently higher in all measures: Total, Words data, Included, and Without negative. The range of frequency counts of these groups was roughly between 100 and 150.

The graph (Figure 8.4) provides the same information in a different way. For instance, the first orange line shows the results for the whole data beginning with around 150 for trust, increasing up to 300 for social network, then gradually decreasing through the other items, except for shared value and life satisfaction.

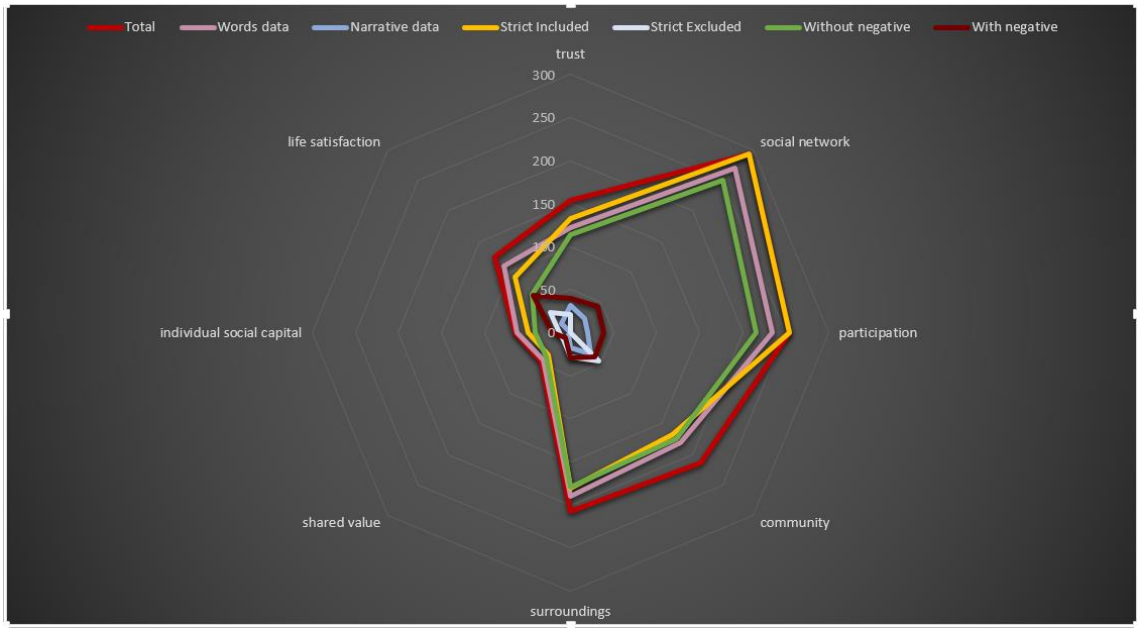
Lastly, this graph clearly reveals that the seven groups can be divided into two distinct majority and minority groups. The Words data, Included, and Without data constitute the majority, whereas the minority group consists of Narrative data, Excluded, and With negative data. They are not just differentiated by size, but by their make up; the majority group has similarities, whereas the minority group has little or no consistency within it.

The spider chart displays these features effectively; each colour refers to a group, with all items at the edge of the octagonal shape. Four groups of Total, Words data, Included, and Without negative present more similar shapes than the other groups. The octagonal shapes tend to have sharper angles because of higher numbers (a rapid change) in social network, participation, and surroundings. It shows reflex angles at the point of shared value.

The spaces of these octagonal shapes seem consistent with the actual numbers of participants in the majority group: participants as a whole (426), followed by Words data (372), Included (351), and Without negative (338).

The majority group has similar characteristics such as size and frequency patterns; social network and participation have the highest frequency counts. In other words, participants most frequently provide one or more responses relating to either social network and/or participation. Social network has the highest frequency count amongst all the domains, with a range between 69% (Total data) and 83.8% (Included); followed by participation from 59.9% (Total data) up to 72.6% (Included). The difference in frequency between social network and participation seem to be regular at around 10% across the majority group.

Figure 8.5 Frequency patterns of participants of the total and various sub-sets on the social capital perspective in the spider chart



Secondly, community feelings and surroundings also appear as relatively large (but smaller than social network, and participation), and their frequency is higher than trust. The frequency of both domains in the majority group are similar; between 47.6% and 53%, with margins of those items of approximately 5%. These similarities in sizes and patterns are consistent across the majority sub groups and the total data.

In contrast, it was difficult to find any similarity between subsets in the minority group. For instance, community feelings seems to have relatively higher frequency counts in some minority groups; especially Narrative data (63.0%), and Excluded (62.7%). However, With negative data has the highest frequency in life satisfaction (69.3%) instead. The minority group has one feature in common: the sizes are distinctively smaller than their paired majority groups. Their small scale and lack of similarity are the crucial features in understanding minority groups.

One could argue that this consistency of the majority group might result from the size. The more dominant the size becomes, the more steady the pattern is. How can we explain the completely different patterns in the minority group? Apart from size, they have little in common. In other words, the sub-sets which were selected with specific purposes in mind display considerably different patterns from the total data and the

majority groups. This is symptomatic of how complicated the data is. The theme of complexity arising from both the questionnaire and 10 Words Question will be continued in the next discussion chapter.

The spider chart is a convenient and effective way to capture the trends in frequency with multiple variables such as trust, social network, participation, and life satisfaction, despite some justified scepticisms towards using spider charts to visualise data (Odds, 2011). Counter to the criticisms it should be pointed out that the data analysed in this research gives equal values to variables. In addition, there is a strong assumption that these variables have certain types of association between them.

8.11 Summary

The analysis in this chapter aimed to focus on the relatedness of belonging to social capital. Initially, a conceptual discussion was used to develop a framework for the two concepts. After a sequential thematic analysis, a joint conceptual framework was constructed, to show how aspects of belonging and social capital are related. It underpins one of the most crucial claims of this study; the overlap between them. Social network and participation are essential to the concepts of both belonging and social capital.

Other significant themes emerged which seem to be strongly related to the main components of social capital and belonging; community feelings, surroundings, shared values, individual social capital, and life satisfaction. Although these themes are not defined as core elements in the literature review, community feelings, surroundings, and shared values are often used as measurement tools. It raises a question about the definitional boundaries of social capital; the scope of the boundary needs to be tested. In this chapter, the operational definition was expressed in two forms: the restricted and inclusive versions.

The second part of this chapter consisted of several stages of statistical analysis. The data was descriptively analysed by words and narrative data, participants, and both definitions. The results suggest that the majority of participants (82.4%) were amenable to social capital analysis, since their responses were relevant to main

components of social capital. The inclusive definition subsumes virtually every participant (99.1%).

Lastly, both words and narrative data were merged, and examined by the sub-sets which were identified during the analytic stages. The findings indicate both the consistency and complexity of the data; the major sub-groups display coherent results. On the other hand, the analysis of most minor sub-groups reveals more complexity.

The results of the analysis in this chapter confirm that belonging and social capital are significantly related through intertwined components and associated elements, despite being independent in the conceptual spheres with alternative origins. In the next chapter, the findings from both the questionnaire and 10 Words Question will be combined and interpreted synthetically.

Chapter 9. Discussions: research findings

The mixed methods research conducted in this study was designed to examine whether the data which was collected for sense of belonging could be used to indicate social capital. The literature review established that belonging and social capital share overlapping concepts such as social network and participation. The survey questionnaire was designed to understand the relationship between the key factors in belonging and social capital, while the 10 Words Question was developed as an original instrument to explore participants' own thoughts and feelings about their belonging. The two types of data were separately investigated in the sequential analytic stages from both the belonging and social capital perspectives.

For this thesis, the first part of data analysis aimed to explore the nature of students' sense of belonging in higher education. Then, the focus shifted to the association between belonging and social capital to understand whether belonging can be used as a proxy for social capital. In this chapter, the discussion will proceed in two parts: sense of belonging and social capital respectively. The main findings will be briefly reviewed, and integrated with the previous literature. Then, the analysis results and findings from both the questionnaire and the 10 Words Question will be synthetically merged and interpreted to provide a comprehensive perspective.

9.1 Sense of belonging in higher education in the UK

Summary of findings from the data

The analysis of both data from the survey questionnaire and the 10 Words Question revealed the complexity of sense of belonging; it is multi-dimensional and multi-layered. Firstly, students' sense of belonging is not a single, one-dimensional concept. The statistical analysis of the 10 Words data confirmed that *academic* and *social engagements* are important for students' belonging to their institutions, as discussed in the existing literature. However, it also revealed that there are two more crucial domains, namely *surroundings* and *personal spaces*. Surroundings equate to participants' living space, and geographical and cultural location, while personal spaces refer to life satisfaction, life attitudes, identity and personal interests. These

two domains were discovered by the sequential analysis of 10 Words data, where four domains were statistically confirmed to be independent, and different from each other.

These four independent domains were the main spheres for students' sense of belonging to their institution in higher education, but *social engagement* was the most salient factor. It turns out that items of social engagement such as socialising activities, frequency, and numbers of close friends play the most crucial roles in understanding belonging, as substantiated by various statistical procedures including correlation analysis, comparing means through the Mann-Whitney and the Wilcoxon signed rank. The 10 Words analysis also confirms the significance of social engagement, since the representative words relating to social engagement such as 'societies' and 'friends' appear consistently dominant through the analytic stages.

The correlation analysis of all the main variables shows that there is no direct, strong association between variables of academic and social engagement. In other words, academic and social engagement are unlikely to affect each other directly. However, these variables seem to be linked through other variables such as life satisfaction and trust. For example, there is no direct association between students' feeling of discomfort in talking to their lecturers and their willingness to participate in clubs and societies in the university. Their feelings of discomfort, however, seem to be connected to life satisfaction levels, which may affect their social activities in negative ways. These indirect associations suggest a reciprocal connection; for instance, if students are socially engaged, they are more likely to be satisfied with their overall life and to participate academically, and vice versa.

This finding also highlights the importance of 'linking variables' such as life satisfaction and trust. The literature review on higher education suggested that generalised trust was less noticeable than other variables in students' belonging to their institution, so this thesis regarded trust mainly in the social capital context. Compared to the descriptive analysis results of belonging and other main variables, frequency of trust was certainly lower. However, other analysis results revealed that trust seems to play the key role in relationships between academic and social engagement, as well as between belonging and social capital. Further discussion about the meaning of trust will be undertaken after social capital analysis.

The correlation network map in Chapter 6 (Figure 6.2, p.118) showed that certain variables have stronger associations than others in terms of number and strength. For instance, students' satisfaction with their social life as a student was the key variable; not only because it bridged the academic and social spheres, but also because it was significantly associated with the greatest number of variables. The differences in association strengths and sizes also helped to indicate which factors are crucial to students' belonging.

Students' sense of belonging is multi-layered vertically as well as horizontally. Vertically, university belonging can be different from academic school belonging. The analytic approach to the whole data led to the initial conclusion that the two types of belonging were similar, without significant differences. Participants' responses of these two questions were, on average, both at the 'agree' level, where both variables were also statistically strongly correlated. However, the correlation network map demonstrates that their association patterns vary noticeably. School belonging shows broader and stronger correlations, especially with academic engagement variables than university belonging. In addition, the further statistical analysis by sub-sets confirmed that university belonging is significantly lower than school belonging in most cases. For instance, one sub group responded at the 'neutral' level (M=3.14) to their belonging to university, while their school belonging was at the 'agree' level (M= 4.09). In terms of the range of response gaps between university and school belonging, this is the largest. This result establishes how belonging to the university and the school can be captured and interpreted with some subtlety.

