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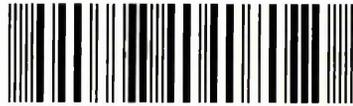
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**Difference and belonging: learning from women studying
the built environment**

Patricia May Morton

A dissertation submitted in partial fulfillment of the requirements of Sheffield
Hallam University for the degree of Doctor of Education

May 2010

Abstract

The research explores the lived experiences of a small number of women students of different ages and backgrounds studying the built environment at one 'new' university over a number of years. Difference and belonging became key themes in the research. The researcher has adopted a feminist and collaborative approach according to 'new paradigm' (Reason and Rowan, 1981) research in order to include the participants as partners rather than subjects. Lecturers involved in teaching built environment subject areas are also partners in the research. The literature draws on three general themes: gender and the experience of women as learners; culture and higher education; and women in the SET and built environment sectors. Whilst gender is at the heart of this research, 'race', class and age have been found to be significant aspects of identity that intersect to influence women in built environment higher education. Intersectionality at the differences between women and their collective difference as women in male dominated environment were found to be significant within their learning experience.

The complexities of the culture and sub-cultures within the university were found to contribute both positive and negative aspects to the learning experience of the different women. While the research found a number of features of the learning experience that could be improved, the natural association of abstract, impersonal teaching and 'masculine' subjects with a 'masculine' culture was challenged by the pedagogical approaches to teaching and learning. The results indicate a need to guard against a fixed view of masculine and feminine attributes that may reinforce existing stereotypes. The positive impact that individual lecturers have on the learning experience of women is an encouraging find. The results provide a challenge to some of the overwhelming negative experiences described by women in male dominated subject areas. The research provides encouragement that positive interventions can help women to belong in a new university built environment community.

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List of acronyms

AT	Architectural Technology
BE	Built Environment
CEBE	Centre for the Built Environment
CIAT	Chartered Institute of Architectural Technologists
CIC	Construction Industry Council
CIOB	Chartered Institute of Building
DCSF	Department for Children Schools and Families
DTI	Department of Trade and Industry
DIUS	Department for Innovation, Universities and Skills
EOC	Equal Opportunities Commission
ETB	Engineering Technology Board
HEI	Higher Education Institution
HESA	Higher Education Statistics Agency
HNC	Higher National Certificate
HND	Higher National Diploma
ICE	Institute of Civil Engineers
IOP	Institute of Physics
MPBW	Ministry of Public Building and Works
ONC	Ordinary National Certificate
ONS	Office of National Statistics
PSA	Property Services Agency
QAA	Quality Assurance Agency
RIBA	Royal Institute of British Architecture
RICS	Royal Institution of Chartered Surveyors
SET	Science, engineering and technology
SHEFC	Scottish Higher Education Funding Council
UK	United Kingdom
UKRC	UK Resource Centre for Women in SET
UNI	University in the research
WES	Women's Engineering Society
WISE	Women in science, engineering and construction

Introduction and Rationale

This introduction sets out the rationale and context for a study of women students' experience within a higher education built environment (BE) department. The faculty where the study takes place houses a team running projects that aim to increase the number of women students in non-traditional areas of study. Staff involved in the initiatives aim to enhance the learning environment for those women students already studying BE in particular and in science, engineering and technology (SET) generally and they are located within a Research Institute. The university, UNI¹, is a 'new' university and as such is one of the so-called "*lower status*" universities as described by Becher and Trowler (2001, pxiv).

Although women are now participating in higher education on an equivalent basis to men (HESA, 2008), the participation of women in SET (including BE) courses and progression to careers in SET in the United Kingdom remain at very low levels in spite of various initiatives from the 1960s onwards to promote SET to girls and women (Greenfield, 2002).

There has been a continuous rise in the participation of women in employment since the 1950s (DfEE, 1998). Women now make up 50% of the working population of the UK (Williams et al, 2000), yet the pattern of their employment is still strongly segregated. Women represented just 7% of those within engineering and technology occupations in 1994 in the UK, which was a mere 1% rise since 1979 (ONS, 1995) and their participation remains in single figures in later reports (Engineering Technology Board, 2008). The BE professions have been a clear example of a significantly segregated area of study and work in the UK. Whilst the BE professions can be often included within SET, they are also often seen as separate with their own identity. Research on the culture of BE education has been limited, yet the problems of the resultant professional culture and its failure to adapt from a white, male dominated atmosphere has been identified (Greed, 1991, 1999; Dainty and Bagilhole, 2006).

¹ The term UNI is used throughout this dissertation to refer to the institution concerned.

Yet, whilst there are not many women in BE, there are small numbers across the range of BE courses and professions, and some of them survive and thrive, and some leave at various stages – the “*decreasing funnel*” (SHEFC, 1997). If change is to be achieved, then we need better understanding of what it is like to study and work within the environment, or to feel a sense of belonging. Women tend to stay on the periphery and find their own path (Greed, 1999; Kirkup, 2003) rather than becoming full members of the BE community. What are the influences on whether a woman becomes a full member of the BE community?

The shortage of people entering and remaining in SET and BE has been identified by the government as a constraint on the UK’s future performance in the global economy, research and innovation. Action to address problems in education at all levels has been called for, including the need to address the shortage of women studying SET and BE at A level and at university (DTI, 2003).

The impetus for change as an economic driver, however, is from a different perspective to that of quality and social justice for women. Effectiveness of current actions will be measured in quantitative terms and will not necessarily measure success in a qualitative and sustainable way. As Kirkup (2003, p2) says in describing these latest interventions “*while these are very welcome, the experience of the last 30 years suggests that they will not be enough on their own to create radical change.*”

As the researcher I am an academic within the faculty that hosts the BE department at UNI. I spent many years in industry before entering the university as an academic. I have spent a number of years teaching on the BE courses concerned where women are in a minority before moving outside teaching to my present position in a Research Institute. I am involved in the delivery of a number of externally funded projects and short courses that aim to increase the participation of girls and women in SET and BE. I come to this research with a clear position, that of change of practice to achieve an improved situation for women.

This background prompted my research question:

- **What is the higher education experience of female students on built environment courses?**

In order to answer the question I endeavored to discover the lived experiences of gender in the BE department at UNI. Through this, I aimed to understand how a traditionally segregated area of academic study might be changed to become a more conducive learning environment for women as well as to find out if the interventions from the Research Institute were having any positive impact for women students in BE (See Appendix One for a list of Objectives). As my research developed, the complexity of the intersectional aspects of gender unfolded to provide me with rich variety of findings. So, where I began with the idea of gender as the main focus, the data revealed the significant influences of the intersections of class, 'race' and age together with and alongside gender on a woman's identity and experience of BE higher education, so that difference as a woman in a male dominated environment and the differences between women required attention.

The research followed the experiences of a group of women students as they travel through BE study in UNI. The eight women students who have taken part have come from a number of different BE courses (within BE and Architecture programmes), at different levels and study in different modes (part-time, full-time and sandwich). They come from a range of different backgrounds and have different identities in terms of class, 'race' and age. A group of lecturers were also chosen to take part in the research to add external and objective observations to my own understanding of the learning experience and to contribute their own ideas for improving the learning of women in BE. The seven BE lecturers (5 male and 2 female) have also come from different courses and subject areas within BE and bring an interest in women's participation in BE higher education.

The research approach needed to follow a clearly critical path of enquiry in order to limit bias, but my position and background provide a rich level of knowledge and understanding that supports the understanding of culture of BE higher education in general and of UNI in particular.

The first two chapters examine the literature relating to the research aims. Chapter One sets the scene to understand gender and its key aspects as they relate to women's lives and learning including a focus on the influence of different identities and backgrounds of girls and women as they make career choices and progress through education into work. Feminist pedagogy is discussed in order to provide the focus on women as learners. Chapter Two goes on to examine the landscape and culture of higher education and the place of SET and then to focus on BE, both in industry and in education. The literature relating to culture and gender in general and the culture of SET and BE in particular are examined to understand the context and issues relating to women's experiences.

Chapter Three locates my personal history in BE against the research findings and against the background of women's place in society and in BE in the last forty years.

Chapters Four and Five provide an explanation of and a justification for the research approach taken, that of a 'New Paradigm' approach (Reason and Rowan, 1981) together with the detailed methods and tools adopted to support data collection and analysis.

Chapter Six is the first of four that present the data collected as part of the research, setting out the context and discovered cultural attributes of UNI as a whole as well as at faculty, departmental, programme and course level.

Chapters Seven and Eight explore the experience of the women students involved in the research at UNI, drawing on reflective diaries, interviews and conversations over a period of four years. Discussions with lecturers about findings provide a complimentary perspective. Chapter Nine explores the story of Madalyn, one woman's experiences in order to illustrate key themes identified as part of the research.

The final chapter includes an overview of the research together with its contexts. A discussion of the main findings of the research is provided together

with key themes discovered and the contribution to knowledge made. Finally I reflect on the research journey and my own place within the research.

Chapter One

Gender

Introduction

This chapter introduces some key aspects of gender and the relevant associated aspects of girls' and women's lives as they affect the contexts and frameworks that are the focus of this research. The danger of a one dimensional perspective on gender is raised and the development of issues of difference and identity within gender are explored and discussed. Developing a gender perspective that includes 'race', class and age is an essential is at the heart of this study and needs to be an integral part of any study of gender. Intersectionality is introduced as a concept to understand the overlapping and cumulative effect on women's experiences. The reference to particular stages of girls' and women's lives that connect to my research including education and career choice is highlighted. Feminist pedagogy is introduced in order to provide a focus on the experience of women as learners.

Gender as a social and cultural construction

Hegemony is a concept that explains how a dominant class maintains control by projecting its own view of the world as the natural way of doing things (Gramsci, 1971). The concept helps to explain why girls and women see themselves as being unable to challenge and succeed in certain subject areas which are perceived as the natural domain of men (Paechter, 1998).

Hegemony ensures the dominant view is perceived as normal and is taken for granted, providing formidable barriers to those who see themselves as non-conformists, for example where women enter an overwhelmingly masculine culture such as construction or the physical sciences, but could also mean within the general culture of Western society. Paechter (1998, p 11) submits that the long history of male hegemony in Western society and its educational systems continues to maintain a powerful hold on the way girls experience their education, that girls' education has been developed subordinately to boys'

education and unless this is challenged that the interests of girls will always be secondary to boys' needs.

It is unhelpful to ask whether gender is the result of socialization or biology, because the two are closely linked (EOC, 2001 & Connell, 2002), but concern here is with gender as a learned concept within a culture, rather than with biological difference. While "*evidence from biology, psychology and sociology suggest that the division of humanity into two distinct, mutually exclusive categories is both unrealistic in the scientific sense and unproductive or inhibiting in the social sense*" (Lindsey, 1990, p13), the arguments continue. In the 1970s feminist theorists proposed a clear distinction between sex and gender that clarified things (Connell, 2002, p51) with gender as the social fact and sex as the biological fact. But even sex is not always fixed as those who claim to be born the wrong sex profess, and the links between sex and gender continue to have mixed meanings. When roles are discussed (Connell, 2002) as in nurturing (women) or as breadwinner (men) it can be claimed that both sex and gender are involved. Thus theories that either dismiss or fail to account for both biology and society are unhelpful (Lindsey, 1990).