The results from the 10 Words data analysis also support this argument. There are considerable differences in the types and characters of representative words, which were thematically grouped as university or academic schools. University belonging was captured as through physical and symbolic references (e.g. services, facilities, buildings, logos), whereas students' belonging to their academic schools tended to be identified more specifically in terms of academic subjects. This tendency became stronger in the negative data. Negative responses regarding belonging were often directly related to the university; such as *'Healthcare sciences seems to be separate from the main university', 'Blackboard failing', 'No sense of belonging to main university', 'disconnected from main university'*.

The multi-layered character of belonging is also revealed in the analysis of sub-sets, which were horizontally divided based on key indicators such as age, ethnicity and socio-economic class. Different sub-groups of participants tended to have differing levels of sense of belonging with a wide spread (between 0.19 and 1.27). The further statistical analysis confirmed that certain indicators such as national identity, household income, and academic school have an important role to play in participants' belonging. For instance, Welsh students are less likely to feel a sense of belonging to the university as well as their academic schools, compared to English students. Like Welsh students, most sub-groups based on these indicators showed significant differences in main variables such as social engagement, participation and life satisfaction.

The negative data from the 10 Words analysis also reveals how complicated the character of belonging is. Although 'belonging' is intrinsically a positive concept, one in five participants (20.7%) wrote down at least one negative response. Negative data was mainly identified in the domain of personal spaces such as 'isolated', 'stress', 'unhappy', but also in academic engagement as 'university'. Furthermore, one sub-group of participants (e.g. Healthcare) displayed strong negative responses relating to University belonging and self- identification as 'student nurses'. This could imply the importance of vocational aspects in the higher education belonging context, which will be discussed further in this chapter.

Analysis of the 'considering leaving university' question produced similar results; one in four participants (24.8%) considered leaving the university at least once in their first or second year. Interestingly, correlation analysis revealed that this variable demonstrated only one significant association with life satisfaction as a student, while the other variables showed no or very weak correlation. Further statistical analysis confirmed that participants who became involved more often in clubs and societies, or had higher levels of generalised trust were less likely to consider leaving the university. The discussion about this relationship between belonging and retention will follow after the new findings.

New findings – surroundings and personal spaces

According to the literature review, students' sense of belonging to their institution in higher education tends to be captured, determined, and operated mainly by way of academic and social engagement (e.g. Tinto, 1987, 1993; Astin, 1984, 1993, 1999; Osterman 2000; Thomas 2012). As summarised above, the analysis in this thesis reveals that, while academic and social engagement are certainly the most important factors, the 10 Words data shows that there are actually four, not two, independent domains for students' belonging.

The domain of surroundings refers to a wide spectrum of locational references which come from participants' experiences of living in the geographical, environmental, and cultural contexts of the university. It includes students' physical living spaces such as accommodation, flats, and halls, but also expands to the geographic location, the natural environment, and cultural milieu. The geographic location corresponds to locality, such as names of specific places ('Bangor', 'Bangor pier', 'Hills'), and the natural environment implies 'mountains', 'countryside', 'sheep', and 'rain'. The cultural aspects are reflected in words like 'Wales', 'dragons', and 'Welsh(ness)'.

These elements seem to be one of the important factors influencing students' sense of belonging, as more than half of the total participants mentioned one or more words related to surroundings. Participants' thoughts on this theme can also be found in the narrative data;

'Bangor is very different when students go home, it is much better and lively when students are here.'

'similarity of Bangor to where I live'

'This 'place' organises intellectual and social events to provide you the opportunity to meet people and network.'

'Being a student of Bangor University, I feel connected with not only the uni, but also the rich cultural heritages of Wales.'

The literature about the measurement of belonging shows that much existing research in higher education in the UK tends to understand students' belonging as an individual's subjective feeling, focusing on their success and retention within the institution. In contrast, sociological perspectives highlight the importance of the structural aspects, where belonging is often interpreted as a relationship or a linkage between a person and the society. To reconcile these differences, sense of belonging and its associated concepts such as a person's identity, their connection with others as well as surrounding areas such as neighbourhood and local places are explored simultaneously (e.g. May 2005; Leach 2002; Tilley 1994).

The finding of the new domain of *surroundings* in this study should be interpreted in line with the sociological perspectives. Antonsich (2009) argues that sense of belonging, as feelings of being comfortable and secure, is profoundly rooted in the attachment to a certain place. Participants' responses about *surroundings* are expressed in terms of geographical, environmental, and cultural aspects, both *within* as well as *beyond* the boundary of the university; from their living spaces to the local area, including natural and cultural environments. The domain of surroundings, therefore, is striking evidence that place attachment should be considered as an important aspects of students' belonging in higher education.

The last domain, *personal spaces*, in contrast, represents the psychological and educational aspects of belonging, where the main focus is on the individual subjective feeling. The analysis shows that this domain consists of several elements such as students' self-esteem and identity, life satisfaction and attitudes, and personal interests. It is clearly evident that students' understandings of who they are, what they do, how much value they put on their experience, and how satisfied they are as a student, are fundamental to their belonging. This finding also strongly supports the existing literature regarding students' belonging in higher education (e.g. Pittman and Richmond 2007).

The finding that students' sense of belonging to their university is certainly multi-dimensional, which is confirmed in this study, aligns particularly well with sociological perspectives (e.g. Antonsich 2009: 645; Marshall and Foster 2002: 186; Croucher 2004: 41; Johnston 2005: 109; Yuval-Davis et al. 2005: 526). However, as discussed in the measurement chapter (Chapter 4), a complete understanding of

students' belonging will benefit from a synthesis of psychology, education, and sociology.

Academic and social engagement, belonging, and retention

This section explores how these findings can be interpreted in higher education research, focusing on belonging and retention. The statistical analysis in this study reveals that there are key factors to academic and social engagements. Academic engagement is generally determined by factors such as students' interaction with academic staff, mainly lecturers and fellow students; their perceptions about peer support; and their expectations of academic activities. Students' social network sizes, socialising frequency, and their participation of various activities such as university societies, volunteering, and visiting pubs are the main contributors to social engagement. These findings support the existing research in many ways such as students' experiences of participating in academic and social activities (Astin 1999, 1984); regular social interactions with peers and perceived support from them (Baumeister and Leary 1995); various forms of social interaction and activities (Thomas, 2012); perceived support from peers and faculty (Hoffman et al. 2002); perceived support and caring (Freeman et al. 2007), and participation in college activities (Hurtado and Cartet, 1997).

It is evident that there is a wide spectrum of elements within both the academic and social spheres, which affect students' sense of belonging; nonetheless, social engagement seems to be the most salient factor, according to the present study. This result is consistent with the arguments of Chipuer (2001), and Pittman and Richmond (2007), that positive social interaction is one of the fundamental factors to the sense of belonging; as well as to success in college life.

However, there is an alternative argument that academic engagement might be more influential, found in the 'What works project' in the UK (Thomas, 2012). One of their seven collaborating projects appeared to show that students' opinions of the academic experience were more important to their belonging than their social experiences (Boyle et al. 2011). However, this result is open to question, since there are validity and reliability issues, and methodological limitations such as the survey questionnaire design, analytic methods, and participant rates. Out of the total 29 questions, only

three questions explicitly mentioned ‘academic experience’, where academic experience was presented as a word, without any example or detail. In addition, it was measured on a Likert scale and analysed using the sum of positive responses (‘very important’ and ‘quite important’), instead of applying appropriate statistical tests. As admitted in the final report, numbers of participants were very small (between 27 and 62, across three universities). For instance, the proportion of the participants in one university (n=62) to its total population was less than 0.3%.

Next, it should be highlighted that students’ sense of belonging to the university and the academic school need to be regarded differently. In this thesis, various sub-groups show different levels of these two types of belonging, where the aggregate data tend to obscure these significant differences. Although the university consists of many sub-units such as colleges or academic schools, research on students’ belonging in the higher education context often regards the university as a single entity, without considering different layers of the concept. Freeman and Anderman (2007), however, identified this research gap, and investigated students’ belonging on two different levels of class belonging (e.g. Goodenow 1993b; Solomon et al. 1997), and university belonging (e.g. Anderman and Anderman 1999; Goodenow and Grady 1993; Roeser et al. 1996). Although their findings show how different factors affect class and university belonging in the American educational environment, they give less attention to the actual relationship between the two. Their research suggests the need for further studies to explore the multiple layers of students’ belonging, which this study responds to.

The relationship between students’ belonging and their retention was part of the current investigation. Although there is a strong consensus about positive association between belonging and retention in higher education, the direct impact of belonging on retention appears to be less certain in this study. The statistical analysis shows little evidence to support this relationship, since the variable ‘considering leaving the university’ appears to have no strong direct association with any academic and social engagement variables, except ‘life satisfaction as a student’. On the other hand, the correlation analysis suggests that participants who are satisfied with their life as a

student are more likely to have higher belonging to schools as well as the university; to be academically engaged; to trust others; and are less likely to consider leaving the university. Therefore, students' academic engagement and belonging might be indirectly related to retention. Sub-set analysis reveals the importance of social engagement to retention, particularly participating in clubs and societies in the university. Students who get involved with clubs and societies are significantly less likely to consider leaving the institution, as argued by Hurtado and Cartet (1997).

In order to understand this variable 'considering leaving the university', further statistical analysis was conducted for this chapter; dividing participants into two groups of representing high and low values for this variable. The analysis using the Mann-Whitney test reveals there are significant differences in most main variables between these groups; except for volunteering and numbers of close friends. In other words, those who have seriously thought about leaving the university tend to be less academically and socially involved than participants who have rarely thought about it. The gaps between these groups appear substantial.

How can we explain this weak direct correlation of 'considering leaving the university' variable and the others? Firstly, it should be remembered that the variable does not necessarily imply intention; the thought of leaving the university does not always lead to the action. In fact, 6.6% of the population decided not to continue to study in Bangor University and officially left according to the Higher Education Statistics Agency[10] (HESA), whereas 20.7 % of participants in this study responded that they have considered leaving the university. Those who make the decision to leave the university might have low levels of engagement academically as well as socially. However, this tendency might be hidden, not emerging explicitly at the stage when a student contemplates leaving.

Another explanation might be some uncaptured factors in the belonging context. The analysis of demographic information shows no distinctive differences in age, gender, disability, and nationality amongst the participants in this study, except for the high proportion of Bangor bursary recipients. Two domains of students' belonging such as

[10] The data is from 'Table T3a - Non-continuation following year of entry: UK domiciled full-time first degree entrants 2013/14' on the HESA website (https://www.hesa.ac.uk/data-and-analysis/performance-indicators/non-continuation)

surroundings and personal spaces were not included in the survey questionnaire design because there was no or little discussion about other topics than academic and social engagements in the existing literature. These two newly discovered domains consist of various aspects of students' life such as financial status, physical and mental well-being, characteristics of the local area, and historical and cultural contexts, which were not captured and integrated into the questionnaire. In addition, since the existing questionnaire focused on the students *within* the university, a wide range of aspects in the *outside-of-the-university* context seemed to be ignored. For example, troubles in a person's intimate relationships could not be directly reflected in the current questionnaire. Although it would be impossible to include all of the outside-of-the-university elements, many of those could be reflected in life satisfaction. This explanation implies that research should aim to apply multiple questions of life satisfaction at the general, student, and social life levels.

Students from disadvantaged backgrounds – social class, maturity, and ethnicity

The analysis of the questionnaire reveals that students' sense of belonging to their academic schools and the university varies between different sub-groups based on indicators such as age, nationality, and socio-economic status. In addition, there are significant differences between most belonging variables. The results should be examined more closely, in order to understand specific groups of students, those often regarded as 'non-traditional' or 'disadvantaged' in the literature.