Ridgeway and Correll (2004, p510) define gender as "*an institutionalized system of social practices for constraining people as two significantly different categories, men and women*" and, unlike many other social differences, relating to the other sex is a significant feature of nearly everyone's experience. As Lindsey (1990, p36) has said, "*from the moment a girl infant is wrapped in a pink blanket and a boy infant in a blue one, gender role development begins*" and while this was written nearly twenty years ago, as Paechter (2007) says, almost the first thing we ask when a baby is born is its sex. While gender roles have changed considerably over the last twenty years and roles differ between cultures, gender still retains a central position within our society (Mac An Ghail and Haywood, 2007). The influences that help to form an individual are complex and vary depending on age and background and they are constantly changing. Gender scholars have moved from the position where gender was defined primarily in the form of a learned role within childhood practiced within the family to a discussion of complex identities associated with gender (Mac An Ghail and Haywood, 2007)

As gendered people we learn how to act and interact, "*how we are valued and what place and power we have as women in various groups and societies*" (Hayes and Flannery, 2002, p4). Social norms in family, community, school and media that dictate masculine and feminine roles from an early age can clearly influence gender roles in society as we grow, and the view that gender differences mirror sex differences is a starting point for the passionate debate about difference (Oakley, 2005). Since the 1970s onwards feminist social scientists have worked to "*identify an agenda of preventable differences between the sexes, and thus to force open the door of oppression and discrimination*" (Oakley, 2005, p43). Research in recognizing that there are not just simple binary male and female experiential differences has progressed to explore how early gender positions are influenced by culture, 'race', religion and social class (Marsh, 2000). The complexity of the issue (Skelton and Hall, 2001), with gender as only part of one's identity, means that the effect of other individual differences such as 'race' and class can sometimes outweigh the impact of gender on behaviour. Consequently, the range of behaviour among people of the same sex will usually be greater than the average differences between men and women (Ridgeway and Correll, 2004, p519). Even so, cultural beliefs about gender can bias self expectations sufficiently to provide measurable difference between men and women's life decisions (Risman, 2004). Even those who are brought up and / or live in communities that share alternative gender beliefs are likely to be aware of hegemonic perspectives and will understand they are likely to be treated accordingly when in uncertain settings (Ridgeway and Correll, 2004, p514). Consequently while some may resist the primary allocation of gender roles, most will often unwittingly comply with gender expectations in the majority of their behaviour. The issue of women's self expectations and the expectations of others are aspects that I will refer to within my data analysis.

West and Zimmerman (1987) published an article in the first issue of *Gender and Society* called *Doing Gender* which according to Deutsch (2007, p 106) has been cited 634 times and has in some way prevented gender scholars from moving beyond identifying inequality and issues where gender norms are in place, thus perpetually creating difference. As Andersen and Collins (2007, p8)

say this encourages the question “*different from what*” and reinforcing the concept of other. Deutsch asserts that research should be doing more towards “*undoing gender*” (p107) with a focus on understanding the conditions under which change for the better occurs (p113). But understanding the connections and the patterns we may better understand the differences to tackle inequality (Andersen and Collins, 2007). As Risman asserts (2004, p 435), “*we need to also study change and equality when it occurs rather than only documenting inequality.*” Deutsch proposes five steps for the study of interaction (p114) that can move the research to focus on change and that are relevant in my study of UNI:

1. When and how social interactions become less gendered.
2. The conditions under which gender is irrelevant in social interactions.
3. Whether all gendered interactions reinforce inequality.
4. How the structural and interactional levels might work together to produce change.
5. Interaction at the site of change.

This may not be straightforward; as Ridgeway and Correll (2004, p 528) have said “*the gender system will only be undermined through the long term, persistent accumulation of everyday challenges to the system resulting from socioeconomic change and individual resistance.*”

The issue of difference between genders becomes further complicated when aspects of masculinity and femininity are unpicked. The terms used in discussion of such characteristics can emphasise stereotypical differences and even perpetuate the stereotypes that we want to challenge, for instance the view that women are naturally more peace-loving. It can be argued that this sort of thinking can reinforce the oppression of women (Wajcman, 1991).

These terms are describing masculinities and femininities which are characteristics that are not gender specific, can be owned by men and women and are different depending on time, place and circumstances. This concern with stereotypical differences is raised again in Chapter Two in respect to academic subjects and within my data analysis. As Paechter (2006 p254) explains we become “*seduced by the obviousness of a particular term or its use in a specific context so that we fail to see the problems it brings in its wake.*” She proposes that if we can understand (2006, p261)

That not all masculinities are entirely masculine or femininities feminine, we may be able to think of ourselves as humans who construct our identities in various ways, some of which are related to ideal typical forms of masculinity and femininity, and some of which are not.

'Race', class and gender

The early years of feminist research are now regarded as being ignorant of the differences between women from different backgrounds (Andersen, 2005) and current analysis sees all three aspects – 'race', class and gender - as overlapping and as a matrix (Collins, 1990). As Harnois (2005) asserts, you cannot just add 'race' to gender as an additional factor. hooks (2000) talks about her first draft of *Ain't I a Woman: Black Women and Feminism* (hooks, 1981) which was drawn first from her experience of racism and segregation in education rather than from an experience of sexism as discussed by white feminists. Harnois (2005, p6) in talking about black women in the United States observes a political "savvyness" that comes from a lifelong awareness of oppression, rather than the sudden point of awareness that white middle class women experience due to life events, for instance returning to work after pregnancy. As Andersen (2005, p447) argues "'race', gender and class are relational and reinforcing". They are embedded in the structure of society and shape systems of privilege as well as choice (Andersen and Collins, 2007). Access to higher education by lower socio-economic groups is well established in the United Kingdom (Hutchings and Archer, 2001) yet the barriers to access and progression continue to be considerable and complex along all of these axes for different groups (Mirza, 2005). In an earlier study, Mirza found that black women were tackling the barriers and achieving in education in order to "transform their opportunities and so in the process subvert racist expectations and beliefs" (1998, p47). Challenging stereotypical views of Muslim girls as either "passive" or "in conflict," Archer (2002) explored the views of Muslim young women and their post-16 choices and found that the girls negotiated choice within the context of British family experience where class was also a clear influence on career choice for young women. Both Mirza and Archer's studies illustrate the connected complexities of the gendered experience of different women and the need for researchers to guard against a one dimensional interpretation of gender.

As Francis (2006, p57) asserts, class continues to limit the opportunities for girls' education and progression despite the general assumption that girls are outstripping boys in achievement on all fronts. As mentioned in the next section, Gender and School below (Paechter, 2007), when girls make vocational choices at 14 rather than academic choices, they are highly segregated and vocational choices are more prevalent in working-class communities. The Women and Work Commission (2006) found that the gender pay gap was much greater in women over 40 who had not benefited from the improvements in education and although this group was keen to enter non-traditional employment sector they did not have the necessary skills and qualifications to do so. If you add these economic findings to Archer's findings (2006, p77) of girls and women who have been put off continuing in education because of being "*made to feel stupid*", the intersections of class, race and gender can be clearly seen with an added strand of age. Bagilhole, in her examination of the complexity of the different strands that comprise the policy area of equal opportunities and diversity calls for "*analysis that looks at whole people rather than breaking them up into component parts*" (2009, p4). How intersectionality impacts on women's experiences is not a clear and easily accumulative process. As Davis (2008, p 77) suggests "*with each new intersection, new connections emerge and previously hidden exclusions come to light*" so that what it means to be a woman under different circumstances can be revealed.

Gender at school

The experience of education can have a crucial impact on the life choices of any child throughout their life. As Pilcher (1999, p17) says, whilst the education system is not the only influence on gender inequality, it has been identified as a 'key institution'. The influence of the educational establishment at whatever level, from primary through secondary to further and higher, will be significant on the individual learner. After the close family, teachers are probably the most significant adults in a child's world (Pilcher, 1999) and a number of studies have shown that many teachers convey stereotypical messages about gender even unconsciously (Mirza, 1992; Skelton and Hall, 2001; Drudy and Chathain, 2002). Mac An Ghaill (1994) found that a number of teachers in secondary education held stereotypical views about interests, aspirations and future

prospects of their pupils, whether they be boys, girls or white or ethnic minority. Paechter (2007) has found that segregation can be more pronounced for working-class students because the vocational curriculum is more strongly gendered than the academic and it is in working-class school communities where a vocational curriculum predominates. Middle class children studying an academic curriculum leading to university will have a different experience to working class children who may find themselves in clear gendered and classed paths to work (p128). The continuing reported success of girls and the concern about failing boys appears to emphasise that all girls are successful in education, yet as Ringrose (2007) asserts, this simplistic view of single difference obscures socio-economic, ethnic, racial and cultural difference that continues to limit girls' aspirations and achievement.

Choice of subject at any school can differ by gender and as such limit career choice from the age of 14, so that Physical Education and IT are dominated by boys and food technology (the former subject area of home economics) is dominated by girls (EOC, 2001; Paechter, 2007). Vocational subjects chosen at 14 (in England the name of these qualifications has been GNVQs; they are now called vocational GCSEs) are still clearly stereotyped as previously mentioned, with girls predominantly training in hairdressing and boys in engineering. Work experience placements have been found to reinforce those stereotypes, with a study (Hamilton, 2003, p9) in Scotland providing clear gendered patterns of placement in the traditionally gendered occupations such as engineering, installation, maintenance and repair 97.6% male (319) against 2.4% female (8) and community and health 10.9% male (117) against 89.1% female (957). The new 14-19 diplomas introduced to broaden the choices in vocational education are facing gender stereotypical cohorts of boys in construction and engineering and with girls in health and beauty (DCFS, 2009).

Statutory requirements regarding subject choice have ensured that girls take sciences and mathematics to GCSE and consequently the segregation is clearer beyond 16. However even within statutory subjects there is still room for difference between boys and girls. Murphy and Whitelegg (2006) in their review of girls and physics research found that the teachers perceived girls as being less capable of doing physics than the other sciences at GCSE. So while

on the surface girls are seen to be doing better over all at GCSE science than boys, when the modules are broken down into their separate subjects, girls are still doing less well than boys in the area of physics. This difference when statistics are disaggregated has also been found in Design and Technology; for example, Stables and Wikeley (1996) found that within the subject, girls were more likely to choose food technology and boys more likely to choose resistant materials and graphics. Murphy and Whitelegg (2006) argue the view of the teacher was influencing the subject choice of girls at A level, where girls were choosing other sciences, but not physics partly because of a lack of confidence in their own ability. This lack of confidence was also found by Mendick (2005) in her research into the study of students studying mathematics at A level. Subjects studied for A level and in higher education continue to exhibit clear gender differences in certain subjects, that is, social studies and education being dominated by women, and physics and engineering and technology being dominated by men (HESA, 2006).

Gender and career guidance

So, more than thirty years after the Sex Discrimination Act (1975) was introduced, sex stereotyping of career roles can still be found throughout society in the UK and Europe. Stereotyping can influence attitudes, expectations, choices and decisions made by girls and women, and unless stereotyping can be overcome the face of the SET and BE sector will not change. Given that there are many complex factors affecting the choice of a career, what are the specific aspects that might affect and influence careers guidance for girls and women? I needed to understand the factors that might influence a choice in BE for girls and women. Rolfe (1999) in her research for the Equal Opportunities Commission (EOC) explored the profile given to gender equity and the attempts to tackle stereotyping, bringing forward examples of good practice within the careers service. She identified that the service needed a system for encouraging young people into non-traditional occupations, along with information and signposting to the support systems once they have made these choices. In another study (Bimrose, 2001) it was found that diversity needs to be incorporated more effectively throughout the careers service, with a need to acknowledge the understanding of how sexism and racism affect black women's aspirations. Bimrose found that career theory

was also heavily dependent on research with a male point of view, and as such is not as relevant for women's career paths, a warning also raised by Chisolm (1997) in a study of guidance for women returners across Europe. Bimrose referred to a study by Betz (1994, p86) that found a lack of unbiased information and a tendency to steer women or girls towards traditional roles, a factor still reported by girls in research about construction careers (Sharapov and Tizzard, 2008).

Hodkinson (1996, p 127) draws on the concept of 'habitus' from Bourdieu (1990) to explain the ways that life choices are influenced by experience and thus how the life experience of an individual can broaden or limit career choice. He gives the example of a young woman who chose a career in a male dominated area (car-body repairs) because her experience with her father had gradually introduced the idea to her consciousness. He goes on to show that challenges to 'habitus' can occur by routine or by transformation that is when teachers or other influencers challenge limiting views (p128), a factor I draw on in my data analysis.

Choice is referred to by Sian and Callaghan (2001) in their review of factors influencing entry into SET by women. They assert that sometimes too much is made of the barriers to women in entering SET without considering what other choices women have and what they may value in a career choice. They discuss what women have to give up in order for them to enter SET careers, drawing on the various incentives found in careers choice. Human interest, pay, employment prospects, status and image all influence career choice and SET careers do not feature highly on a number of these aspects. As Sian and Callaghan (2001, p92) assert "*it is unsurprising that for the young person who does not have a particular intrinsic interest in the subject matter..., entering such a course in HE is not particularly appealing.*" The women who do choose a non-traditional career for a woman are making a statement, while the men who choose SET careers often do not have "*a story to tell*" (Faulkner, 2005, p17). As Gale found in 1994 women need to know more about the nature of BE careers because of the risk to them compared to choosing traditionally female careers. Mature women have been found to be more likely to challenge gender

stereotyping (Women and Work Commission, 2006) and after first entering low status careers on leaving school an increasing number of women seek to enter non traditional sectors like BE (Eaton et al, 2006), when they discover them.

Feminist pedagogy

Feminist pedagogy is concerned with women as learners. The need for a feminist pedagogy is not to define all women as a single category of learner, but to correct an historical lack of focus on women and learning and to promote a collaborative and inclusive pedagogy (Mayberry, 1999). Since my study focuses on women as learners I have chosen to draw on feminist pedagogy to correct a lack of focus on women as learners. According to Tisdell (2002, p155)

Feminist pedagogy encourages personal transformation of individual knowers by attempting to expand consciousness, capacity for voice and self esteem as knowers construct and express new knowledge and become more fully authors of their own lives.

The roots of feminist pedagogy lie in Freire's pedagogy of liberation (1993) where the classroom can become a centre to challenge oppression and inequality. Feminist pedagogy expands and enriches Freire's model by including gender alongside class and 'race' to achieve change in the classroom (Weiler, 2003) and this perspective also is aligned with my focus on the intersections.

All versions of feminist pedagogy, according to Tisdell (2002), include the following themes:

- How knowledge is constructed
- Voice
- Authority
- Identity as shifting
- Positionality, or dealing with differences based on the social structures of 'race', class and sexuality.

She comments that individual lecturers have a role to play in improving women's education. Hugo develops the theme and draws on Pratt's work (1998) that fails to mention gender, 'race' or class, connecting it to women as learners in order to establish a number of aspects that could lead to improvement (Hugo, 2002, p195 – 210) in the learning experience .

1. Commitment to effective delivery of content – practitioners need to consider women's experiences and women's ways of learning and ensure they are embedded in teaching and texts including specific examples. Ground rules for discussion in class would counteract negative gender stereotyping.
2. Commitment to modeled ways of being – learners need to learn how to be part of the community they are joining. Tutors should ensure they are informed of the aspects that may limit women from becoming full members of a community.
3. Commitment to cultivating ways of thinking – women as learners need to develop their own autonomy and to believe in their own ability. Tutors need to be able to encourage and develop this belief in women students and to develop student skills in this area, to some extent giving up their own role as expert and to facilitate challenge.
4. Commitment to self-efficacy – the nurturing perspective of the tutor is highlighted here, but tutors need to be gender aware of differences in the identities and backgrounds of students. Where students have been traditionally male, tutors need to educate themselves about the differences in experience and cultural capital that women bring as well as differences between women.
5. Commitment to seeking a better society – bringing a challenge to the status quo and bringing about change for the better as a tutor perspective is highlighted. The tutor can draw on feminist theories to ensure that gender is not ignored and that such approaches are inclusive.

I draw on this set of aspects within my data analysis in relation to women's learning experience. Phil Race (1993, p21) said "*if the learning is alright, the teaching will look after itself.*" How then do you make a gendered analysis of learning? As Solsken (1993, p123) said:

analysis of how gender figures in learning does not depend on identifying consistent patterns of difference between groups of males and females but rather on tracing the patterns in individual's learning biographies back to sources in the system of gender relations.

So, as gender is a part of all of us, girls learn how to act and interact and women learn in various groups what their place is: then BE higher education is just another location in which to realize a place.

Hayes and Flannery (2002, p5) argue that the assumption of the universal relevance of dominant learning theories takes no account of difference in a social context. The psychological perspective on individual learning styles may account for some difference between a man and woman, but it is nevertheless culturally and gender blind. The dominant theory of self directed learning is an example which is not universal, but is culturally bound with our own Western society while being alien to other cultures where learning may be less competitive (Cunningham, 1988, p3; Leathwood, 2006, p613). Hayes and Flannery (2002, p19) go on to explain that they found a dearth of literature that concentrated on women learners themselves. Too often the research either reduced learning to a set of attributes or the interest was in the institution rather than the women learners. They searched for and eventually found women's stories and narratives that were often outside formal learning situations, and they were often about women finding out who they were or finding themselves anew as adults and becoming empowered through learning, a theme that is found in my own data.

Belenky et al (1997) carried out a landmark piece of feminist research on women's education experience in the United States of America in 1986 that involved in-depth interviews with 135 women and drew out the way the women experienced learning and developed their own voices. They call for an emphasis on connection, understanding and collaboration with time to develop knowledge from first hand experience. The 'banking' form of traditional education referred to by Paulo Freire (1993, p53) with the lecturer owning the knowledge and imparting some of it to the vessel of the student was not universally present in Belenky et al's research, but it was recognised more readily in science teaching (1997, p217) and thus is directly related to my data analysis.

Women have been taught by generations of men that males have greater powers of rationality than females have. When a male professor presents only the impeccable products of his thinking, it is especially

difficult for a woman student to believe that she can produce such a thought.

This connected knowing or “*subjective knowing*” concept has been developed so that it encourages respect of others’ differing views and listening to and debating difference, which leads to better overall understanding (Clinchy, 1996, p211). Caution must be raised about the concept of a single way of women’s knowing and learning, and Flannery (2002) reminds us that Clinchy (1996) herself had been very comfortable in circumstances of separate knowing. ‘Race’, class, ethnicity and age also influence women’s identities and ways of knowing and learning to produce a diverse population. Flannery (2002) calls for a “*move beyond assumptions that men’s ways of knowing exist in opposition to women’s ways of knowing and learning*” (p137).

Voice

Marie left the first session of the training seminar with feelings of frustration. “I didn’t feel like I had a voice at all in that group,” she confided later to a co-worker. “Every time I tried to make a point, I was interrupted by one of the men. I don’t think I’ll even try to say anything in the next session.” (Hayes, 2002, p 79).

Talk is an accepted and frequent part of the learning process in higher education. Clarifying ideas and asking questions are important for enhancing learning. Many feminist educators acknowledge that talk is a means of engaging in collective knowledge creation that historically excluded women (Hayes and Flannery, 2002). Tannen (1994) draws on a term ‘rapport talk’ which she says is favoured by many women and maintains relationships and concern for the personal, with feelings and thought intertwined. In contrast, she describes ‘report talk’ as a style favoured by men focusing on using talk to establish control. It is characterized by lengthy monologues, competition among speakers and abrupt shifts in topic (p82). However this difference has itself been described as just reinforcing social stereotypes that expect women to be caring and ignores differences between women (Crawford, 1995).

Hayes (2002) explores her own experience as a tutor in a higher education classroom where a few males managed to dominate the conversations taking place in a female dominated group. She draws on Tannen’s (1994) observations whereby this argument of ideas in ‘report talk’ is designed to

obtain rigour and new insights. But if those being exposed to this system are uncomfortable with it, then it is not conducive to learning and instead what is experienced as an attack on their ideas will result in a lack of confidence and stifle further contributions. In architectural education, the idea of criticizing ideas has a long history and is further discussed in Chapter Two. Kelly's research also (1991) found that, perhaps unconsciously, the men in the classroom dominated the talk because they aimed at self-assertion rather than connection. So the women in the classroom would support other speakers with questions – the net result being that women tended to lose out in discussion time.

The sex of the teacher has also been examined to try and find out any differences in encouraging participation either as a role model or because a female teacher may encourage more 'rapport talk'. Fassinger (1995) found that, after class size, it was the teacher's norms that had the strongest influence rather than the sex of the tutor. So norms such as "*my peers listen attentively*" and "*students respect each other's views*" (p87) were the most influential in promoting class participation, but these are also aspects of 'rapport talk'. Fassinger also found that for men and women, self confidence was a key factor in classroom participation (1995), but it was deemed more important by women. The perception of the tutor by women in the classroom and their use of their voice to ask questions has been found to have a negative impact on women's grades (Tannen, 1994). The research found that men were more likely to find out on their own, rather than admit not knowing in class. Women's recognized style of talk includes questioning as a matter of course (Tannen, 1994). In fact women's willingness to express uncertainty could be a strength in learning – clarifying ideas and taking on new paradigms (Horwitz, 1994). As Hayes (2002) explains, it is not helpful simply either to equalize the contributions of men and women or to encourage women to use 'report talk'. Tutors should encourage norms that support a variety of forms of talk and interaction and be aware of the impact of their choice on students.

Summary

This chapter has provided an interpretation of gender as a social and cultural construction that can limit girls' and women's life choices. The chapter includes

a concern with the complexities that occur within gender when considering the intersections of 'race', age and social class. Differences between women can outweigh the impact of gender considered in isolation as a single attribute and the concept of intersectionality is a useful tool to examine properly a gendered experience of learning. Even girls and women who grow up in supportive communities will be aware of hegemonic perspectives that will influence how they are treated in different situations. The concept of masculinities and femininities as characteristics of both genders needs to be unpicked to ensure that we do not perpetuate stereotypes and the proposal by Paechter (2007) to allow us to choose from either and still be secure in our gender is accepted for the purpose of my research. School experience and career guidance have particular significance within the scope of my research and the gendered and intersectional influences of cultural capital on life choices are found to be significant. 'Habitus' (Bourdieu, 1990) influencers and challengers are seen to be influential in enabling girls and women to make choices that challenge limiting views. Finally, the chapter explores the meanings of feminist pedagogy, identifying talk, teacher norms and self confidence of the learner as key aspects to draw on within my data analysis.

Chapter Two

Higher Education, SET and the Built Environment

Introduction

This chapter aims to describe the context and culture of higher education as a whole and to unpick the SET and BE contexts and cultures within higher education in particular to understand the experience of women students. Statistics relating to gender and subject are shown along with additional information to highlight associated aspects linked to non-traditional students including ethnicity and socio-economic background. In order to understand the specific aspects of gender and culture within the BE, a focus on the experience of women in different areas of SET is provided. The historical context of the BE professions and education are provided to understand the development of the culture of BE. Finally a focus on BE culture in education and the professions as experienced by women completes the context.

The current higher education context

UK higher education has faced and continues to face significant change in the way it operates, having moved from a service to a relatively small elite of 14% in 1985 (Universities UK, 2001) to 43% in 2001 and with a target of “*increasing participation towards 50% of those aged 18-30 by the end of the decade*” (HEPI, 2003, p2). By the late 1990s higher education students over all were more likely to be female (53% in UK); be older (59% over 21 in UK); and an increasing number coming from an ethnic minority background (10% Black or Asian in UK) according to Becher and Trowler (2001). However, behind these potentially positive statistics for widening participation, there is a different story. At the same time that higher education opened up to a mass audience, the elite universities are still dominated by advantaged groups (Reay, 1998) and there has been little reduction in relative social class inequality (Reay, Davies, David and Ball, 2001). Retention indicators released in 2009 (Denham, 2009) show the lowest ever figure (13.4%) for the proportion of students not expected to obtain an award or transfer to another institution but the statistics also reveal increasing numbers of drop out by young and mature students after their first year. The aggregated figures for ethnic minority attendance at university hides

the divide between old and new university sectors where students of Caribbean origin are overrepresented by 43% in new universities, Asians by 162 % and Africans by 223% (Mirza, 1998) in relation to their respective population sizes within the UK. Indeed by 2002 (Green) UCAS had identified cause for concern about mature entrants to higher education, where increases are weighted significantly towards younger students in the 21 to 24 cohort. As age increases the distance students travelled to university decreased. So in the 30 to 39 age group females represent almost two thirds of the accepted applicants illustrating a need to study locally or a constraint on choice (Green, 2002).

Although females made up 56% of the student population for 2004/5 (HESA, 2006) the subject areas that women choose show variations. There are significant areas of SET and built environment that exhibit either numeric dominance by men or conversely women students. Alongside this there has been a decline in the choice of SET degrees reflecting the decline in the choice of SET A levels (Roberts, 2002).

Table 1 illustrates the breakdown in percentages of women studying a range of subjects including SET and non SET and the way that little changes from year to year in the heavily gendered subject areas. Behind these statistics a number of subjects show small increases in female student participation year on year, however changes in subject definition can and do affect the overall statistics.