Read and colleagues (2003) explain that there is a noticeable gap in research on non-traditional students' sense of belonging to their higher education institution in the UK. This group is distinguishable in terms of age, class, and ethnicity, from the traditional 'elites' such as 'young, white, middle-class and male' (2003: 274). There is strong evidence in the literature that maturity (e.g. O'Donnel and Tobbell 2007; Darab 2004; Lucas 1990; Christie et al., 2005), socio-economic status (e.g. Becker and Luthar 2002; Reay 2002; Goodenow 1992; Lynch and O'riordan 1998) and ethnicity (e.g. Pittman and Richmond 2007; Hurtado and Carter 1997; Mounts 2004; Strayhorn 2008) affect students' sense of belonging to a great extent. The research design in this study includes these crucial determinants and makes it possible to compare the results with the existing literature.

Firstly, mature students seem to take part in social activities significantly less than young students; they are less likely to visit pubs, to get involved in university clubs and societies, and less often socialise and have lower numbers of close friends. Their level of satisfaction with social life is considerably lower than amongst young students. On the other hand, this group of students seems to show no visible gaps in academic engagement.

For the next group, socio-economic status was measured by the university bursary, since it is means-tested according to household income. Those who receive a bursary share similar results with mature students; they are significantly less engaged socially than those who do not receive the bursary. There is also no difference in academic factors between these two groups. However, receipt of a bursary seems to be negatively associated with university belonging, since they tend to show lower belonging to the university.

Welsh nationality was measured as self-identification for the purposive sampling in this study, in order to understand how Welsh students feel their sense of belonging to the institution. The analysis reveals that students who identify themselves as 'Welsh' are less likely to be socially engaged than English students; they tend to participate less in university clubs and societies, as well as volunteering, to socialise less often and to have a smaller number of close friends. They are less likely to be satisfied with their social life and overall life. The results are similar to other groups with disadvantaged backgrounds. It raises an intriguing question: why do *Welsh students in a university in Wales* tend to show lower social engagement and life satisfaction? Not surprisingly, Welsh students' belonging to both university as well as academic schools is significantly lower than for English students. Amongst the four non-traditional groups, this is the only group with lower belonging to the university as well as schools, combined with lower life satisfaction as a student. It is striking that Welsh students attending a university in Wales actually feel the least belonging.

It becomes more curious when the result is compared to international students. Between international and British students, there are only three differences amongst all the variables (Fellow students are supportive; Visit the pub; Numbers of close friends), where belonging is not even included. The differences between international

and British students seem to be less distinctive than those between Welsh and English students.

This result seems to contradict Baker and Brown's arguments (2008: 57) about the 'aspirational habitus'. Baker and Brown's research about rural Wales in the mid-20th century, shows how educational systems helped students from economically disadvantaged backgrounds to become the high elites in Wales, by adapting Bourdieu's concept of 'habitus'. Their research using biographical data reveals that all participants felt a strong sense of belonging to the institutions, despite their socio-economic backgrounds.

How can we explain this counterintuitive finding about Welsh students? Bangor University can be described as a 'Welsh University', established in 1884, where Welsh culture and heritages are strongly embedded (Baker and Brown, 2008), the bi-lingual policy is applied as a principle, and the proportion of Welsh students is substantial (Welsh Government Statistical Bulletin, 2016). According to the Higher Education Statistical Agency, in 2013/2014, 2,128 students (21.2% of the total) identified themselves as Welsh learners or Welsh speakers. Although they spread over 22 academic schools, some schools contain much larger proportions. The School of Education had the highest number of Welsh students (493), as well as the largest proportion (54.2%); followed by Healthcare (361 students, 45.9%), and Social Sciences (189 students, 39.2%). In contrast, other schools such as Psychology (10.3%), and Biology (6.7%) had lower levels of Welsh students.

The Welsh Government Statistical Bulletin (2016) shows that in 2014/2015, 1,500 students in Bangor University (14.1%) were taught through the medium of Welsh, which was the second highest amongst 9 institutions in higher education in Wales. It was much higher than the average (4.1%) as well as Cardiff University (320 students, 1.1%). In addition, there are 200 academic staff who teach through the medium of Welsh (27%) in Bangor University, which was the highest in Wales (cf. 15 in Cardiff University or 3%). Comparing the number of students who can speak Welsh in Cardiff University (3,315), Bangor University had the highest ratio of Welsh teaching staff to Welsh speaking students.

In the questionnaire data, 138 participants were classified as the Welsh group. The definition of Welsh students for this research not only refers to students whose first

language is Welsh, but also includes those who identify themselves as Welsh. The further investigation into Welsh students' status including demographic information, the Bangor bursary, accommodation, and cohabitants was conducted in this chapter. The results of the descriptive analysis of Welsh and total participants are presented in Table 9.1.

Table 9.1 Comparison between Welsh and total participants

	Welsh students N=138	**Total participants** N= 380
Age (Mean)	23	23
Gender (F / M)	102 (73.9%) / 36 (26.1%)	242 (63.7%) / 130 (34.2%)
Close friends	8.3	10.2
Bursary receivers	98 (71.0%)	192 (50.0%)
Disability	11 (8.0%)	31 (8.2%)
Ethnicity (White-British)	129 (93.5%)	294 (77.4%)
Academic schools	Social sciences 45 (32.6%) Healthcare 25 (18.1%)	Social Sciences 76 (20.0%) Psychology 58 (15.3%) Healthcare 44 (11.6%)
Accommodation	Own home 61 (44.2%) Privately rented 47 (34.1%)	Privately rented 197 (51.8%) Own home 81 (21.3%)
Residence location	In Bangor 69 (50.0%) Further than 10 miles 54 (39.1%)	In Bangor 249 (65.5%) Further than 10 miles 82 (21.6%)
Cohabitants	University friends 53 (38.4%) Parents or guardians 39 (28.3%)	University friends 205 (53.9%) Parents or guardians 45 (11.8%)

The table shows that Welsh students have some distinctive characteristics, compared to total participants. In detail, they tend to show larger proportions of Bangor bursary receivers (71.0%), living with parents or guardians (28.3%), in their own home (44.2%), further than 10 miles away from Bangor (39.1%), than the participants as a whole (the bursary receivers 50.5%; living with parents 11.8%; in own home 21.3%; further than 10 miles 21.6%). Their average number of close friends (8.3) also seems much lower.

The higher rate of receiving the Bangor bursary suggests that socio-economic status plays the crucial role to understand Welsh students, as discussed about the relationship between the bursary and belonging. The recent research shows that 23 % of the population (700,000 people on average) in Wales are suffering from poverty and deprivation in the long-term (Joseph Rowntree Foundation 2005, 2016). Therefore, Welsh, as an indicator, seems to be strongly associated with the socio-economic disadvantage and belonging.

Secondly, a considerable proportion of Welsh students are living in their own home, with or without their parents, far from the university. This might make it difficult for them to form a new social network with other students, or local students might find it less necessary, due to their existing social networks out of university. However, Welsh students seem to feel their sense of belonging in different ways. The narrative data from the 10 Words Question offers a clue to Welsh students' perception of the university.

'As I am from Bangor, I don't feel like I am part of the community, until I applied on the course that I am on now. I find it strange that I feel part of a community when everyone I know is not from Bangor.'

Welsh Students' belonging seems to be significantly related to cultural, geographical, and natural familiarity, which was uncovered in the data on surroundings from the 10 Words Question. This finding is also in line with Hinton's research (2011) about Welsh students. Recent statistics about Welsh domiciled students in higher education within the UK (Higher Education Funding Council for Wales, 2013) show that 74% of the Welsh students (105,039) study in Wales. Furthermore, the data in this study suggests that other students' perception of Welsh students might matter (e.g. '*Smug Welsh students who have cheaper fees.*')

Since the university in Wales is not only for Welsh students, the findings in this study may be interpreted to mean that more detailed policies need to be developed for Welsh students on both the university and higher education sector levels. In addition, the conventional categories, which are taken to denote 'disadvantages' such as gender,

age, disability, ethnicity, and socio-economic status might need to be re-visited and re-evaluated in the higher education context in the UK.

Students with disadvantaged backgrounds are less engaged in the social sphere; but their social engagement is less directly related to their sense of belonging. These findings support the importance of social engagement and its association with life satisfaction, as discussed earlier. Age, socio-economic status, and national identity certainly play important roles in the educational context, since those groups with disadvantaged backgrounds consistently display negative results in key variables. Although this bears out how robust and reliable the data is, the results from the aggregate data tend to obscure significant differences between the purposively selected groups. Therefore, future research into students' belonging in higher education should be designed to consider sub-groups of the student population as well as the complexity of sense of belonging.

Vocational aspects of belonging

The analysis of various sub-sets in the previous chapters (Chapter 6) revealed that academic schools were one of the most vital factors to students' belonging. Participants in certain academic schools have a distinctive profile in many aspects of belonging, life satisfaction and social engagement. In particular, Psychology seemed to show positive results such as higher belonging, socialising, participation, numbers of close friends and life satisfaction, whereas Healthcare and Social Sciences showed the opposite tendencies. The gaps between these schools were often the largest amongst all the sub-sets.

The connection to schools is also one of the key elements to understand Welsh students, since the highest numbers of students who were taught through the medium of Welsh are found in education and the social sciences (HESA, 2016).

For this chapter, further investigation was undertaken on three academic schools: Social Sciences, Healthcare, and Psychology, which had enough participants (over 30) for both the 10 Words and questionnaire analysis and sufficient variation in responses. Social Sciences and Healthcare can be taken to represent Welsh students since more than half of participants identified themselves as Welsh. In contrast, participants from

Psychology showed almost the opposite tendencies, resembling the average of the participants as a whole.

Table 9.2 Comparison of the 10 Words and questionnaire data by schools: Social Sciences, Healthcare and Psychology

Questionnaire	**Social Sciences N= 76**	**Healthcare N= 44**	**Psychology N=58**
Age (Mean)	25	30	22
Gender (Female)	68.4%	81.8%	70.7%
Ethnicity (White-British)	85.5%	84.1%	81.0%
Welsh/ English	59.2% / 25.0%	56.8% / 31.8%	13.8% / 72.4%
Close friends	7.4	7.7	10.9
Bursary receivers	65.8%	77.3%	34.5%
Accommodation			
Own home	38.2%	59.1%	1.7%
Further than 10 miles	30.3%	59.1%	5.2% (Private rent 86.2%) (In Bangor 84.5%)
Cohabitants			
	Uni friends 40.8% Parents 18.4%	Parents 20.5% Partner 15.9 Child 13.6	Uni friends 89.7%
Disability	7.9%	6.8%	6.9%
Considering leaving university*	19.7%	36.4%	32.8%
10 Words	**N= 87**	**N= 36**	**N=52**
Domains**			
Academic	65 (74.7%)	27 (75%)	35 (67.3%)
Social	86 (98.9%)	29 (80.6%)	49 (94.2%)
Surroundings	42 (48.3%)	7 (19.4%)	25 (48.1%)
Personal	47 (54.0%)	30 (83.3%)	24 (46.2%)
Narrative data	5 (5.7%)	14 (38.9%)	8 (15.4%)
Negative data	15 (17.2%)	27 (75.0%)	5 (9.6%)

* The sum of 'strongly agree' and 'agree'

** Frequency by participants (%)

Table 9.2 shows that there are striking differences in age, gender, ethnicity, numbers of close friends, the Bangor bursary, accommodation, distance from Bangor, and cohabitants between the three schools. Psychology students can be described as being young, English, living with university friends, in privately rented homes, in Bangor, having more close friends and less likely to receive a bursary. In contrast, students from both Healthcare and Social Sciences are more likely to be Welsh, receive a bursary, live in their own home, further than 10 miles away from Bangor, and have a smaller number of close friends. The proportion of Healthcare students who are mature, female, and living with their family (parents, partners, or children) are the largest by a considerable margin.

The divergence between these groups of participants can be also found in the data from the 10 Words Question. The analysis results from the four domains as well as the negative data reveal that Healthcare students are particularly interested in and more concerned about personal matters than others.