Subject Area	% Female entrants 2001/2	% Female entrants 2002/3	% Female entrants 2003/4	% Female entrants 2004/5	% Female entrants 2005/6	% Female entrants 2006/7
Subjects allied to medicine	83%	84%	84%	84%	83%	83%
Education	73%	73%	74%	75%	75%	75%
Veterinary science	72%	71%	71%	74%	74%	75%
Biology	62%	63%	64%	64%	64%	64%
Engineering	15%	14%	14%	14%	15%	15%

and technology						
Computer science	25%	25%	24%	24%	24%	22%
Mathematics	38%	39%	38%	38%	37%	37%
Physical sciences	39%	40%	40%	41%	42%	42%
Architecture, building and planning	27%	28%	28%	29%	29%	29%

Table 1. HESA course statistics 2001-2007 (HESA, 2006 & 2009)

Table 2 shows part of the breakdown within architecture, building and planning to give a more detailed view of the subject area in question. Small subject areas like combined studies are excluded. The bigger picture around these subject areas has architecture showing a general growth in popularity with an increase in numbers year on year since 2001. Building, on the other hand, experienced a decrease in popularity in 2002/3 and since then, while there has been a slight increase in student numbers year on year, the overall numbers remained below 2001/2 levels until 2005/6. The percentages of women students in building remain consistently very low, with very similar rates of participation to the engineering subject areas.

Subject area	females % 2001/2	females % 2002/3	females % 2003/4	females % 2004/5	females % 2005/6	females % 2006/7
architecture	30%	31%	37%	33%	34%	35%
building	14%	13%	14%	14%	15%	16%
planning	47%	47%	45%	45%	45%	45%

Table 2 HESA Course Statistics 2001-2008 (HESA, 2006 & 2008)

As Greed (2000) has pointed out the examination of women's participation in the BE sector is often focused on the quantitative lack of women rather than the qualitative aspects of the situation. The reality of the situation for all women studying BE subjects is that they remain a minority.

Increased competition, scarce resources, unpredictable fluctuations in enrolments and income, a move towards greater accountability and an emphasis on economy have led to a managerialist approach to decision making in higher education. Knight and Trowler (2000, p69) identify some of the attributes affecting the academic culture of the new higher education. They include the following – intensification, hard managerialism, a loss of collegiality, greedy institutions, ageing, malaise and marginality. The emphasis on efficiency has encouraged a move to the delivery of programmes and common modules for the various disciplines, so that individual course identity may not be emphasized until the later stages of the course (Becher and Trowler, 2001). Academics and industry have also called for commonality in the name of interdisciplinary working as well as reducing the staffing requirements for teaching (Dainty and Edwards, 2003). These changes and adaptations to courses in order to teach more students with less direct class contact in conjunction with the general malaise referred to can have a greater impact on non-traditional students (Thomas, 2002) than those students that fit easily within the higher education culture.

Non traditional students

Widening the participation of students outside the eighteen and nineteen year old school leaver provides an additional challenge to the culture of higher education. Waterman – Roberts (1998) discussed the mechanistic add on approach to strategies that often fails to meet the needs of a diversifying student population. She points out that non-traditional students have to develop coping strategies once in higher education to help them manage in a culture which they do not see as appropriate for them. Significantly she asserts that what is important is not ‘what’ the culture is, but ‘how’ it is experienced. A study of women students in higher education (Moss, 2004) confirms the complex nature of women’s lives and the way they manage their space and time as students. The interaction between home and higher education is significant for mature women students, but the experiences are individual (class, ‘race’, age, motherhood, disability, residence, religion, sexuality, geography) and cannot be readily generalized to other women. Nevertheless the research finds systems of inequality evident across those studied.

Archer (2002, p373) proposed that widening participation policies need to move “away from raising aspirations” and to move “towards challenging inequalities such as racism”. Acland and Azmi (1998, p83) prepared a checklist of policy actions that should be considered by universities who wish to support minority groups. The list includes a number of aspects: curricula that incorporate equal opportunity and ethnic minority issues, taking care to prevent discrimination in work placement allocation, awareness raising training for staff and access for students to facilities such as prayer rooms.

Bourdieu (1990) studied French students in higher education and found that working class students were less successful because the curriculum was biased in favour of that which the middle classes were familiar. Thomas (2002) drew on Bourdieu in her study of working class students in higher education in the UK and the issues of retention. She describes students from non-traditional backgrounds being like “fish out of water” (p431) and feeling a need to return to their familiar ‘habitus’. She argues that new universities may give a higher status to teaching and learning than some traditional universities and this benefits non-traditional students, so that “students who feel respected (and valued) feel more able to take problems to staff and thus sort them out” (p432). Thomas (2002) also found the importance of social networks to help overcome the feeling of social exclusion whilst in higher education. Mutual support enabled students to overcome both internal and external problems that occurred while at university. (See Appendix Three for an overview of mentoring schemes to support women in SET and BE). She produced a list of characteristics that would contribute to non-traditional student success that I have drawn on within my data analysis:

- Staff attitudes which minimize the social and academic difference between them and students that enable students to feel valued and seek guidance when it is needed.
- Inclusive teaching which does not assume a traditional habitus for students. This includes awareness of different educational experiences and learning styles.
- Collaborative teaching and learning.
- A range of assessment methods and tools to give a wide range of opportunities to succeed.

- Choice, flexibility and support in accommodation.
- Diversity of social spaces for students and regard for students who are not able to socialize through student accommodation.
- Students are allowed to be themselves.

A number of studies about retention have focused on the initial experience of students (Tinto, 1987; Yorke and Longden, 2008) and have all stressed the importance of the transition to higher education in order for the student to engage with the experience. The positive nature of learning and education for women from non-traditional backgrounds needs to be acknowledged alongside the risks. Tett (2006, p 102) discusses the “*hope and desire*” experienced by women students in community education who have a vision of where their learning can take them. She explains that “*hope is closely bound up with the willingness to experiment and take choices.*”

Culture and higher education

The reality for women studying SET and BE subjects is that they remain a minority, so if SET and BE higher education is to become more women-friendly, there is a need to understand the culture that they encounter. The Robert’s Review (2002) which was commissioned because of Government concern over the poor supply of high quality scientists and engineers identified a number of problems behind the “*disconnect*” (p2) of strengthening demand coupled with decline in supply of numerate science graduates, including (p2) “*a shortage of women choosing to study these subjects at A level and in higher education*” and the “*poor experience of science and engineering education among students generally*”. Roberts (p83) acknowledged the difference in attraction of the various sciences to women, with the biological sciences being the SET area at undergraduate level where women account for more than 50% of the student population. One of the key issues that needed to be addressed was, according to Roberts (p3) “*the ability of these subjects’ courses to inspire and interest pupils, particularly girls.*” Moves to rebalance curriculum content to strengthen mathematical skills and transferable skills are called for as well as the inclusion of action and contextual learning, coupled with industrial experience on placements. Greenfield (2002) explained the benefits of increasing women’s participation in SET under a number of headings concentrated on the benefit to

the economy i.e. competitiveness, return on investment, benefit to science and missed markets and skills and she made a number of recommendations for action that were then adopted within the Government response (OST, 2003). Roberts (2002) and Greenfield (2002) were critical of the SET cultures in education, research and industry, recommending a number of changes that have been implemented as part of government policy since (OST, 2003).

Culture has a number of meanings and uses, often placed within organisation theory, and it is a "*slippery and elusive*" concept (Itzin and Newman, 1995, p12) as well as one of the "*spongier*" (Gerth and Mills, 1954, xxii in Greed, 1991) words in social science. I use it to try and indicate the "*climate and practices*" developed within SET and BE higher education that people experience, together with the associated values of the organisation (Schein, 1997, p3). With Morgan (1986, p112) I use it to "*signify that different groups of people have different ways of life*" as I try to discover the social realities of the women in my study. I attempt to uncover "*sets of taken-for-granted values, attitudes and ways of behaving, which are articulated through and reinforced by recurrent practices among a group of people in a given context*" (Becher and Trowler, 2001, p23) and in my case the BE department as part of UNI. Within this, I try throughout to acknowledge that diversity, difference and dissent should not be treated as "*problems to be ironed out rather than issues to be explored*" (Newman, 1995, p21). Newman claims that the management literature gives an over simplified perception of culture: it suggests that there are simple problems that require the application of an appropriate tool leading to an effective management culture. She suggests that cultures are more complex and multi layered. She raises concern that power is often neglected in analysis of culture, yet dominant cultural meanings can be sustained or if power shifts then they can be challenged (p28).

Strati (1992, p578 in Gherardi, 1995, p13) explains that organizational culture consists of "*the symbols, beliefs and patterns of behaviour learned, produced and created by the people who devote their energies and labour to the life of the organization.*" She mentions the physical appearance of members along with lifestyle and jargon used, which can be interpreted as an indirect reference to the sex of the members. Schein (1997, p8) lists the critical categories that

give meaning to culture, the signs and symbols that can be explored by a researcher examining any group (Table 3). I draw on these ideas in my analysis of the BE at UNI in Chapter Six.

1. Observed behavioural regularities when people interact: the language they use, the customs and traditions that evolve, and the rituals they employ.
2. Group norms: the implicit standards and values that evolve in working groups.
3. Espoused values: the articulated, publicly announced principles and values that the group claims to be trying to achieve.
4. Formal philosophy: the broad policies and ideological principles that guide a group's actions.
5. Rules of the game: the implicit rules for getting along.
6. Climate: the feelings conveyed by physical layout and interaction between members and customers.
7. Embedded skills: the special competencies group members display in accomplishing tasks.
8. Habits of thinking, mental models, and/or linguistic paradigms: the shared cognitive frames that guide the perceptions, thought and language.
9. Shared meanings: the emergent understandings that are created by group members in interaction.
10. Root metaphors or integrating symbols: the ideas, feelings and images groups develop to characterise themselves. This level of culture reflects emotional and aesthetic responses as contrasted with their cognitive or evaluative response.

Table 3: Cultural Signs and Symbols (Schein, 1997, p8)

My research aims to draw out the gendered aspects of culture, but as Itzin (1995, p 48) states the “*gender culture...is unarticulated and usually rendered invisible*”, or as Mirza (2006, p150) puts it, “*In our universities, diversity is skin deep*”. The “*gender dimension*” according to Becher and Trowler (2001) refers to the relative position of women to men in academia (p55). They note the double bind that a woman in a male dominated subject area faces (p56) or even a triple penalty (p152) of science, that is, not a suitable subject for a woman due to a perceived lesser skill in quantitative reasoning and discrimination. The absence of gender in studies of culture and curriculum has reinforced the continuing need for a feminist approach to the “*gender dimension*” in higher education (Bagilhole and Goode, 1998). Britton (2000) suggests that the way forward is to investigate whether and in what way occupations are feminised or masculinised and suggests that the participants themselves can provide a useful insight. She refers to Cockburn’s (1988, p38) view that we need to take account of the impact of the individual actor in occupational gender. Both of these ideas inform this thesis.

Itzin (1995) goes on to refer to 'extra-organisational' dimensions of culture and to explore the culture of society. The role and position of women in general society clearly impacts on the culture experienced within organizations and is relevant for my study of women in higher education and in particular the theme of a researcher wanting to bring about change. According to Oakley (2005, p189) "*despite legal changes, smaller families and improved educational and employment opportunities over the last century or so, marked inequalities remain between the social and economic roles of men and women.*"

Becher (1989, p1) specifically studied academic cultures and the relationship between the social aspects of "*knowledge communities and the epistemological properties of knowledge forms.*" Becher concluded that groups of academics representing a discipline are closely linked to the characteristics and culture of the professional knowledge domain with which they belong. In Becher's research he asked different disciplines about their perception of each other, drawing out stereotypical images of different academic 'tribes'. Engineers were seen as pragmatic, in touch with reality, but also dull, conservative, conformist, mercenary and unintellectual or hearty, likeable and enthusiastic. Sociologists were seen as pseudoscientific, dubious in methodology, highly politicised, very left wing, woolly in thinking, or friendly – "*a bit like Methodists*". The notion of lawyers was that they are not academic, but are vociferous, untrustworthy, arrogant, or impressive and intelligent. Becher acknowledges that these illustrations say as much about those making the judgments as about those within the disciplines; however they do provide a useful insight into the differences between academic disciplines. The academic discipline of BE may be harder to describe as it draws from a range of subject areas, however the culture of SET includes the pure sciences and engineering and BE includes a significant amount of science and law.

Becher and Trowler (2001) have since updated their study of academic cultures to include the fundamental changes to higher education since 1989. Clearly while their initial study concentrated on a traditional route to academia via undergraduate study, postgraduate study at a prestigious institution and eventually to faculty position, this route will only be applicable to a few within the greater expanse of higher education that now exists within the UK. The

original study drew heavily on the academic's role as a "*seeker of knowledge*" (p28), rather than on pedagogical aspects of the academic role, and the new study has been able to pay more attention to these areas. They have gone on to widen their study to the less elite institutions like UNI, as well as to provide some brief acknowledgement of other influences that impact on culture such as gender and 'race', acknowledged as absent from the first edition.

Four domains of knowledge were identified in Becher and Trowler (2001) within which to assign subject areas – hard pure (natural sciences and mathematics), hard applied (engineering), soft pure (humanities and social sciences) and soft applied (education, social work and law) with a series of descriptors to positioning. This framework further described in Neumann, Parry and Becher (2002) serves as a suitable reference against which to place the subject content of BE higher education as part of my research. The BE can be placed partly within the 'hard applied' and concerned with mastery (sic) of the physical environment and geared towards products and techniques; and partly within the 'soft applied' which is concerned with the enhancement of professional practice and aiming to yield protocols and procedures (p406). There is an acknowledgement of an oversimplification of the model in the context of growing diversity and complexity within institutions, but their basis for the definitions was soundly drawn from work by Biglan (1973) and Kolb (1981) and they have served a useful purpose in unpicking the culture of taught modules in UNI. Becher and Trowler (2001) accept that the cultures of applied domains are difficult to separate from their allied professional culture, and they are open to external influences, points which can also be applied within the BE (Greed, 1991). There are a number of other influencing factors on the academic culture, not least the way departments and faculties are determined and grouped. BE discipline areas can be positioned in different faculties which may in turn be dominated by any one of the four domains of knowledge identified previously.

Women's experience of SET higher education

The following list was given by Greenfield (p 39, 2002) as some of the negative aspects of SET higher education experienced by women students:

- low self confidence and low skills awareness

- pedagogy and gender bias in examples used in class
- few role models in lecturers
- modifying behaviour to fit in with male expectations
- work experience off-putting.

She remarks that the male-centredness of science needs to be changed (p69).

The arguments given by Greenfield (2002) could be challenged as being overly simplistic since other occupations where image and lack of role models such as medicine and law have started to appeal to females without visibly addressing similar barriers within the culture (Siann & Callaghan, 2001).

Paechter (1998, p35) asserts that the domination of masculinity in science is purposeful, in order to maintain status by the dominant group - men.

Having defined whatever is important in a particular society (and being able to do this because of their status as Subject); males are thus enabled to conduct their activity in such a way that is unwelcoming to females, who may have different ways of working.

Gehring et al (2002) prepared a report on the position of women in physics which pointed out the contributing factors that make physics an unwelcome choice for many women. They point to the perception of physics where the only 'real' professionals are male still holds sway (p11) and the consequence of being a female physicist in that environment, inevitably, means isolation. As the report says (p13)

Every girl who comes to university to study physics will have been experiencing...social pressure from the time they chose their A levels, but it will probably intensify during their university studies. They are used to it – but it probably contributes in no small way to the fact that girls are frequently reported as lacking in self confidence and are exceptionally vulnerable to negative comments from university staff.

Engineering continues to be quantitatively and hierarchically one of the most male dominated sectors of education and employment (Powell, Bagilhole, Dainty and Neale, 2004; Faulkner, 2005; 2006). In a study to establish whether the culture of engineering in higher education was permeated by the general perceived masculine culture of engineering, Powell et al (2004) found a range of attributes that contributed towards a student experience biased towards the male students. These aspects included classroom interaction and relationships between students and staff and students, that is, "trying to get the boys to listen to anything you're saying is difficult..." (p31); "now and then [male lecturers] make...female jokes but I wouldn't say they necessarily treat you differently on

purpose" (p31). Powell et al (p34) suggest that at an early stage of their career women may accept 'banter' but its future continual impact can contribute to disillusionment with engineering as a career. Competition, an individualistic approach and poor communication are also identified as masculine attributes of engineering education culture, together with the assimilation of women, who attempt to be 'one of the boys' and fit in with the culture. Miller (2002) in an exploration of the oil industry also found that women often adapted to fit in with the masculine culture they found, such that they did not even see the masculine behaviour as problematic. These findings suggest that it is essential to change the engineering culture in the classroom and to adopt a more inclusive culture throughout engineering.

The structure and curriculum of engineering education is heavily controlled by the professional bodies, as is that of the BE. Any change to the structure of engineering education, therefore is "*seen to be fraught with difficulties*" (Faulkner, 2006, p35) because the masculine employment culture is so strong. Faulkner's (2006) study of engineering culture found a rapid loss of confidence in ability of women students as they entered engineering higher education. She found that an acknowledged assumption that hands-on practical skills and knowledge were presumed, and that more men than women arrived with these. Both men and women students struggled with the mathematical content of courses, but the link to practical relevance was not always apparent, which impacted more on women students who professed a need to see the relevance of study in context.

Computer science is another specific SET subject area which continues to exhibit a similar masculine culture to engineering as well as an under representation of women students. Feminist studies of computing and new technology have identified the clear masculinities of IT, and women's under-representation has been associated with its cultural development (Wajcman, 1991; Woodfield, 2000). Clegg, Trayhurn and Johnson (2000) carried out a small scale study of gender in disciplinary discourse focused on entry to IT and design courses. Their findings confirmed the student perception of gendered disciplines whereby women were still choosing the softer end of computing and design. The workshop based courses were still viewed as male spaces with the

women as exceptions, and computing was experienced differently by women, who came to it later and less 'naturally' than the men. Ellen and Herman (2005) developed a computing course for women only in Microsoft approved training. They instigated support measures into the traditionally individualistic and competitive process to encourage a learning group. The women involved recognized that these support measures increased motivation and commitment and created a more relaxed and less competitive environment for learning, leading to improved success rates.

There have been many initiatives introduced at various times since the First World War to support women working in non traditional areas, to encourage more girls into SET or to try and change the culture of SET and BE. The interventions to date cover a wide range and include those that promote SET to girls and women but do not tackle any inherent negative aspects of culture. The interventions that try to support the women who enter SET may not tackle the unfriendly cultures outlined above, however they do provide a 'lifeline' for women who may be isolated providing mentoring schemes and female role models. (See Appendix Three). In a literature review for the UK Resource Centre for Women in SET (2008, p40). Bagilhole et al concluded that despite a number of positive interventions, "*the overriding conclusion was that women's career paths in SET organizations tend to be problematic.*"

The culture of the built environment professions

Schon (1987, p33) acknowledges that while practitioners of a profession differ from one another in subspecialties, experiences, perspectives and operation they do share a common body of explicit professional knowledge and a set of values and norms that help to determine professional conduct and practice. The culture of the construction and built environment professions is clearly not homogeneous and the sector continues to face change (Gurjao, 2007). The built environment professions are numerous and each discipline sees itself as "*distinct and particular, with a body of knowledge*" (Burke, 2003, p5). The separation between the professions in education and practice is longstanding and has contributed to perceived problems in industry and there have been many attempts by professional bodies to call for more commonality to enhance

the reputation of the construction industry as a whole (Burke, 2003). The history of the BE sector in the UK, its relevant professional bodies and its educational development provides a useful insight to the current BE higher education as experienced by women students at UNI.

The four main professional bodies (Institution of Civil Engineers (ICE), Royal Institute of British Architects (RIBA), Chartered Institute of Building (CIOB) and Royal Institution of Chartered Surveyors (RICS)) were founded in the nineteenth century and whilst they may have started as 'Gentlemen's Clubs' they soon developed as a means of safeguarding prestige of their members and protecting their economic interests. The hierarchies that exist today between Architecture, Civil Engineering and the other built environment professions were evident from the start, such that it is reported that only one of the first twenty men at the head of the RICS had been to a public school (Thompson, 1968). Bowley (1966) sets out how in the 19th century architects regarded themselves as concerned with a major art; engineers were associated with trade and industry and often regarded as socially inferior by architects. Surveyors were further down the scale and builders were little more than craftsmen. By the early twentieth century both architecture and civil engineering had become accepted academic disciplines in universities and colleges, whilst building and surveying had developed as applied vocational education or "*learning on the job*" along side part time study (Burke, 2003, p18). The issue of the first female membership of the RICS is mentioned in correspondence (Thompson, 1968, p319) from the Birkbeck Institution requesting approval for a Miss Beatrice Stapleton to enter for the examinations. The Institution Council was able to sidestep this enquiry because the applicant had to be employed as an assistant in a surveyor's office, and of course at the time this was extremely unlikely.

The institution finally opened up the profession to both sexes by changing its byelaws in 1921, at last recognising public opinion on women's rights. The first qualified woman member passed her examinations in 1922, and by 1931 a Housing Manager examination had been developed for a profession dominated by women. The continuing policy of professional examinations and part time study alongside practical experience remained for surveying and building

education until the late nineteen fifties / early sixties when national education policies were opening up opportunities in higher education to more young people (Burke, 2003). Many of these new courses sprang from engineering backgrounds and thus set their cultural alignment with technology rather than management, but the professional institutions sought to ensure that management and business became part of the educational content.

A gradual recognition that the status of the professions would only be enhanced if new recruits were appropriately educated and qualified ensured that entry requirements were raised. Following the Robbins Report (1963) and the Education White Paper (1966) higher education was expanded and new universities established, Colleges of Advanced Technology upgraded to university status (including Aston University in Birmingham) and more significantly Polytechnics were established. This boosted the academic status of surveying and built environment courses (Burke, 2003) while locating many of the courses in universities and polytechnics, outside the elite institutions. The cultural and social values of equality and diversity have become defining principles in BE higher education theory if not in practice (QAA, 2002), as courses continue to struggle to recruit women and ethnic minorities (Burke, 2003, p137).

“The gendering of work is particularly pronounced in the construction industry” according to Gale (1994, p11) and he found this reflected in higher education. The relationship between education and industry was studied by Dainty and Bagilhole’s (2006) research on women’s career progression with construction companies and is relevant here as work experience is a feature of BE sandwich and part-time courses. They found that at the entrance to industry (p103) younger women became disillusioned as they found a dissonance between education and industry. Construction higher education was found to provide a sheltered environment and women were unprepared for the sexist behaviour and harassment they encountered once in industry. Overall they found women progressing at lower rates than their male colleagues and also experiencing additional structural and cultural barriers. The transition from education to employment remains a significant point in the ‘leaky pipeline’ for women in SET and the BE (SHEFC, 1997; Jensen, Takruri-Rizk and Crossley, 2005;

Wilkinson, 2006) and interventions and research on employment culture in the sector continue to be needed (Gurjao, 2007).

Steele and Sodhi's (2006) examination of ethnic minorities in the construction industry found discrimination was embedded in the culture of a number of organizations, making entry and progression difficult. The issue of diversity within the BE professions has been raised by the work of CABE (2005) who commissioned research in the area and in a recent report by Construction Industry Council (2009). One of the key findings of the CABE study was that BME students' interest in built environment subjects was increasing but at the end of their studies they were more likely to choose employment in other sectors than white students. Other findings confirmed that there was little sensitivity to the differing needs of diverse students and a lack of a global perspective in the curriculum of higher education courses. The barriers to employment found in the research included a disadvantage to those who did not fit the existing model of potential employee, with evidence of stereotyping and discrimination, and for BME women a dual disadvantage.

Clara Greed's study of surveying in 1991 is still the most significant study of women in education and practice of the built environment professions. Greed's study was from a broadly feminist perspective and utilized an ethnographic approach, also drawing from her own experience as a woman in surveying, a senior lecturer in town planning. As part of her study she undertook a survey of the majority of institutions delivering surveying education; she also talked to course leaders and visited colleges and polytechnics (where most courses were based) to speak to lecturers and ex-students. Her findings on education were mixed, with academic results showing very little difference but some feedback indicating that the experience was not enjoyed (p103).

She highlights the variance in experience depending on class and individual characteristics as well as gender. The attributes studied included:

- atmosphere and territories
- the normal way of college life
- the role of women
- classroom interaction

- the subject of women
- views of other people
- and the subjects taught.