Further analysis underlines the substantial differences in demographic and socio-economic circumstances between participants, divided by academic schools. Healthcare and Social Sciences have distinctive characters in the structure of members, which are related to their identity, solidarity, and purposes of education based on the professions (e.g. nurses, social workers). This study indicates that vocational aspects of higher education are closely linked to the different types of belonging.

Implications: the complexity of sense of belonging

The findings in this study provide a useful basis for practical efforts to enhance students' success and wellbeing, by suggesting which factors are most important for the sense of belonging to higher education institutions in the UK. They indicate that students' experience is more complex and multi-dimensional than assumed in previous studies.

Firstly, this study consistently shows that students' sense of belonging in higher education is complex; it is multi-dimensional and multi-layered. It consists of four domains: academic and social engagement, surroundings, and personal spaces.

Furthermore, belonging is multi-layered, depending on the boundary and the participant. The institutional boundary plays an important role in belonging, since belonging to the university may be different from belonging to the academic school. Socio-demographic indicators such as social class, maturity, and ethnicity are also essential for understanding how those from disadvantaged backgrounds feel they belong or not.

In order to understand students' sense of belonging in a more comprehensive way, the findings from this study should be incorporated into a revised version of the survey questionnaire. The design could be improved by developing more inclusive items: for example, on students' living spaces, geographical location, natural environment, and cultural aspects. In addition, questions could be developed around the personal spaces of students, such as their attitude towards their life as well as higher education, and their identity as a student. Current educational research in higher education in the UK has often neglected these environmental and personal dimensions (e.g. National Student Survey, What Works programme).

The results from the 'non-traditional' or 'disadvantaged' groups of students should prompt a re-evaluation what we consider to be the sources of 'disadvantage', such as social class, age, gender, disability and ethnicity. Differences between academic disciplines clearly affect students' sense of identity and the vocational aspects in higher education are influential. The aggregated data tends to obscure such differences. Although this research has not been directed toward policy analysis or recommendations, the findings can be taken to mean that an undifferentiated view of students' sense of belonging to an institution may result in poorly targeted and ineffective policies. If students' belonging is to be used to promote academic success and retention, more conceptually refined approaches and empirically detailed evidence will be required.

9.2 Sense of belonging as an indicator for social capital

Summary of findings from the data

In the literature review, it was established that sense of belonging and social capital are closely intertwined through the overlapping spheres. Social capital consists of

three main components, namely generalised trust, various social networks, and participation in a broad range of activities. Sense of belonging, as an individual feeling of being connected and related, plays the vital role of linking a person with others, groups and the society. Social relations and interactions are the key elements to both sense of belonging and social capital, where life satisfaction is closely related.

To sum up the main findings of the social capital analysis (Chapter 6 and 8), the statistical analysis conducted on the questionnaire data revealed how the two concepts are related. The correlation analysis revealed that there are strong positive associations between variables of belonging and social capital, where life satisfaction and trust play the key roles in both concepts. Further analysis by sub-sets led to the conclusion that variables such as social and civic participation, trust and numbers of close friends matter considerably.

The 10 Words data helps to develop the conceptual framework of sense of belonging and social capital, where four main domains of belonging are reconstructed and re-categorised into social capital. It reveals that a substantial part of belonging data refers to themes which are strongly related to social capital, including the associated concepts. The operational definition of social capital is accordingly applied on two different levels, restricted and inclusive. Although there is a marked difference between these two boundaries of social capital, the participant analysis demonstrates that the impact of differences may be less striking.

The conceptual and statistical analysis of both the 10 Words and questionnaire analysis data in this study suggest that students' sense of belonging to the university is indeed strongly associated with social capital. In this section, the main components of social capital are re-visited and re-valued to examine whether the results from both types of data support each other; and how they can be used to re-engage with the existing literature.

Trust

As discussed in the literature review, trust is defined, for this study, as strong belief and positive expectations of good will from people, institutions, and norms (Barber, 1983; Yamagishi and Yamagishi, 1994; Glanville and Bienenstock, 2009). Based on

concrete and reciprocal social relationships, members of society can generally trust in other people as well as the society, to which they belong. As Paxton (1999) points out, trust in others and institutions are generally regarded separately. For this study, the questionnaire was designed to measure generalised trust in others. It is assumed that trust in institutions is already embedded and subsumed in belonging to the university, intrinsic to being a registered student.

The questionnaire analysis shows that participants' level of generalised trust in others is relatively lower than their belonging, academic engagement, and life satisfaction. Besides, there is only a modest indication of trust in the 10 Words data; for instance, less than 40% of participants mentioned any words related to trust in the response sheet. These results are in line with the theoretical assumption, that generalised trust might be less visibly recognisable.

However, this study provides striking evidence to challenge this assumption. The questionnaire analysis confirms that trust is one of the critical variables to link academic and social engagement, where it has strong positive associations with all three life satisfaction variables. When the participant analysis by sub-sets is conducted, trust is the only indicator to show significant differences in all variables. In other words, those with higher levels of trust tend to show higher levels of belonging, academic and social engagements, social and civic participation, and life satisfaction. In addition, trust, especially in the institution, appears to be one of the most vital elements to understand the narrative data. Therefore, the findings suggest that generalised trust, as one of the main components of social capital, plays the key role in sense of belonging.

Who are those with high levels of generalised trust? The further analysis of demographic information in this chapter shows that they are more likely to be white British, studying Psychology rather than, for example, Social Sciences, with higher numbers of close friends, and less likely to be disabled.

Social network and participation

Social network, as a pattern of social relations, and various forms of interactions based on those ties, was presented as a topic explored in the academic and social

engagement in the questionnaire. Specifically, students' academic engagement contains social-network-related variables such as interactions with academic staff and fellow students. Their social engagement is itemised as socialising with others, participating in various social activities including university clubs and societies, and numbers of close friends. Social relations and interactions in the academic sphere are designed *within the university context*, whereas the social engagement is presupposed to occur *inside as well as outside of the university*, in the more general context.

The variables of academic and social engagement are developed so as to be equivalent to the components of social capital and are interpreted accordingly. For instance, Paxton (1999) and Li et al. (2005) developed items for their social capital questionnaires, in which informal socialising with close friends and neighbourhood were measured separately. In the current context, neighbourhood can be replaced by similar social ties such as fellow students, considering students' identity and social circles in higher education. This network tie can be described as being relatively broad, open, and loosely connected, but emotionally and physically supportive. Granovetter (1973) argues that social support and cohesion can be generated and diffused through these 'weak ties'.

As discussed in the literature review, network theorists tend to approach social networks from a specific analytic view; examining network ties quantitatively in terms of size, strength, density, and centrality (e.g. Borgatti et al. 2009; Granovetter, 1973; Burt 1983, 1987; Scott 1988, 2000; Prell, 2006). Social network perspectives help to expand the understanding of social capital into structural aspects of networks; including their patterns, interactions, influences, and flows (Scott, 1988, 1991). A holistic approach to social capital, therefore, can be achieved by exploring the structural side (Prell, 2006), in combination with the subjective meanings of network ties including trust, friendships, support, or hate (Bonacich, 1987; Doreian and Stockman, 1996; Frank and Harary, 1979; Friedkin and Cook, 1990; Morgan, Neal and Carder, 1997; Snijders, 1996; Wasserman and Faust, 1994).

In the present study, social network is investigated mainly in two ways: size and strength. A person's network size is measured by asking for the number of close friends, while strength is based on the frequency of socialising activities. According to

the questionnaire analysis, the size and strength of participants' social networks are positively associated with other socialising activities such as visiting pubs, nightclubs and friends. There is also a significant correlation between the size and the strength of networks, with both variables showing a strong positive association with satisfaction with their social life.

In addition, the 10 Words analysis uncovers the meaning of the network. For instance, the communication category, part of the social network domain, includes representative words such as 'network', 'emails', 'Facebooks', 'internet', and 'wifi'. They describe how participants connect and communicate with others, which affects their sense of belonging. For example, the questionnaire results show that students' participation in Facebook is significantly associated with their other socialising activities as well as satisfaction with their social life.

As revealed in the case of 'Facebook', the conceptual framework of the 10 Words data is an efficient way to present how participants' own thoughts of belonging correspond to social capital. In this framework, social network and participation are described as 'friends', 'socialising', 'pubs', 'friendships', 'lecturers', 'communication', and 'societies'. These representative words from the 10 Words data appear to be identical with the questionnaire variables. This strong similarity of the data from the two methods of research suggests that the core components of social network and participation are crucial in both contexts of belonging and social capital.

Civic participation

The term civic participation is defined as instrumental activities, adapting Bekkers et al. (2008) and Son and Lin (2008). They apply Weber's typology (1978), which is developed to explore functions and impacts of various social actions. For this study, social participation is related to both expressive purposes, for example in the context of clubs and societies in the university; and civic participation which explicitly stands for collective actions for the purpose of collective goals including volunteering, environmental organisations, and political parties. The civic participation variables in the survey questionnaire were adapted from the European Social Survey to enhance their reliability.

The analysis of both the questionnaire and the 10 Words data reveals the relatively lower levels of civic participation compared with other social activities such as socialising with friends, and visiting pubs. There is a notable difference between social and civic participation; the frequency of university clubs and societies participation is considerably higher than for unpaid voluntary work. Other forms of civic participation such as the Student Union, business organisations, humanitarian organisations, environmental organisations, and political parties tend to show even lower participation levels. Further, the correlation analysis reveals no strong direct association between these civic participation and other variables. The analysis of the survey questionnaire, therefore, tends towards the conclusion that students are generally unlikely to get involved in activities for civic purposes.

One could argue that this tendency of lack of civic participation is a widespread social phenomenon, as Putnam (1993, 2000) argued in relation to declining social capital in America. There are, however, a few possible reasons to explain the low participation level in this study. Firstly, the variables of civic participation might be less relevant in this context. Although they are valid and reliable variables, which have been tested and confirmed by the European Social Survey, it is questionable whether they are the most appropriate items for examining students' civic participation in the higher education context. Considering the college students' identity and accessibility, it might be more adequate to develop civic participation variables within the radius of their daily life. For example, there are substantial numbers of university clubs and societies, which incorporate collective goals, such as political parties, the feminist society, debating society, legal advocacy and nursing society. Taking part in these groups can be regarded as civic participation, since the purposes, objectives and actions overlap significantly with those items in the questionnaire.

In addition, the frequency of involvement might matter less, depending on the type of activities. For instance, certain groups might require less frequent participation (e.g. once a year, such as the summer camp). The emotional strength of involvement might be different from the physical action. One could feel strong belonging to the Labour party, but only through membership and feelings of affinity, without any political action. In this case, an analysis based on frequency might not be the best way to capture the significance of participation.

As the literature review revealed, it is difficult to find research focusing on the relationship between students' belonging and civic participation in the higher education context. Students' civic engagement would appear to be less relevant to their belonging to the university. Instead, there is a strong tendency in higher education research to emphasise students' belonging in the sense of academic and social engagement within the institution.

On the contrary, as the 10 Words analysis reveals, evidence of civic action certainly exists in the belonging context. The category of 'instrumental participation' consists of relevant representative words such as 'representing', 'participation', 'volunteering' and 'student union'. Furthermore, students who do volunteering are more likely to have large social networks, strong social interaction and participation, higher belonging and life satisfaction, according to the survey questionnaire analysis. Volunteering also tends to bridge civic participation and various forms of social engagement. These findings correspond to many pieces of research about volunteering: the strong association between volunteering and other forms of social interaction (McPherson et al. 1992); general participation (Smith et al., 1980, Smith 1994); informal volunteering (Wallace and Pichler, 2009; Plagnol and Huppert, 2010); social network and participation (Wilson and Musick 1997); and various forms of social engagement (Reed and Selbee, 2000).

Volunteering is an effective indicator for a broad range of participation. For instance, other forms of participation including donations, political participation, and informal helping are strongly positively associated to volunteering (Smith, 1994). The general activity model by Smith, Macaulay and Associates (1980) also explains one form of social participation can stimulate other types of social activities. It turns out types of organisations does not matter, since participation including volunteering is generally strongly related to social capital (Wellebaek and Selle, 2002; Putnam, 1993; Almond and Verba, 1963). There is striking evidence that volunteering is positively related to students' sense of belonging to their secondary school (Wilson, 2012; Settle, Bond, and Levitt, 2011).

Life satisfaction

In this study, individual subjective well-being was measured on three different levels; life satisfaction, life satisfaction as a student, and enjoyable social life as a student. This multiple measurement approach enables life satisfaction to be explored in relation to both the general and educational context: and on the universal and specific (social life) levels. The data analysis of both the questionnaire and the 10 Words Question reveals that life satisfaction is one of the vital elements for understanding belonging as well as social capital. The questionnaire analysis, for example, confirms that educational aspects of life satisfaction are more important and visible in the higher education belonging context. In addition, the 10 Words analysis makes clear how fundamentally life satisfaction is embedded in belonging. It should be highlighted as two variables, life satisfaction as a student, and enjoyable social life as a student, which provide the link between the main components of belonging and social capital.

Numerous pieces of research conclude that life satisfaction, or subjective well-being on the individual level, is highly positively correlated to many elements which are mentioned in this study including volunteering and participation (Moen et al. 1993; Musick et al. 1999; Oman et al. 1999; Post, 2005; Brooks, 2006; Borgonovi, 2008; Meier and Stutzer, 2008; Wallace and Pichler, 2009); satisfaction with the macro-structure (e.g. state institutions) (Wallace and Pichler, 2009); social relations and interactions regarding the size and strength of social network (Helliwell and Putnam 2004); and volunteering, civic engagement and trust (Dekker and van den Broek 2004). In their influential paper, Helliwell and Putnam (2004) argue that there is a strong positive correlation between social capital and subjective well-being, which is assessed through key elements such as social network, social and civic participation, and trust. The finding in this study is consistent with their conclusions.

Conclusion- 'Relatedness' of belonging and social capital

A reading of the literature shows that there is no consensus about how to approach, measure, and interpret social capital. It is difficult to define social capital due to its conceptual ambiguities. Linked to this problem is the ongoing debate about whether social capital is appropriate as a measurement tool. In this study, therefore, an

operational definition was constructed from an analysis of the concepts, which then functioned as a platform for measurements.

This study set out to examine the possibility of using sense of belonging as an indicator for social capital. Social capital, primarily a metaphor, is elastic, implicative, and versatile, whereas belonging is a more concrete and tangible concept that is suitable for the measurement. Social capital on the collective perspective stands *beyond regional, cultural, and institutional boundaries,* while belonging is generated through social relationships and interactions. Social capital is constructed on the macro-social level and needs to be connected to individuals on the micro level. Sense of belonging, on the other hand, as personal feelings of being connected to others and groups, links a person to the society.

The analysis in this study has provided compelling evidence to show how sense of belonging and social capital are theoretically and empirically intertwined. Conceptually they occupy overlapping spheres and their connections can be clearly traced and measured. There is also substantial evidence of their statistical relatedness, despite their independent origins in social research. For these reasons, this study argues that sense of belonging can be used as a simplified but effective method of understanding social capital. The case of student belonging is used as a clear demonstration but it is reasonable to propose that the approach and methods can be applied well beyond this institutional context.

Chapter 10. Discussions: methodological considerations

The purpose of this final chapter is to discuss the methodological implications of this thesis. The first section evaluates the 10 Words Question as a newly developed method, arguing that it is an effective way to collect participants' own expressions of belonging in an approachable form. Second, there is a discussion of the methodological strengths and limitations of the study, including the mixed methods design. The last part of this chapter will focus on suggested adjustments to the belonging indicator for social capital, including the importance of contextual considerations about measurement settings.

10.1 10 Words Question as a new method

The 10 Words Question was developed in order to achieve a comprehensive understanding of students' sense of belonging. This instrument enables participants to express their thoughts with their own freely chosen linguistic terms. Firstly, the method is based on a simple self-completion task, which makes few demands on participants. Considering the general difficulty of increasing participant rates in social research, it has the relative merit of encouraging more people to get involved in a less demanding way. Rogers (2004: 141) argues that vulnerable or disadvantaged groups, defined as 'those disadvantaged by virtue of poverty, ethnicity, age, gender, mental health problems or similar', often face difficulties to take part in the health research, due to time and cost related issues. When conducting research about vulnerable groups such as young children, hospital patients with physical and mental illnesses, or the elderly, this instrument could contribute to widening the range of participants by lowering these barriers with a more accessible form.

A further advantage is that the data is amenable to both qualitative interpretation and quantitative analysis, as this study has shown. The coding methods such as In Vivo coding and systematic coding can proceed in two different directions; by statistical analysis (e.g. frequency counts, descriptive analysis); or the pursuit of emerging themes or interpretations using inductive or deductive procedures (e.g. semantic

analysis, thematic analysis, content analysis). In other words, the data is amenable to a variety of analytic procedures.

The unanticipated existence of narrative data is one of the interesting results of applying this method. Since this method consists of an open ended question, it is quite flexible in allowing participants to choose their own ways to express their thoughts. The rubric is a straightforward instruction in a single sentence. However, some of the responses occur in forms than other individual words but they are still analysable. In this study, they are labelled as 'narrative data', to be treated separately. It might be a matter of personal preference, but nonetheless, these responses indicate participants' strong willingness to get involved with the research project. The feedback from the informal pilot study prior to this research shows that the 10 Words Question seems to encourage participants actively to write down their own feelings and thoughts regarding the topic.

A possible question is whether the 10 Words data is qualitative enough, since responses are typically brief, sometimes cryptic and arguably too superficial to be interpreted meaningfully. As explained previously, the average number of responses (Mean) is 7; and the most frequent number of responses (Mode) is 10 in the words data. This is strong evidence that asking for 10 words is sufficient enough to convey the range and content of participants' opinions. It allows participants discretion to choose the form of their response (e.g. phrases, sentences, paragraphs, and drawing in narrative data); or to articulate their points with certain emotions (e.g. negative responses), instead of passively or literally following the instruction. This shows that the instruction to 'write down 10 words' is not likely to restrict participants' willingness to express their opinions.

While there is a general consensus that the strength of the qualitative research is to collect participants' own thoughts and opinions on the certain matter (Bryman, 2008), the subjective nature of qualitative data analysis is one of the common criticisms. Researchers are often accused of cherry-picking in their analysis and interpretation (Mason, 1996; Sayer, 1992). It can occur when there is lack of transparency, or unclear logic in analysis procedures. In this study, therefore, the analytic steps applied to both words and narrative data are explicitly elaborated, in such a way that the concrete principles and rationale can be observed and, in principle, replicated. The

analysis is performed on the complete dataset and does not suffer from the weakness of unexplained selection criteria. This study aimed to avoid these pitfalls by treating the subjective data objectively as possible; with an inductive but rigorously quantitative approach.

As explained in the chapter on the 10 Words data analysis (Chapter 7), the narrative data and words data were treated separately in the first stages of the analysis, since they are visibly different. Despite the differences, the thematic content of both types of data was similar, therefore the smaller quality of narrative data was subsumed under the larger body of words data. It illustrates how robust the data is and how valid the method is. Narrative data can function as a validity-checker for the 10 Words Question. Since the main study was completed, several informal test studies were conducted outside of the university in 2016, where the same instrument was applied. These brief informal studies aimed to investigate the similarities and differences of students' belonging in a different higher education institution. Similar results of thematic analysis were derived from those studies, which supports the reliability and validity of this instrument.

The method is of course open to some improvement. First, a set of questions to understand participants' demographic characteristics more fully could be added, including age, gender, ethnicity, socio-economic status and living conditions. In this way, the data could be analysed in terms of participants' characteristics, but also compared with the questionnaire data. Secondly, a follow-up study designed to collect 'rich and deep' data through in-depth interviews, or focus-groups would also be an aid to interpretation. For example, a de-briefing interview using the 10 Words data will strengthen thematic findings.

From the application of the method in the research for this thesis, it is clear that the 10 Words Question could be readily applied in the other settings, where belonging is likely to have important consequences, such as voluntary organisations, health-related institutions, or local community groups, to explore what sense of belonging to neighbourhoods or different organisations might mean to various participants. However, the theme of belonging is not intrinsic to the instrument itself, so the scope of the 10 Words Question could be expanded to other concepts such as the community, family, identity, group membership, or religion in future research. For

instance, McMillan and Chavis's research on sense of community measurement (1986) could be compared with the 10 Words Question by asking participants about their feelings towards their community.

To conclude, the 10 Words Question is a simple but effective means to collect an extensive body of words data that is distinctive because it is amenable to quantitative as well as qualitative analysis. A further advantage is that it helps to preserve the inherent complexity of the phenomenon of student belonging. The method thus contributes to a comprehensive understanding of belonging in higher education.

10.2 Mixed methods research: strengths and limitations

In order to answer the research questions, and to develop a more complete understanding of the relationship between students' sense of belonging and social capital, this research combined the 10 Words Question with a cross-sectional survey. Mixed methods research can be characterised in various ways (Creswell, 2003; Tashakkori and Teddlie, 2003), as multi-methods (Brannen, 1992), multi-strategy (Bryman, 2004), or mixed- methodology research (Tashakkori and Teddlie, 1998). Despite many different definitions available in the literature, there is a consensus amongst social scientists that mixed methods research combines more than one type of method, typically includes qualitative and quantitative data, and may occur at various research stages in the research process such as in data collection and/or data analysis (Johnson et al., 2007).

In this study, two distinct methods were applied: the structured questionnaire, which was designed to collect quantitative data; and the newly developed 10 Words Question for more qualitative data. In addition, the analytic procedure of the 10 Words data includes a mixed approach; the content analysis like thematic analysis; and statistical investigation using descriptive and correlation analysis, and the Mann-Whitney, and Wilcoxon-signed rank tests.

This research approaches social capital and belonging with multiple perspectives, design and methods, data analysis and interpretation; from theoretical understandings of both concepts based on multiple disciplines to research designs and analytical

procedures. This approach makes it possible to investigate complicated and multifaceted social phenomena such as belonging and social capital, and their relatedness.

The rationale for conducting mixed methods research is generally explained in three ways (Bryman, 2006; Greene et al., 1989). The results might be mutually corroborating ('triangulation'); the findings from more than one method may lead to greater 'completeness'; and various perspectives such as researchers and participants can be merged to generate 'diversity of views'. In the present study, the results from the two types of data analysis led to a comprehensive understanding of the social phenomenon. The questionnaire confirms whether findings from this study correspond to existing literature, such as the importance of social engagement. Especially by capturing new findings, the 10 Words Question made it possible to re-construct the current perspectives of students' belonging in higher education, which turns out as one of the most notable achievements in this study. Both the questionnaire and the 10 Words Question also reveal the close relationship between belonging and social capital.

Some improvements to the questionnaire could be made in future. A revised survey design should reflect the findings from this study, namely the four domains of students' sense of belonging and the more developed understanding of what these variables consist of. First, the category of academic engagement should include both practical (e.g. institutional services and facilities) and symbolic aspects (e.g. institutional pride and membership, often referenced via university logos and badges). Second, since social engagement turns out to be the most vital element in belonging, it should be developed in more elaborate ways, for instance, in terms of the network-oriented elements such as network centrality and homogeneity. As explained in the case of the Add Health data (The National Longitudinal Study of Adolescent to Adult Health), information about participants' networks within the entire institutional network structure would be beneficial to appreciate how social engagement actually occurs. Participation can also be refined by adding more university related events (e.g. peer guide encounters, welcome week, sports games, summer balls). The range of clubs and societies should be distinguished based on their characters and purposes, both expressive and instrumental.