The territories she describes in the late eighties are generally male dominated, with little space for women and she found that northern courses were tougher with emphasis on “*real surveying*” and fewer women. The nuances within surveying are observed; with male housing surveyors and male quantity surveyors dressing differently. As Greed points out “*how to dress as a woman is a quandary when there are no women role models showing the way*”. (p107)

Aspects of the ‘crit’ session were found to be uncomfortable for the women students. This technique is a tradition in surveying and architectural education (and fine art) whereby students have to defend their work while it is “*torn apart by lecturers and rival teams*” (p112). This is another aspect of ‘voice’ as described in Chapter One. Recent research thirteen years on in architecture has also found that the ‘crit’ session needs adaptation and that bullying can occur as well as a perception that tutors are less critical of female students (De Graft-Johnson et al, 2003). The study supported by the RIBA (de Graft-Johnson et al, 2003) found a number of negative aspects of the working culture of architecture being exhibited within architectural education namely, the ‘crit’ system, the male dominated environment, a long hours work ethic and a lack of female role models were all present.

Greed also reports that she had many reports of sexist comments from the construction and technology lecturers (1991, p120) and she was not surprised by this. What she found surprising was that the women took it in their stride as an occupational hazard. Her conclusions were that male lecturers wanted more women on their courses, but did not know how to treat them when they arrived. They saw them as the same as the male students or as stereotypically different. Further she acknowledged the complicated nature of the sub-culture women found themselves in; as one black women surveyor said “*when they are rude to you, it’s difficult to know if it’s because you are black, female or they have had a bad day*” (p185). Paternalistic attitudes and “*patronising niceness*” also featured widely.

Srivastava (1996) explains that pedagogy in building education is “*gender-blind*” and does not even recognize the gender-exclusive curriculum usually offered. She argued that tutors lack the knowledge and understanding to tackle the relationship of gender in the curriculum. Whilst this may be the case in general built environment courses it is possible to find areas of an inclusive approach. Planning and design are two specific areas of the built environment curriculum where an inclusive curriculum have been evident, often being built on the knowledge and beliefs of academics and practitioners with a feminist perspective (Booth, Darke and Yeandle, 1996; Whitzman, 2006) and more lately fostered by way of the Subject Centre for Built Environment (CEBE, 2003) through a special interest group. Gale (1994) found that the mode of a course was less important than the dominant culture in the department, but also that the culture of a department almost attracted students who fitted in with the culture, thus limiting any potential for change. As claimed in engineering (Faulkner, 2006) the control of the curriculum and structure of built environment courses by professional institutions is considerable (Burke, 2003). However an examination of the various Subject Specifications (Construction, QAA, 2008; Architecture, QAA, 2000; Architectural Technology, QAA, 2008) allows a very broad scope for curriculum as well as delivery and assessment providing course designers with plenty of potential for inclusive and women friendly courses. The measures introduced by the RICS within Agenda for Change, following the Engineering Professional Institutions to try and raise entry qualifications have restricted access to non traditional students (Wilkinson and Hoxley, 2005) without A levels, and was seen by a number of academics as a backward step.

Greed reflects on changes in the industry more recently (1999, p186) where she described the built environment professions as

a spectrum running from the so-called soft end where the more socially related specialisms are found such as housing and town planning; through the middle territory where the more glamorous areas of commercial property development, architecture and elite engineering specialism are located; through the smoothy realms of construction management, and quantity and building surveying; and out to the furthest outposts of rough hard techno-macho building professionals, where men are men and only a handful of women are found.

However, as she admits, on further exploration the assumptions about hard and soft are not now as clear as first sight suggests, and change has occurred in different areas for various reasons over time. She gives the example of the change of minerals surveyors; as exploiters of the earth, only 6 found in her research in the eighties, to 36 in this latest research in 1999 who speak with enthusiasm about their role as “*custodian and earth-carer*” (p186) – a move from an aggressive and ‘masculine’ focus to a softer, ‘feminine’ and caring role.

A small study undertaken by Buxton, assisted by Turrell and Wilkinson (2004) explored the culture of building conservation and contrasted it with the culture of construction to try and ascertain why more women found building conservation attractive. Buxton found more attributes that could be described as ‘feminine’ such as patience and attention to detail attracted women but she also found attributes such as problem solving, practical and out of doors work frequently mentioned that are also common in other parts of the built environment sector. However, studies continue to find evidence of an unfriendly work culture for women who work in the BE sector (Sharapov and Tizzard, 2008; Watts, 2009). The studies of culture in BE partly reflect those in SET that are seen to discourage women, but there is also evidence of a more complex culture that reflects the broad spectrum that describes the BE as well as the variety in the status of the BE professions.

Summary

An examination of culture in the area of BE higher education to unpick the gendered aspects is not an easy task. Cultures are multi-layered and complex. This chapter has provided an overview of the changing contexts and discipline based cultures within higher education that teaching staff have to adapt to and that students experience. The move to mass higher education has coincided with a general continuing rise of women entering university. However behind the over all increase, barriers remain for women students who come from non-traditional backgrounds and the impact of ‘habitus’ (Bourdieu, 1990) is a continuing theme. Thomas (2002) in her study of non-traditional students identified a framework of positive attributes for higher education which serves to aid the data analysis within my own research.

The cultures experienced by women within different SET and BE subject areas have been unpicked to show some of the difficulties faced by those who choose the male dominated domain of SET and BE higher education. The small number of women who continue to enter into SET and BE higher education do so as a clear minority and they continue to experience cultural problems within higher education and as they progress to the workplace. Whilst there is evidence of change since Greed's study in the late eighties and some evidence of practice that encourages and includes women, this is not the mainstream experience. A focus down onto the BE sector has identified the historic influence of the professions on higher education as well as the varying status of different groups within it, whereby many BE surveying and construction courses have been placed within the 'new' university sector, where teaching has a higher profile. The research reveals considerable evidence of widespread negative experiences for women and ethnic minorities that contribute towards the 'leaky pipeline' (SHEFC, 1997).

Chapter Three

My Story

Introduction

Utilising the researcher's personal history is a distinguishing feature of feminist research (Reinharz, 1992) whereas in mainstream research personal experience is irrelevant. Personal experience is deemed to contaminate the objectivity of a project, but can any project be totally objective? Any consideration of sociological theories has to consider where the theories have come from. Subjectivity creeps in through the researcher's status, funding and personal standpoints. Many feminist researchers describe how projects stem from their own lives. As Reinhartz says (p258) "*I believe in the value of this approach and thus I have written in the first person singular...and have mentioned aspects of my experience while working on this book.*" Weiner (1994) explains that autobiographical accounts can help in furthering understanding about how historical events have impacted on the research as well as the researcher. This chapter therefore serves two purposes, the first is to locate the researcher's experience against the findings and the second is to provide a background to the place of women in the built environment over the last 40 years. As Weiner states (p11) at the beginning of her autobiographical chapter, she can be "*challenged on the grounds of interpretation and meaning rather than on the basis of falsification of a fixed 'truth'.*"

This chapter sets my experiences in built environment education as a learner, as an academic and in mainstream employment against the cultural and political developments and changes in order to understand the research findings as well as the broader cultural context that is built environment higher education in the 21st Century.

Pathways and arrival

Born in the early fifties I grew up in a working class family in a large industrial city. My family has been tremendously influential in my attitudes to education and to my political views of a woman's place. My mother had taken the secondary examination but the family could not afford to pay for her and had

told her that her brother's education was more important. In the inter-war years the large majority of working-class girls never progressed beyond elementary school (up to 14). Secondary education was fee paying with even state grammar schools charging fees (Beddoe, 1989). She had left school without qualifications and her employment history consisted of factory work, shop work and cleaning. The education received by girls was purposely designed to turn them into wives and mothers, with a significant amount of school time spent on domestic science and childcare (Beddoe, 1989). She was determined that I would do better. My father had also left school at 14 to become an apprentice toolmaker and was always keen to encourage my interest in technical things. He could have progressed in his technical education to become qualified but in 1939 outside events intervened and education took a back seat for the war effort. He addressed gender stereotyping without thinking about it, he was as comfortable in the kitchen helping my mother as he was in sewing (he had been taught by his own father) or repairing motor bikes or anything else mechanical and electrical. Both my parents believed in the power of education as a means of progression for their children even though they had very little knowledge of how to make the best of education and my brother and I were considered equally important in our career aspirations, receiving constant encouragement and support.

I passed my 11 plus with flying colours and was admitted to my first choice girls' grammar school. Knowing little about grammar schools my parents suggested we put the girls' version of the boys' grammar school my brother had attended some years before as first choice. This move to grammar school separated me from many of my school friends, most of who went from our local Junior school to the nearest Secondary Modern (or Bilateral as it was called) or the local Grammar if they had passed the 11 plus. I went to a new school in a location a good bus ride away without any understanding of what sort of education faced me.

Single sex education frequently features as a consideration in the encouragement of girls into non traditional subjects. A study in 1975 (Ormerod and Duckworth) and later studies (Stables, 1990 and Elwood and Gipps, 1999) found evidence to suggest that attitudes to science of girls and boys are more

polarized in mixed schools than single sex schools. In a recent literature review of girls and physics Murphy and Whitelegg (2006, p32) found that there is evidence that teachers in single sex schools have higher expectations of girls' performance in science and mathematics. My own experience at the girls' grammar school was that there were certainly no attitudes that discouraged the sciences compared with the arts and humanities. However, the choice of '*technical*' subjects available was severely limited. The traditional girls' subjects of home economics and needlework were the only broader life skills in subject areas taught. Harding (1991) talks about schools in Britain before 1975 and the evidence there was that girls' education was less valued than boys' education in the provision of facilities. She explains that fewer science laboratories were evident in girls' schools and that only girls' schools and mixed schools possessed home economics rooms whereas only boys' schools and mixed schools had technology rooms or workshops (p33). Other than home economics and needlework, my school had a very academic approach to education and also a severely restricted view of careers suitable for girls. I remember that when I had decided that I hated the place so much that I did not want to continue beyond 16 they were at a loss as to what to suggest. The main career advice from the school itself was to go to college and probably become a teacher - a good career for a girl. The attitudes of the teachers and the background of many of the other girls added to a feeling that I did not belong - class was significant here, with very few girls from similar backgrounds to me attending the school. My political awareness of class and the influences thereof grew mainly as a result of my grammar school experience. The whole idea of the school felt wrong - girls were obsessed with boys because they had no access to them, yet we could not relate to boys as friends because we did not meet them in day to day situations. As Sharpe (1986, p214) put it "*boyfriends feature heavily in the thoughts and activities of teenage girls whether or not they have actually got one.*" Privilege and access to money were part of the culture - where school trips were Cruises in the Mediterranean or Skiing in Switzerland which were totally out of the question for my family and others like me.

Although I hated the school atmosphere I did thrive academically. For the first 3 years I was near the top of the form every year, in the top set for all subjects

and was Form Captain. My fourth year found me rebelling and my reports suggest that although still performing well, I was not trying my hardest. As I had made the decision to leave after O levels and make my way in the world, an outside local authority career adviser was brought in to help me. This was the key turning point for me.

Contrary to the general perception that careers advice has not helped girls into non traditional careers (Rolfe, 1999), this adviser asked me about the subjects I liked (art, mathematics, science) and gave me information about becoming an architectural technician. I had never even heard about this job role. She gave me literature and an Architectural Technician Association to contact to talk to people. I was convinced this was right for me as soon as I had found out what it involved and buckled down to ensure I got the right results to get into the Ordinary National Certificate I would be studying if I could find an architectural practice to take me on. This was in 1969, before the Sex Discrimination Act and the Equal Pay Act (1975). While there was a general drive towards rights for women via the women's liberation movement nationally there was little evidence of this in searching for an architectural practice to take on a girl as a trainee architectural technician. I totally lacked any awareness of the barriers to me as I wrote to various architects or arranged to speak to them about taking on a trainee. The usual response was firstly a failure to understand why a girl would be interested in such a position and secondly there was no reason they would want to take on a girl.

I was not downhearted in my search for a position. I contacted the Society of Associated Architectural Technicians (SAAT) and discussed my problem with the Secretary who worked for the Ministry of Public Building and Works (MPBW), part of the Department of the Environment. This was how I discovered a wonderful training scheme for architectural technicians being run within the city. I applied, got an interview and was welcomed with open arms. They had equal opportunities policies and women were already working in their drawing offices. We had equal pay and pensions well before the legislation of 1975, a policy I have benefited from ever since having remained within the public sector.