Lastly, the two newly discovered domains, Surroundings and Personal spaces should be included and adapted. Surroundings can be itemised as students' living spaces (e.g. halls, residences), and the natural and cultural environments, where the institution is located (e.g. local areas – Bangor, Snowdonia, Menai Strait, Welsh language and heritage). The significance of students' personal spaces should be recognised in multiple questions on identity and daily issues (e.g. finance, housing, mental problems, and family matters) in both the university and the wider social context.

In order to enhance the belonging questionnaire, it should contain both 'trust in others' and 'trust in the institution'. This would make it possible to compare and confirm the association between institutional trust and belonging in the general context. Like the two levels of belonging in higher education (e.g. university and academic schools), sense of belonging can be distinguished from local belonging. For instance, the question asking students about their belonging to the local area (e.g. 'Bangor' and 'Wales') should make it possible to understand belonging based on the geographical attachment.

Regarding the sampling problem, the 'In Lecture' strategy was adopted to recruit participants in this study. This recruiting method is an effective way to maximise the response rate. On the other hand, the sampling could be improved by selecting a group of participants to take part in both types of data collection in a sequential order from the 10 Words Question to the questionnaire. In this way, the data from the same participants could be directly merged and compared. Such a sample would allow participants' own thoughts and feelings about belonging to be directly synchronised with responses from the survey questionnaire.

Next, there are some statistical considerations: the direction of correlation analysis and the measurement scales. Although correlation analysis is sufficient to reveal the association between variables, it cannot estimate the direction of influence. Causation, therefore, should be investigated by other statistical methods; for example, a multiple linear regression analysis could reveal how much the main variables can predict the outcome of belonging (Bryman, 2006). Regarding measuring the frequency of variables, two different versions of the Likert scale (5 points generally; and 7 points for participation) were applied in this survey. It might be more efficient to adopt identical scales for comparing variables directly.

10.3 Implications- Sense of belonging as an indicator for social capital

This study provides theoretical and empirical evidence that sense of belonging data can be used as a simple alternative indicator for social capital. If the current measurement model is to be generalised to other settings, some adjustments will be necessary to reflect the context, whether the elderly in a care home, adolescents in secondary school, or members of voluntary organisations. Other types of bounded societies with defined levels of institutional attachment based on membership, vocation, or faith could be the British army, police officers, hospital workers, or church-goers. Furthermore, applying this measurement method to some other settings should enable a re-examination of the relationship between social capital and other important factors, including physical and mental health, educational performance, professional commitment and forms of voluntary action. For instance, applying the 10 Words Question about police officers' sense of belonging on the regional (e.g. north Wales) and nation-wide (e.g. UK) levels would not only reveal the personal sense of belonging, it would also indicate social capital (trust, network and participation) on the macro level.

Applying belonging as an indicator for social capital to the wider population requires further consideration. For example, the Understanding Society questionnaire in the UK (University of Essex. Institute for Social and Economic Research, 2016) includes most of the variables mentioned in this study: social network (numbers of close friends, socialising with friends), participation (in organisation, and volunteering), trust (in the neighbourhood), and well-being (life satisfaction). Despite a lack of a direct question about sense of belonging, three items are substantially relevant ('I like the neighbourhood area', 'People in this neighbourhood can be trusted', 'People around here are willing to help their neighbours'). These items about neighbourhood could be replaced with sense of belonging. To examine whether belonging does indicate social capital at the societal level, therefore, a next step would be to conduct a comparative study with the data from Understanding Society.

Appendix 1. Table of social capital definitions and measurement by researchers

Authors	Definitions	Measurement Details
Collective social capital theorists		
Putnam(2000)	'features of social organisation such as networks, norms and social trust that facilitate coordination and cooperation for mutual benefits' (Putnam, 1996:67)	Central composite index of social capital (14 indicators of formal and informal community networks and social trust): 1)measures of community organisational life: served as committee members or officers, a ratio of organisations, attendances in club meetings, and group membership 2)measures of engagement in public affairs: voter turn-out, attendances in public meetings 3)measures of community voluntarism: the ratio of non-profit organisations, frequency of working on community projects, number of times of volunteering 4)measures of informal sociability: spending a lot of time visiting friends, number of times entertaining at home 5)measures of social trust: most people can be trust, and honest
Paxton(1999)	Two components of social capital: (p.93) 1)objective associations between individuals 2)an individual's subjective trust toward others in the community (in individuals and institutions)	Assessing a possible decline in social capital requires a model of social capital that incorporates multiple indicators over time : 1) trust : an individual's general trust in others (questions first formulated by Rosenberg(1956) + based on Barber (1983)) + an individual's trust in institutions 2) associations : three indicators to increase an individual's unobserved level of associations (membership in voluntary organisations + time for a social evening with neighbourhoods + time for an evening with friends)
Wollebaek and Selle(2002)	Social capital = trust + social networks + civic participation, (Putnam 1993, 1995a, 1995b, 2000)	Questionnaires (nationwide survey) 1)social trust 2)social networks : each of five groups they considered to be part of their social network 3)civic engagement (as the level of expressed civic and political interest) : voting behaviour, readership of news material in daily newspapers, and political interest
Wellman, B. et al. (2001)	Factors of social capital : interpersonal contact, participation and community commitment	Putnam (1996, 2000)'s two forms of social capital : 1)network capital : relations with friends, neighbours, relatives, and workmates that significantly provide companionship, emotional aid, goods and services, information and a sense of belonging (Wellman & Frank, 2001) 2)participatory capital : involvement in politics and voluntary organizations that affords opportunities for people to bond, create joint accomplishments and aggregate and articulate their demands and desires, a concept enshrines in the American heritage by de Tocqueville (1835) 3) Community commitment: social capital consists of more than going through the motions of interpersonal interaction

		and organisational involvement. When people have a strong attitude toward community-have a motivated, responsible sense of belonging- they will mobilize their social capital more willingly and effectively (McAdam, 1982)
Zúñiga et al. (2012)	Collective social capital theory: the utility of networks for collective endeavours, including participation in civic and political groups	1)Feel intimate in the community, 2)Share community values, 3)Talk about community problems, 4)Feel connected, 5)Help resolve problems, 6)Watch out for community members
Individual social capital theorists		
Flap, Snijders, Völker, and Gaag (2003)	Social capital of individuals is defined as the resources present in ego-centered social networks	Three social capital measurement instruments: 1) The name generator/interpreter 2) the position generator 3) the resource generator
Son and Lin(2008)	Social capital – resources embedded in individual and organisational networks, produces expressive and instrumental civic actions.	Using a model of five components: an organisational network feature, organisational social capital (internal), individual social capital, expressive civic actions, and instrumental civic actions. Details) individual social capital : 11 kinds of personal friendship ties, based on a variety or characteristic in friendship ties, organisational social capital : 4 indices (organisational diversity, range of organisational diversity, organisational resources, and diversity of embedded resources)
Other approaches		
Glanville and Bienenstock (2009)	Investment in personal relationships or social structure that facilitates the achievement of individual or collective goals	Three components : 1)network structure, 2)trust and reciprocity, 3)resources + considering micro and macro levels of social capital
Bekkers et al.(2008)	Individual (Lin 2001, Flap 1999, Burt 2001) & collective(Putnam 2000, Coleman 1990) social capital theories	1)Measure of collective social capital: ego-centric network measures using name generators & position generators Network size/ density/ heterogeneity/ intensity, trust, and duration 2)Measures of individual social capital : Access to occupations by a position generator

Portes(2000)	Social capital as an individual and family asset (Coleman's concept)	Family composition, parental school involvement, closure of parental networks
Network theorists		
Borgatti & Jones (1988)		B: external measures for individual actors : standard ego-network measures / structural hole measures / standard centrality measures C: internal measures for collective actors : Standard cohesion measures D. external measures for collective actors : group centrality measure / 2-mode centrality measures
Prell (2006)	Bourdieu, Coleman and Putnam Plus, individualist and groupist approaches to network capital	Measured by three relational concepts of social capital: social networks, trust, and reciprocity. 1) individual social capital : size of ego networks (degree centrality) + betweenness centrality 2) group social capital: closure and brokerage (density, centralisation, efficiency)
Prell and Skvoretz (2008)	Social capital consists of a network of relations and the resources embedded in those relations.	Three aspects of social capital : social networks(communication through social relations), trust, reciprocity (the exchange of resources) Plus, Burt (2005;2001) 1)'network closure' : strong ties, closed triads, high trust & reciprocity 2)'brokerage' : weak ties, open triads, high reciprocity
Lakon et al.(2007)		Social capital measurement: egocentric network(size, density) /sociometric network (Borgatti, et al. 1998) Three domains of network characteristics as measures of social capital : 1)functional measures (contents of network ties) 2)structural measures (network connections) 3)positional measures (position in the network structure)
Social capital researchers in the UK		
Grootaert et al.(2004) World Bank working paper 18	Including two theoretical traditions of network access and participation	1)groups and networks, 2)trust and solidarity, 3)collective action and cooperation, 4)information and communication, 5)social cohesion and inclusion, 6)empowerment and political action
Harper and Kelly (ONS) 2003	'networks together with shared norms, values and understandings that facilitate cooperation	1) social participation(cultural, leisure, social groups/volunteering/religious activity), 2) civic participation(various political activities), 3) social networks and social support(social connections with friends, family, relatives, exchange of help, life satisfaction),

	within or among groups' (Cote and Healy, 2001:41)	4) reciprocity and trust(trust in other people who are like you, or not like you/ confidence in institutions at different levels/ doing favours/ views on shared norms and values), 5) views of the local area(views on environment, facilities, satisfaction, fear of crime)
General household survey 2000/01		p.2 social capital : the key indicators of social capital include social relationships, social support, formal and informal social networks, group membership, trust, reciprocity and community and civic engagement
Fahmy (2006)	'social networks, the reciprocities that arise from them, and the value of these for achieving mutual goals' (Field et al., 2000:1)	1)Social norms and values : Trust / Reciprocity / Efficacy / Local area problems / Fear of crime =neighbourhood trust (how many, what degree, how often), social reciprocity (do/receive a favour), collective efficacy (can affect the decision), community cohesion (local area problems & fear of crime) 2)Social networks : Networks : relatives / Networks: friends / Support : relatives / Support : friends =having 'satisfactory relatives networks' (those who see or speak to relatives at least once a week and had at least one close relative living nearby) + 'satisfactory friendship network'
Li, Pickles and Savage (2005)	Based on Putnam's concept, social capital as collective goods	Broadening the definition of social capital to include informal network processes + combining the concept of weak ties (bridging social capital) and strong ties (bonding social capital) (Granovetter, 1973; Lin et al., 1981) →Measuring three types of social capital : 1)informal personal networks 2)informal situational networks(the degree of support available) 3)formal civic engagement ➔neighbourhood attachment ('weak ties') + social network ('strong ties') + civic participation
Li, Savage and Pickles (2003)		In order to understand the relation between social capital and social mobility, indicators of the respondent's mobility trajectories, educational qualifications, friendship ties and associational involvement are used.

Appendix 2 What Works programme research design and methodology summary

Project 1. Anglia Ruskin University, with Peterborough Regional College, College of West Anglia
On-line survey: 22 free-text questions 29 multiple-choice questions
Project 2. Aston University, Bangor University, Liverpool Hope University, London Metropolitan University, Oslo University College, Norway, Oxford Brookes University, University of Sheffield, York University, Canada
Mixed methods, multiple case-study: Survey with 5-point Likert scale Qualitative interviews and focus group
Project 3. University of Leicester
Mixed methods: questionnaire surveys individual interviews analysis of video diaries
Project 4. Northumbria University, University of Bedfordshire, University of Manchester
Compare mean marks and the ELLI dimensions
Project 5. Nottingham Trent University, Bournemouth University, University of Bradford
Mixed methods: Large-scale students survey Focus groups and interviews
Project 6. University of Reading, Oxford Brookes University
Survey Focus group and interview
Project 7. University of Sunderland, Newcastle University, University of Hull
Survey In-depth interview

Appendix 3. Students' Sense of Belonging to Bangor University research in 2014

What is the purpose of the study?