Difference and belonging

My training and vocational educational experiences from here onwards were positive. The Drawing Office Training Unit that I was part of was inclusive, stimulating, supportive and it created a community of men and women in the built environment that have gone on to a wide range of roles as architects, surveyors and engineers as well as moving into academia. I certainly did not follow a normal career path even once I had entered this environment. I became pregnant, got married and had a baby in the first year of my training, and the support and encouragement around me to continue my career was complete. My mother, after expressing her huge disappointment in me, was most determined that now I had embarked on this path she would support me in any way she could, and in fact she provided the childcare for my son for his first year. Looking back on this, the attitude and behaviour of my all male colleagues at work and my all male co-students and lecturers at college was quite different to some of the horrendous stories I have heard about since and up to present day (Greed, 1991; De-Graft Johnson, Manley and Greed, 2003; Dainty, Bagilhole and Neale, 2004;). Without this positive support around me from all sides I may well have become part of the 'leaky pipeline' (SHEFC, 1997).

Sandbrook (2006) describes the girl of sixteen in 1970 (p704) as

more likely to pursue her own intellectual and cultural interests for as long as she liked, to marry when and whom she wanted, to have children when and if she wanted, and above all, to choose whether she remained at home as a housewife or pursued her own career.

I was eighteen in 1970 and certainly had no intention of becoming a housewife, but not just because I chose not to, but because it was never an alternative. I was the major breadwinner in the family and I knew my career was vitally important to me. This did not mean my son was less important than my career, I can honestly say that I never felt that I had to choose. Looking back, this may be because the public sector workplace espoused values that considered people's home life as well as their work-life.

Meanwhile in the world outside Labour had been elected into power in 1974 and the context was set for the pressure groups lobbying for anti-discrimination

legislation to achieve change (Rowbotham, 1999). The Sex Discrimination Act and the Equal Pay Act came in during 1975, and the Employment Protection Act (1975) made paid maternity leave a statutory right, made dismissal on grounds of pregnancy unfair and required employers to give mothers their jobs back within twenty nine weeks of childbirth. The Equal Opportunities Commission (EOC) was introduced by the Labour Government in 1975 (Rowbotham, 1999, p405) but was not as powerful as it might have been but according to Rowbotham, the Guardian called it a " *rather wet lady-like body too concerned with holding its skirts down against the rude winds to have a go at entrenched masculine strongholds.*"

My new found independence as a wage earner together with a passion for my education, training and the work I was doing seemed to fit very well alongside my role as a mother. My husband and I were both young and family and friends all helped us in getting ahead in career and education. By 1974 I had completed my ONC and a higher national certificate (HNC) and was working as a fully qualified architectural technician within the Property Services Agency (PSA) which had evolved from the MPBW. The training officer asked me if I wanted to progress to university in which case there may be support from the PSA and I could hardly believe my good fortune. I had by this stage of my career realised that I wanted to be a chartered building surveyor and to do this I needed a degree and a professional qualification and training. In 1974 there were very few universities offering Building Surveying as a degree (Burke, 2003) and because I was tied to my home city with my son, then 4 years old, I opted to go to Aston University to do a BSc (Hons) Building sandwich degree, taking unpaid leave for the duration of my studies. University life as a mature student was probably very different to that experienced by someone straight from school. There were however a number of other mature students on the course, all male who felt that education was wasted on the young and who shared my interest for education and the subject area, so we got on very well. I was able to gain the best of both worlds during my university years. I entered the second year of the degree with my HNC and my son attended a wonderful university subsidised nursery where he had a great time. I was supported in my time at university on a full grant from the local authority, whilst I was able to earn a very good wage at my normal grade at the PSA during my holidays, and

I gained valuable experience on work placements in the building industry provided by my employer the PSA. The value of such an experience is still appreciated now by those who shared with me the investment in training as well as the investment in equal opportunities. Many of my then colleagues have gone on to establish careers across the built environment, often in academia, like myself. Feminism as an issue to me did not seem to be a high priority. I remember I once attended a 'consciousness raising' group at university, but they were middle class seemingly 'spoilt' young women with whom I had nothing in common, so I never attended again. I read Spare Rib but my politics were more focused on class, socialism, CND and anti racism than gender.

The teaching experience at university was variable, including inspiring young lecturers who made study real and exciting – drawing on aspects from outside the built environment to aid understanding e.g. the car industry in management. Other lecturers had no idea of what teaching and learning meant and just worked flatly through a prescribed curriculum. I remember our computer studies tutor rushing so quickly through the content that he went through it again to fill the time. The course allowed an option to be taken outside the core curriculum and I was able to take an English Literature module, where I met new students male and female, and was taught by a woman. I was able to take carpentry and joinery as an evening class at the university which in the current world of higher education is hard to believe.

On completion of my degree I was offered a job in Nottingham with the PSA and being the major breadwinner I moved to Nottingham with my son, while my husband completed his studies at university and then later moved away from us. I became a homeowner for the first time and continued my full time working life as an architectural technician looking to become a chartered building surveyor. At this time I first experienced the difficulties that go with managing childcare and a full time career without the safety net of family support. I did not drive and the negotiations for some sort of flexibility to a standard day of 830am to 5pm with my line manager were difficult. Flexible working for those with caring responsibilities remains an aspect of employment to be fully embedded (Greenfield, 2002). Once I had settled in however, and learned to drive I was able to continue my education part time again with support from my employer,

the PSA and I became a Chartered Building Surveyor in 1981. There are still relatively few women Chartered Building Surveyors even now (approximately 10%, RICS) and in 1981 we were in sufficient short numbers to be made particularly welcome when I attended a reception for new members at the RICS headquarters in Parliament Square with my mother, who was very proud of my achievement. The first woman member joined the RICS in 1922 and in a survey undertaken in 1990 (UK Inter-professional Group) there was only a total of 5.7% women members of all divisions (including minerals surveying where women are not permitted by law to be employed underground). It was admitted at this time that there had been no breakdown until then of members admitted by sex.

My employer, the PSA and the Civil Service in general experienced an all out attack by the Thatcher Government policies to reduce the role of the public sector (Piper, 1995). The Civil Service Unions including my own union the Institute of Professional Civil Servants (IPCS) took a range of industrial action against their employer during these years in an attempt to protect union membership rights. The drive for privatisation of the public sector estate management at this time was unstoppable and all members of staff were encouraged to leave by a top down message that there was no future for the department. In 1993 the Tories broke up and sold off the Civil Service estate manager, the Property Services Agency (Foster, 2005)

I had moved out of the Civil Service before this stage, recognising the signs and seeking a change and an opportunity for advancement. I joined Nottinghamshire County Council Building Surveyors in 1987 as a team manager and later gained promotion to be a Divisional Surveyor in 1991, overseeing one third of all county public buildings, with a staff team of over 30 including surveyors, engineers and support staff. The working culture in the public sector remained generally encouraging to women and my immediate superiors were always supportive of me. Itzin (1995) sets this in context of the demographic downturn as a result of the reduction in the birth rate in the seventies. As she explains, the resultant skills shortage meant that public and private employers began to take an increased interest in recruiting and retaining women (p137). Women were still very scarce in technical roles, there

were no other women working in technical roles in my team, but there were two in another office, and about one third of the architects' team in County Hall were women. The group of middle managers that I was part of when I joined were young and motivated and we were able to take advantage of a commitment to career development in the authority that provided both management training and self development groups. The self development group I was part of was particularly helpful as a means of support outside the workplace, consisting of a varying group of managers with an expert facilitator to draw out issues of concern to individuals. This sort of staff development support from an employer was cutting edge (Langford et al, 1995) at the time and looking back this clearly helped me in establishing my position and confidence in that position.

During the time at the county council I was also nominated for the East Midlands Business Woman of the Year. Awards were seen as away of raising the profile of women who were making it into the business world, yet in 1988 (p 495, Rowbotham, 1999) women made up only 6 per cent of directors and 10 per cent of senior managers in Britain.

I was able to use my position to organise a Women's Day event for all women in the Architects' Department with the help of Human Resources and the Equality Office to build understanding between technical and administrative staff as well as to explore more general women's issues current at the time including safety at night. We were able to appoint our first female placement student while I was there, a black female building surveyor who was studying at Salford University. I have kept in touch with her since her time as a student and she was willing to act as a role model in an EOC campaign to encourage more women into construction in 2005 whilst working in a local university estates department.

My activity within my professional institution, the RICS has remained important to me since gaining my 'letters'. With a lead from the County Council Chief Building Surveyor who was my line manager, we set up a local branch of the Building Surveyor Division in the late eighties and my involvement in local, regional and national committees within the institution grew since that time.

The institution as an organisation with over 100,000 members worldwide is influential in many ways by steering the education, qualification of surveyors. The RICS is also a powerful lobby within the built environment education and employment sector.

My role managing one third of the county public buildings was stressful but rewarding. We had insufficient funding to carry out building maintenance on public buildings that was really needed and our client group – teachers, fire-fighters and police were demanding. I was responsible for a large team of staff and a considerable budget. I was also responsible for ‘out of hours emergencies’; disasters such as flood damage and call outs from the fire brigade across the county. There was a tremendous feeling of satisfaction from the work and I had a very strong team around me, but I was at a stage in my life when I wanted to do something different.

The eighties provided a culture of individual expression, and whilst this allowed some women to escape from limiting jobs and enter new training, it also removed some of the protection for employees in the private and public sector. By 1986 there were equal-opportunities policies in over 200 local authorities, with many following the example of Women’s Committees set by the Greater London Council (Rowbotham, 1999, p485). Margaret Thatcher was Prime Minister and “*was more likely to idealise the housewife than the working mother*” (p472, Rowbotham, 1997).

Magazines like Spare Rib would ensure that I kept my political awareness of gender issues and London based women’s groups were being supported to tackle occupational segregation and promote the built environment to women. I still have a brochure produced by Matrix Feminist Architectural Co-operative Ltd from 1986 entitled “*A job designing buildings: for women interested in architecture and buildings*” and a similar sister brochure called “*What we do...technicians in the construction industry*” both have a wide range of role models from diverse backgrounds. It is hard sometimes to understand how some twenty two years on we are not further advanced in equality of opportunity, yet an indication of the problems is seen with the note in 1993 that all funding for the schemes was withdrawn.

Women were at the front line again in protesting about political directions of the time, with the majority of women opposing nuclear proliferation and support for United States bombing of other states like Libya in 1986 (Rowbotham, 1999). The long and bitter experience of the miners' strike of 1984-5 was felt hard in Nottinghamshire where I lived. A number of my close friends were involved and the experiences of women who came through that period contributed to a number of initiatives that gave working class women independence including the Nottinghamshire Women's Training Scheme that would later join in the Let's TWIST partnership referred to in Appendix Three.

In 1991 I decided that I wanted a change and I followed up a recruitment drive for lecturers at a local polytechnic (becoming a university (UNI) in 1992). I decided that I wanted time to reflect and the idea of education appealed to me, giving me time to think and do research as well as teaching. Greed (1991, p98) suggested the need to examine the position of women lecturers in surveying education. She refers to the positive aspects of women using their position and influence, but she also comments on the perception that women in education may be seen as "*second best*" by not competing in the private sector. For me, this was a sideward move, but I thought I would have a less pressured work environment with increased quality of life. My time at UNI has been the most enjoyable and the most challenging from a gender perspective. It was here that I shared an office for the very first time in my twenty year career with another female building surveyor. We became very close friends and have continued as close colleagues and friends ever since even though she has moved on. The building surveying team was a very close group for a number of years in the early nineties.

We were enthusiastic teachers, we had varying backgrounds and we brought a very positive hands-on approach to teaching and learning in the courses we taught. My female colleague and I were very keen to try new ways of delivering the curriculum learned on our teaching course and we were also involved in gaining a research qualification. On reflection our focus on '*playing the game*' and seeking further qualifications was a common aspect of women's career paths, that is, while we gained qualifications, others gained promotion (Itzin,

1995). Saunderson (2002, p376) looked at the position of women in academia and found that women's identities were "*compromised, challenged and made vulnerable.*"

I was surprised by some of the attitudes to women in the department outside of our own team, which appeared to me to be more backward than I had experienced in my career to date. There had only ever been one woman lecturer prior to our arrival, and we were told that she got fed up of being isolated and left in the end to seek a more balanced workplace.