We are conducting this research to better understand students' sense of belonging to Bangor University. This research will be used to improve the experience of students here at Bangor University. This research is supported by Bangor University's Widening Access Fund.

What data do we need?

We are interested in your thoughts on the concept of 'belonging' to the University. We define belonging to mean a 'feeling of connectedness' to the University. To do this we are issuing this questionnaire to understand students' academic engagement, social engagement and friendship.

What will be done with the data?

Your participation is voluntary, you are free to withdraw at any time whilst completing the survey. If you choose not to complete the survey, this will have no impact on your course or degree.

Your responses will not be linked to you as an individual. Demographic data will be collected to gather group information. Individual response sheets will not be shared with anyone outside of the research team. Data will be stored on a secure, encrypted and password protected University server. If the data are used for publication, you will not be identified as an individual.

Research findings will be shared with staff members and students of the University and will appear on the University website. The research will be used to enhance the student experience at Bangor. Data will also be used for a PhD study and will be published.

This research has gained ethical approval from the CBLESS Research Ethics Committee.

Thank you for reading this information. For further information about this study, please contact:

Miyoung Ahn (m.ahn@bangor.ac.uk)
Jo Caulfield (j.caulfield@bangor.ac.uk)

Appendix 3.1 Survey Questionnaire

Sense of belonging to Bangor University
Student Questionnaire
Version 2: 17/3/2014

This questionnaire will take about 15 minutes to complete.
Completion and return of the form implies consent to participate.

Please tick this box to confirm you have recieved and read the information sheet: ☐

How to complete the questionnaire: Please place an 'x' inside the appropriate box for each question

---

Section 1: General Questions

Please place a cross in the box for the answer you feel is most appropriate on the scale of 1 to 5 where 1 = 'strongly disagree' and 5 = 'strongly agree'

	Strongly Disagree 1	2	3	4	Strongly Agree 5
1. I belong to Bangor University	☐	☐	☐	☐	☐
2. I belong to my academic school	☐	☐	☐	☐	☐

Section 2: Academic Engagement

Please place a cross in the box for the answer you feel is most appropriate on the scale of 1 to 5 where 1 = 'strongly disagree' and 5 = 'strongly agree'

	Strongly Disagree 1	2	3	4	Strongly Agree 5
3. I can talk to a lecturer if I have a problem	☐	☐	☐	☐	☐
4. I can talk to my Personal Tutor if I have a problem	☐	☐	☐	☐	☐
5. I can talk to my school administrator if I have a problem	☐	☐	☐	☐	☐
6. I can talk to fellow students if I have a problem	☐	☐	☐	☐	☐
7. My course fits my expectations	☐	☐	☐	☐	☐
8. Completing my degree will help me achieve my future goals	☐	☐	☐	☐	☐

1

	Strongly Disagree 1	2	3	4	Strongly Agree 5
9. The assessment on my course is what I expected it to be	☐	☐	☐	☐	☐
10. My fellow students are supportive	☐	☐	☐	☐	☐

Please place a cross in the box for the answer you feel is most appropriate on the scale of 1 to 5 where 1 = 'never' and 5 = 'always'

	Never 1	2	3	4	Always 5
11. I work with other students on course projects or assignments	☐	☐	☐	☐	☐
12. I discuss my academic development with my personal tutor	☐	☐	☐	☐	☐

Section 3: Social Engagement

Please place a cross in the box for the answer you feel is most appropriate on the scale of 1 to 5 where 1 = 'strongly disagree' and 5 = 'strongly agree'

	Strongly Disagree 1	2	3	4	Strongly Agree 5
13. Overall, I am satisfied with my life as a student	☐	☐	☐	☐	☐
14. I have an enjoyable social life as a student	☐	☐	☐	☐	☐
15. Overall, I am satisfied with my life	☐	☐	☐	☐	☐
16. I can trust most people	☐	☐	☐	☐	☐

Please turn over to continue the questionnaire

17. In the past 12 months, how frequently have you participated in the following activities?
Please place a cross in the box for all that apply (if you do not participate, please cross N/A)

							Do you participate in this activity with personal friends?	
	More than once a day	Daily	Weekly	Monthly	Less than once a month	N/A	YES	NO
Facebook / other social network sites	☐	☐	☐	☐	☐	☐	☐	☐
Clubs or societies at university	☐	☐	☐	☐	☐	☐	☐	☐
Visit the gym	☐	☐	☐	☐	☐	☐	☐	☐
Play a sport	☐	☐	☐	☐	☐	☐	☐	☐
Visit the pub	☐	☐	☐	☐	☐	☐	☐	☐
Visit nightclubs	☐	☐	☐	☐	☐	☐	☐	☐
Visit friends' homes / halls	☐	☐	☐	☐	☐	☐	☐	☐
Play games	☐	☐	☐	☐	☐	☐	☐	☐
Watch TV	☐	☐	☐	☐	☐	☐	☐	☐
Read	☐	☐	☐	☐	☐	☐	☐	☐
Hobbies	☐	☐	☐	☐	☐	☐	☐	☐
Unpaid volunteer work	☐	☐	☐	☐	☐	☐	☐	☐
A business, professional or farmers organisation	☐	☐	☐	☐	☐	☐	☐	☐
Trade Union	☐	☐	☐	☐	☐	☐	☐	☐
Students' Union	☐	☐	☐	☐	☐	☐	☐	☐
An organisation for humanitarian aid, human rights, minorities or immigrants	☐	☐	☐	☐	☐	☐	☐	☐
An organisation for environmental protection	☐	☐	☐	☐	☐	☐	☐	☐
Political party	☐	☐	☐	☐	☐	☐	☐	☐
Religious or church organisation	☐	☐	☐	☐	☐	☐	☐	☐
Other (_____)	☐	☐	☐	☐	☐	☐	☐	☐

18. How often have you met socially with the following groups of people in the past 12 months:

	More than once a day	Daily	Weekly	Monthly	Less than once a month	Never
Friends	☐	☐	☐	☐	☐	☐
Relatives	☐	☐	☐	☐	☐	☐
Colleagues	☐	☐	☐	☐	☐	☐

3

19. How many close friends do you have? _____

Secton 4: Leaving university

Please place a cross in the box for the answer you feel is most appropriate on the scale of 1 to 5 where 1 = 'strongly disagree' and 5 = 'strongly agree'

	Strongly Disagree 1	2	3	4	Strongly Agree 5
20. I have thought about leaving university	☐	☐	☐	☐	☐

21a. If so, when did you consider leaving? _____ year of study

21b. Please indicate on the scale below which month(s) you considered leaving, by crossing the box(es):

September										August
S	O	N	D	J	F	M	A	M	J	J	
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

21c. Please tell us what made you consider leaving:

Please turn over to contnue the questonnaire

4

Secton 5: Demographic informaton

22. How old were you on your last birthday? _____

23. What is your gender? _____

24. In which academic school do you study? _____

25. At what level are you studying?

- ☐ Undergraduate
- ☐ Masters
- ☐ PhD

26. Are you studying....?

- ☐ Full tme
- ☐ Part tme
- ☐ Distance Learner

27. How would you describe your natonal identty?

- ☐ Welsh
- ☐ English
- ☐ Scotsh
- ☐ Irish
- ☐ Other (please specify) _____

28. What is your student status?

- ☐ UK Student
- ☐ EU Student
- ☐ Internatonal (non EU) student

29. Which type of accommodaton do you occupy whilst studying?

- ☐ University halls of residence
- ☐ Private halls of residence
- ☐ Privately rented / shared house
- ☐ Own home

30. How close do you live to the University?

- ☐ In Bangor
- ☐ Within 5 miles of Bangor
- ☐ Within 10 miles of Bangor
- ☐ Further than 10 miles away

31. Who do you live with?

- ☐ Alone
- ☐ Friends from university
- ☐ Other friends
- ☐ Partner
- ☐ With school-age children
- ☐ With parents/guardians
- ☐ Other (please specify) _____

32. Please cross the category below that you feel is the most appropriate classificaton of yourself.

- ☐ Asian or Asian Britsh – Bangladeshi
- ☐ Asian or Asian Britsh – Indian
- ☐ Asian or Asian Britsh – Pakistani
- ☐ Other Asian Background
- ☐ Black or Black Britsh – African
- ☐ Black or Black Britsh – Caribbean
- ☐ Other Black Background
- ☐ Mixed-White and Asian
- ☐ Mixed-White and Black African
- ☐ Mixed-White and Black Caribbean
- ☐ Other Mixed background
- ☐ Other Ethnic background
- ☐ Chinese
- ☐ White-Britsh
- ☐ White-Irish
- ☐ Other White background
- ☐ I do not wish to declare

33. Do you consider yourself to have a disability?

- ☐ No, I have no known disability
- ☐ Yes
- ☐ I do not wish to declare

34. Do you receive a Bangor Bursary

- ☐ Yes
- ☐ No
- ☐ I do not wish to declare

Thank you for your partcipaton

5

Appendix 3.2 10 Words Question

Students' sense of belonging to Bangor University

By returning this survey, you are consenting to participate in the study.

Please tick this box to confirm you have received and read the information sheet: ☐

TASK: please write down up to 10 words that come to mind when you think about *belonging* to Bangor University.

Appendix 3.3 Ethical approval letter

COLEG BUSNES, Y GYFRAITH, ADDYSG A GWYDDORAU CYMDEITHAS
COLLEGE OF BUSINESS, LAW, EDUCATION AND SOCIAL SCIENCES

PRIFYSGOL
BANGOR
UNIVERSITY

14 March 2014

Dear Miyoung Anh

Thank you for your recent application to the CBLESS Research Ethics Committee.

I am writing to confirm permission, on behalf of the CBLESS Research Ethics Committee, for the commencement of your research project. Permission is granted subject to the following:

1. Participants should be assured that:
   - Participation is voluntary, they are free to withdraw at any time, and failure to complete the survey will have no impact on their course/degree.
   - If data is used for publications they will not be identified.
2. The *Further Research* form should indicate that the details will be stored in a confidential database.
3. The survey form should ask participants to indicate that they have received and read the information sheet, thereby demonstrating *informed* consent.

If you have any questions relating to the above then please do not hesitate to get in contact with me.

I wish you well with your research.

Yours sincerely

Diane Seddon
Chair, CBLESS Research Ethics Committee

PRIFYSGOL BANGOR,
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Appendix 4. Secondary datasets

Name	Trust	Social network	Civic participation (volunteering)	Wellbeing	Accessibility
ACL			V	V	With fee
Add health	V	V	V	V	V
BHPS					
BSA	V		V	V	V
ELSA			V	V	V
ESS	V		V	V	V
EVS	V		V (political)	V	V
FHS		½ V	V	V	conditional
GHS	V		V	V	V
HOCS	V		V	V	V
HSE	V		V	V	V
ISSP	V		V (volunteering)		V
MCS	V (BME)		V	V	V
NCDS	V		V	V	V
NSCLS	V		V	V	V
SCBS	V		V	V	
SSND	V		V		
WVS	V		V	V	V

ACL (America's Changing Life)
Add Health (National Longitudinal Study of Adolescent Health)
BHPS (British Household Panel Survey)
BSA (British Social Attitude survey) 1998
ELSA (English Longitudinal Study of Aging)
ESS (European Social Survey)
EVS (European Value Survey)
FHS (Framingham Heart Study)
GHS (General Household Survey) 2000
HOCS (Home Office Citizenship Survey) 2001
HSE (Health Survey for England) 2000
ISSP (International Social Survey Programme)
MCS (Millennium Cohort Survey)
NCDS (National Child Development Study)
NSCLS (National Survey of Culture, Leisure and Sports) 2005
SCBS (Social capital Community Benchmark Survey)
SSND (Social Survey of the Networks of the Dutch)
WVS (World Value Survey)

Appendix 5 Questionnaire analysis results

Descriptive analysis results of demographic variables (Question 26 – Question 34)

Variable	n = 380 (%)
Study status	
Full time	362 (95.3%)
Part time	4 (1.1%)
Distance learner	0 (0%)
National identity	
Welsh	138 (36.3%)
English	163 (42.9%)
Scottish	1 (0.3%)
Irish	2 (0.5%)
Other	65 (17.1%)
Student status	
UK student	317 (83.4%)
EU student	13 (3.4%)
International (non EU)	33 (8.7%)
Accommodation	
University halls	71 (18.7%)
Private halls of residence	15 (3.9%)
Privately rented or shared house	197 (51.8%)
Own home	81 (21.3%)
Distance to University	
In Bangor	249 (65.5%)
Within 5 miles of Bangor	13 (3.4%)
Within 10 miles of Bangor	20 (5.3%)
Further than 10 miles away	82 (21.6%)
Cohabitants	
Alone	28 (7.4%)
Friends from university	205 (53.9%)
Other friends	6 (1.6%)
Partner	29 (7.6%)
With school-age children/	7 (1.8%)
With parents or guardians	45 (11.8%)
Other	25 (6.6%)
Disability	358 (94.2%)
No	308 (81.1%)
Yes	31 (8.2%)
Not wish to declare	19 (5.0%)
Bangor Bursary	
Yes	192 (50.5%)
No	163 (42.9%)
Not wish to declare	12 (3.2%)

Wilcoxon Signed rank test results of main variables

	belonging to university	belonging to school	talk to lecturer	supportive fellow students	course expectation	life satisfaction as a student	enjoyable life	trust
belonging to university		0.148	0.000	0.000	0.096	0.750	0.002	0.000
belonging to school			0.001	0.001	0.001	0.290	0.000	0.000
talk to lecturer				0.947	0.000	0.000	0.000	0.000
supportive fellow students					0.000	0.000	0.000	0.000
course expectation						0.019	0.111	0.004
life satisfaction as a student							0.000	0.000
enjoyable life								0.378
trust								

($p < 0.05$)

Mann-Whitey U results of social capital sub-sets

1. Grouping Variable: Participating in clubs & societies

	belonging to university	belonging to school	can talk to lecturer	course expectation	fellow students are supportive	visit the pub	unpaid volunteer work	life satisfaction as a student	enjoyable social life as a student	trust people	socialising with friends	number of close friends	leaving university	close friends ordinal
Mann-Whitney U	13190.500	14667.500	14720.500	15613.500	16533.500	9269.500	12553.000	13058.000	10072.500	13136.000	12301.000	13094.500	14056.500	13111.000
Wilcoxon W	23343.500	24963.500	24873.500	25909.500	43561.500	36297.500	39581.000	23354.000	20225.500	23432.000	39329.000	22139.500	40852.500	22156.000
Z	-3.278	-1.789	-1.864	-1.028	-.058	-7.652	-4.436	-3.705	-6.578	-3.613	-4.240	-1.708	-2.307	-1.778
Asymp. Sig. (2-tailed)	.001	.074	.062	.304	.954	.000	.000	.000	.000	.000	.000	.088	.021	.075

2. Grouping Variable: volunteer or not

	belonging to Bangor university	belonging to academic school	can talk to lecturer	course expectation	fellow students are supportive	visit the pub	unpaid volunteer work	life satisfaction as a student	enjoyable social life as a student	trust people	socialising with friends	number of close friends	leaving university	close friends ordinal
Mann-Whitney U	14357.500	14325.500	15718.500	17407.500	17225.500	13841.000	.000	15177.000	15187.500	14872.000	14739.500	13452.500	16964.500	13294.500
Wilcoxon W	38010.500	37978.500	39589.500	30127.500	41315.500	26561.000	12720.000	39267.000	39058.500	38962.000	27142.500	34773.500	40617.500	34615.500
Z	-2.825	-2.873	-1.666	-.003	-.191	-3.627	-18.588	-2.279	-2.138	-2.583	-2.490	-2.097	-.071	-2.381
Asymp. Sig. (2-tailed)	.005	.004	.096	.998	.849	.000	.000	.023	.032	.010	.013	.036	.944	.017

3. Grouping Variable: trust or not

	belonging to university	belonging to school	can talk to lecturer	course expectation	fellow students are supportive	visit the pub	University clubs and societies	unpaid volunteer work	life satisfaction as a student	enjoyable social life as a student	socialising with friends	number of close friends	leaving university	close friends ordinal
Mann-Whitney U	11921.000	10471.500	10302.000	10841.000	9967.500	13472.000	12181.500	13670.500	9087.000	9625.500	13464.500	10133.500	11544.500	10520.000
Wilcoxon W	20306.000	18986.500	18817.000	19356.000	18482.500	44597.000	43057.500	44795.500	17602.000	18140.500	44589.500	17883.500	41925.500	18270.000
Z	-4.214	-5.818	-6.228	-5.679	-6.637	-2.857	-3.742	-2.657	-7.506	-6.710	-2.603	-4.675	-4.516	-4.477
Asymp. Sig. (2-tailed)	.000	.000	.000	.000	.000	.004	.000	.008	.000	.000	.009	.000	.000	.000

4. Grouping Variable: close friends

	belonging to Bangor university	belonging to academic school	can talk to lecturer	course expectation	fellow students are supportive	visit the pub	University clubs and societies	unpaid volunteer work	life satisfaction as a student	enjoyable social life as a student	trust people	socialising with friends	number of close friends	leaving university	close friends ordinal
Mann-Whitney U	13255.500	12882.500	15208.500	13840.000	13483.000	11304.500	13075.000	14330.000	12372.500	11099.000	12541.000	10562.000	.000	15116.000	2128.000
Wilcoxon W	31210.500	31027.500	33736.500	32368.000	32011.000	24999.500	26441.000	27860.000	30900.500	29627.000	31069.000	24092.000	15225.000	28482.000	20656.000
Z	-2.560	-2.969	-.597	-2.214	-2.622	-4.990	-2.626	-1.635	-3.822	-5.082	-3.614	-5.588	-16.037	-.489	-14.934
Asymp. Sig. (2-tailed)	.010	.003	.550	.027	.009	.000	.009	.102	.000	.000	.000	.000	.000	.625	.000

Further analysis of social capital sub-sets

1. Trust

	Trust high	Trust (no and a little)
Gender	F = 155 (62.2) M = 89 (35.7)	F = 87 (66.9) M = 41 (31.5)
Age	M= 23.01 SD = 6.143	M= 23.58 SD = 7.335
Student status	UK = 213 (85.5) EU = 10 (4.0) International = 18 (7.2)	UK = 104 (80.0) EU = 3 (2.3) International = 15 (11.5)
Bangor bursary	Receiver = 130 (52.2) Non-receiver = 112 (45.0)	Receiver = 62 (47.7) Non- receiver = 51 (39.2)

2. Numbers of close friends

	Close friends (0-9)	Close friends (10 and over)
Gender	F = 126 (65.6) M = 63 (32.8)	F = 108 (65.5) M = 55 (33.3)
Age	M= 24.13 SD = 7.425	M= 22.25 SD = 5.439
Student status	UK = 155 (80.7) EU = 8 (4.2) International = 22 (11.5)	UK = 145 (87.9) EU = 4 (2.4) International = 10 (6.1)
Bangor bursary	Receiver = 108 (56.3) Non-receiver = 70 (36.5)	Receiver = 73 (44.2) Non- receiver = 84 (50.9)

3. University clubs & societies

	Participate	Not Participate
Gender	F = 136 (58.6%) M =95 (40.9%)	F =103 (72%) M = 35 (24.5%)
Age	M= 21.7 SD = 4.494	M= 25.78 SD = 8.488
Student status	UK = 196 (84.5%) EU = 11 (4.7) International = 20 (8.6)	UK = 118 (82.5) EU = 2 (1.4) International = 13 (9.1)
Bangor bursary	Receiver = 113 (48.7) Non-receiver = 110 (47.4)	Receiver = 77 (53.8) Non- receiver = 52 (36.4)

4. Volunteering

	Volunteering	Not volunteering
Gender	F = 107 (67.3) M = 50 (31.4)	F = 134 (61.2) M = 80 (36.5)
Age	M= 22.62 SD = 6.211	M= 23.65 SD = 6.809
Student status	UK = 138 (86.8) EU = 5 (3.1) International = 10 (6.3)	UK = 178 (81.3) EU = 8 (3.7) International = 23 (10.5)
Bangor bursary	Receiver = 66 (41.5) Non-receiver = 84 (52.8)	Receiver = 126 (57.5) Non- receiver = 78 (35.6)

Due to the large volume, statistical results are selectively presented based on the priority.

Appendix 6. 10 Words Question analysis results

Words data results

A chi-square test was performed and no relationship was found:
1. between academic and social engagement, χ^2 (1, N = 372) = 0.18, p = 0.66.
2. between academic engagement and surroundings, χ^2 (1, N = 372) = 1.67, p = 0.20.
3. between academic engagement and personal spaces, χ^2 (1, N = 372) = 3.84, p = 0.05.
4. between social engagement and surroundings, χ^2 (1, N = 372) = 1.50, p = 0.22.
5. between social engagement and personal spaces, χ^2 (1, N = 372) = 3.53, p = 0.06.
6. between surroundings and personal spaces, χ^2 (1, N = 372) = 1.21, p = 0.27.

Merged data results

A chi-square test was performed and no relationship was found:
1. between academic and social engagement, χ^2 (1, N = 426) = 0.03, p = 0.86.
2. between academic engagement and surroundings, χ^2 (1, N = 426) = 0.92, p = 0.33.
3. between academic engagement and personal spaces, χ^2 (1, N = 426) = 3.78, p = 0.05.
4. between social engagement and surroundings, χ^2 (1, N = 426) = 3.94, p = 0.05.
5. between social engagement and personal spaces, χ^2 (1, N = 426) = 3.55, p = 0.06.
6. between surroundings and personal spaces, χ^2 (1, N = 426) = 0.85, p = 0.36.

Academic Engagement * Social Engagement Crosstabulation

			Social Engagement		
			No	Yes	Total
Academic Engagement	No	Count	9_a	117_a	126
		Expected Count	8.6	117.4	126.0
		% within Academic Engagement	7.1%	92.9%	100.0%
		% within Social Engagement	31.0%	29.5%	29.6%
		% of Total	2.1%	27.5%	29.6%
		Std. Residual	.1	.0	
	Yes	Count	20_a	280_a	300
		Expected Count	20.4	279.6	300.0
		% within Academic Engagement	6.7%	93.3%	100.0%
		% within Social Engagement	69.0%	70.5%	70.4%
		% of Total	4.7%	65.7%	70.4%
		Std. Residual	-.1	.0	
Total		Count	29	397	426
		Expected Count	29.0	397.0	426.0
		% within Academic Engagement	6.8%	93.2%	100.0%
		% within Social Engagement	100.0%	100.0%	100.0%
		% of Total	6.8%	93.2%	100.0%

Each subscript letter denotes a subset of Social Engagement categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.032[a]	1	.859		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.031	1	.859		
Fisher's Exact Test				.836	.503
Linear-by-Linear Association	.032	1	.859		
N of Valid Cases	426				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.58.

b. Computed only for a 2x2 table

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