Other examples of actions that gave an indication of the culture we had entered included:

- A female academic was appointed from another university to manage one of the construction teams just after I had arrived, yet she never actually took up the post. Rumours spread that the reaction had been so hostile from the team to a woman being appointed as a manager that she had withdrawn. The rumours were not confirmed.
- We were called "*the girls*" whenever we were addressed by certain members of staff in the common room and our names were mixed up, not because we looked alike – but because we were both women.

The issues had been recognised by Human Resources and a staff development day examining Equal Opportunities was arranged. I was able to suggest a male speaker who had considerable experience in this area, and he was well received. However a single comment made by one male member of staff was enough to highlight that the department had a problem with its culture. A senior academic stood up and said that women were not meant for full time work – that their biological make up meant that they could only work part time – and therefore this would always limit any access to career progression.

Culture and change

I referred to the problems women face in academia in Chapter Two as acknowledged by Becher and Trowler as the "*double bind*" (2001, p56). While Greed had identified the number of women moving into surveying education (1991) the culture that we found was not always women-friendly. We

did not feel isolated mainly because there were a number of very supportive male academics within the department.

I was keen to make gender visible in the curriculum through my teaching in various ways similar to Booth, Darke and Yeandle (1996). I led the management module for the final year of the building surveying degree and was able to include discussion on why there were so few women in surveying; to discuss equality and ethics in surveying. I also introduced assessments that encouraged reflection on practice and experience and can still remember one young male student reflecting on the role of his mother at home! As a building surveying team (four chartered surveyors) we consciously ensured that case studies were not male dominated or stereotypical. As female role models, my colleague and I were very different from each other. She had two small sons, while I was now a 'mature workaholic' but the students responded well to the both of us and some male students admitted that they thought that building surveying was like university i.e. 50/50 male / female until they reached the workplace. Having female lecturers has been reported as encouraging for new female students and Open Days and Induction Events have received very positive feedback – with women being able to see those who have made it themselves.

Meanwhile there have been other aspects of the culture of the department that have been unhelpful to a conducive workplace for lecturers such as persistent bullying, racism and sexual harassment. The lack of promotion prospects were frustrating and although, finally, my female colleague and I achieved a temporary job-share promotion we eventually felt we had no choice but to find an exit route. The benefit of being a lecturer in higher education is that when things do not go well within your department or group, you do have the academic freedom to get involved in activities outside the university. This is what I did for my time in the department.

By working on my research area I became involved in national activity within the RICS and joined the Building Surveying Divisional Executive as well as becoming Chair of the Practice Qualification group for Building Surveying. This gave me opportunities to influence policy and project a gender sensitive

perspective at entry to the profession and towards practitioners. I was also elected Chair of the Branch which I thoroughly enjoyed. The attitudes shown outside the university in practice and at the institution were welcoming and showed little evidence of the archaic views to women in work held by some academics. Louise Ellison carried out research for the RICS in 1999 and found that although the numbers of women entering the profession were increasing, only 300 female members had progressed to fellowship. I applied and was accepted as a fellow in 1999. Ellison (1999, p33) also found that men find it easier to gain promotion without necessarily having to apply for it.

In 1998 I was invited to become involved in a project that was trying to improve the entry and progression of girls and women in construction and engineering. It quickly became clear to me that the position in further education for women studying construction and engineering was isolating and extremely difficult. The stories told by women were of harassment from tutors and male students. This was a surprise in a way because my own learning experience had been so different, yet I had also experienced a more subtle unfriendly culture as an academic. The project quickly gave me a focus for development and as a team we developed a holistic approach to encouraging girls and women into non-traditional careers, education and training. We developed the training for use in higher education. Those staff that had been so influential on the culture when I arrived had mainly retired or moved on and the influx of more women and younger family friendly men over time meant there were enough of us to pose an alternative culture some of the time, although elements of the behaviour continued. The small number of ethnic minority staff that worked in the department were also treated differently and were often disregarded for promotion and progression opportunities, and this helped us to form an alliance of 'others' (Paechter, 1998).

The small group of women and men were able to offer mutual support at times of difficulty, but the behaviour of some individuals in the department has continued over time and has been typical of a 'macho' and male dominated culture. The typologies identified by Parkin and Maddock (1995) such as the "*barrack yard*" (p73) and the "*smart macho*" (p 76) were present in the department, but they were subtle and manipulative and hard to actively

address. The personal feedback of such behaviour in stories from women lecturers as well as being a witness to bullying of a female colleague showed me that further education culture might be different and visibly distressing but that the issues were still present in higher education.

The entry of Tony Blair's Labour Government in 1997 brought a number of positive initiatives for women that I was able to benefit from. With gender now being part of the mainstream policy for government, and funding on a considerable scale being allocated to try and improve the position of women in science, engineering and technology, I was able to move from teaching within the department to being full time on project work in a team where my work colleagues were women! Changes later on in 2004 in the university structure found our team eased out of the BE department to be part of a research institute that shared our focus on the outside world and had a different and more positive culture.

The time was right to drive forward and try to achieve real change for the better. My work has enabled me to take forward positive action to encourage women into surveying by means of short courses which form a bridge to mainstream courses. I act as a mentor to women students who are experiencing difficulties progressing or who may just need to talk to someone that is friendly and knows how systems work. These students who need support are often, but not always those who have not progressed through the education system in the 'standard' way. They are returners, mature students, women with children, black and ethnic minority women, and women without formal qualifications. I do talk about my early experience to new groups of women students on our courses and it seems to be of interest. We run networking social events for women students across SET and BE and while the numbers attending are not huge, the need for contact with other women in technical subject areas is clearly evident.

Reflections

My work and life is now a long way from where I began in that Birmingham council house. I have benefited from higher education and equality of

opportunity at all the significant stages in my life, being a member of a professional institution and being able to influence those entering careers and education.

Weiner explains (1994, p 24) how she came to realise “*that women can be as much divided by class, ethnicity, religion etc. as they are bound together by shared experiences of, say domesticity and motherhood.*” I now recognise that the early influencing features of my experience described in this biography have emphasised that while gender can bring women together, the classed experience of women continues to mark them out as different and unequal when it comes to the experience of education – at school, college and higher education. This experience may well occur at entry to any higher education course, but when women from working class backgrounds undertake non traditional subjects such as BE they are likely to experience a double count of disadvantage.

The values of the public sector work place supported and nurtured my career development in a way that is no longer possible for the majority of women. Further I was able to take maternity leave and return to full time well paid work straight after my leave with full reliable childcare in place for my son, unlike many women (Jacobs, 1999). The Thatcher era contributed to a dismantling of the supportive workplace that I experienced, where women were encouraged to progress up the career ladder. Short term funding for initiatives and constant worries about the longevity of schemes and projects has been prevalent since the nineteen eighties. The Labour Government has initiated employment policies to support women in work since 1997 and it has invested considerable funds to address the inequality women face generally in the workplace as well as specifically in SET. Being part of this is certainly rewarding and the policies made have supported some change, however the public sector values that I benefited from are being fought for all over again. My experience tells me that at the individual level, women often struggle in different ways to enter and progress in higher education and the BE careers they have chosen.

Chapter Four

Methodological Considerations

Introduction

This chapter sets out the methodological considerations undertaken that have informed my methodological approach to my research. I consider and defend a feminist approach to action research. My study is concerned with diverse voices of women and the chapter explains how the intersections between 'race', class and gender need to be addressed within the methodology. The chapter goes on to explain the adoption of a 'new paradigm' (Reason and Rowan, 1981) collaborative methodology as the appropriate choice to meet my research aim as an involved researcher with concern for the topic and the outcome, together with a view that the research should contribute to change in practice. I discuss these methodological perspectives and indicate their relationship to and impact on the research.

Feminist research

Feminism and feminist social research raises the question of identity and difference, and has come about partly because traditional sociology has been seen to fail women. Mainstream sociology is seen as subjective since it is written from a male perspective, and feminist sociology 'insists on the value of subjectivity and personal experience' (Black, 1989, p75).

As Stanley and Wise (1993) assert, there is no point in rejecting sexism and male versions of reality if more subtle similar versions are reinstated, that is, an obsession with objectivity and reason. Stanley and Wise call for subjectivity not objectivity, emotionality not rationality, and experience rather than experiment. Although there are many different voices within the debate, the unifying issue is the women's movement: "...*the very act of being a woman in the arena exposes the realities of the personal being political*" (Truman, 1994, p 23). The personal being political is a constant reference point, as Stanley and Wise declare in their introduction to '*Breaking Out Again*' (1993, p1)... "*for academic feminists, 'research' and 'life' should be neither compartmentalised nor*

analytically unpacked using separate intellectual means". Stanley and Wise in 'Breaking Out' in 1982 wanted to explore their own identities within research. As working class women in academia via adult education, as lesbians, and as northerners, they felt outside the mainstream. They argued that traditional qualitative methods can maintain the separateness of the researcher, and that the researcher should be an agent and an active presence.

The validity of Stanley and Wise's assertions was questioned at the time of writing (Hammersely, 1995) and challenged because it was outside the accepted '*mainstream*' of feminist social science. The response to these criticisms comes in the second edition of the book in 1993, and is typically robust:

...acknowledgement of the contextual specificity of feminist as of all other knowledge; recognition that who a researcher is, in terms of their sex, race, class and sexuality, affects what they find in research is as true for feminist as any other researchers: these and other components of feminist epistemology emphasise the necessarily ontological basis of knowledge-production. (Stanley and Wise, 1993, p228)

What they were asserting is what has since come to be part of the debate. Women are not a single category and cannot be allocated a single voice, and to deny difference and diversity is as much an oversight as the previous sexism of male research. In addition, there is no need to have a single feminist method of research. Feminists will use the method appropriate for the study as any other researcher. However, feminist perspectives of research do have a commonality that cannot be subsumed within other versions of reality and epistemology. Feminists do not research women to avoid being sexist. Rather, women are important subjects in their own right and women researchers can bring a shared experience to aid understanding. I adopt Reinharz' (1992, p6) first definition of feminist research methods which is "*feminist research methods are methods used in research projects by people who identify themselves as feminist or as part of the women's movement.*"

The understanding and use of the term feminism, particularly in relation to social class and 'race', has also been contested (Reinharz, 1992; hooks, 1984). The recognition that women who were black and working class were not going to get equality in a white capitalist hierarchy introduced an additional

revolutionary theme to aspects of feminism (hooks, 2000) and for some an alienation from feminists who were seen as academic and middle class. As hooks (2000, p5) explains, a liberatory feminist message was not reaching mainstream women: *“they have not rejected its message; they do not know what the message is.”* Skeggs (1997, p140) in her study of class and gender submits that *“feminism has never been universal...being spoken by specific interest groups, and usually those with class and race privilege.”*

Intersectionality is a term originally used by Kimberlé Crenshaw (Davis, 2008) to address the experiences of women of colour that were falling between anti-racist and feminist discourse. As Davis (2008, p68) states it is now unthinkable that women’s studies would only focus on gender and anyone that does so runs the risk of being labelled as *“theoretically misguided.”* However while the term, intersectionality is now part of feminist theory, there is debate about whether it is a theory or a methodological tool or both (Bagilhole, 2009). There is also debate about how intersectionality works, whether it is a *“crossroads”* as *“axes of difference”* or as a *“dynamic process”* (Davis, 2008, p68). Davis goes on to express some of the concerns experienced by feminist researchers drawing on intersectionality – about not being sure where to begin or what to do after they have asked the question. Davis goes on to assert that intersectionality is a good feminist theory because it initiates a *“process of discovery, alerting us to the fact that the world around us is always more complicated and contradictory than we ever could have anticipated.”* . I concur with the approach that *“women’s lives are important”* (Reinharz, 1992, p241) and that feminist research should contribute to social change for all women, contributing to direct action. This led me to an action research approach but since I have a special concern to ensure diverse voices are heard within my research I draw on the concept of intersectionality to focus on the complexities of different women and their different experiences. In trying to understand how intersectionality works I draw from Zinn, Hondagneu-Sotolo and Messner (2007, p154) as they describe a prism of difference *“within a framework that emphasizes differences and inequalities not as discrete areas of separation, but as interrelated bands of color that together make up a spectrum...”*

The personal perspective and involvement of the researcher is a key aspect; an additional aspect that comes to light within feminist research is the effect of the research on the researcher. This reverses the conventional relationship - can research be carried out in such a way that the researcher remains unaffected? If it is accepted that the presence of the researcher cannot be avoided, then how can research be designed to utilise the presence of the researcher? This standpoint does not only apply to women, it can apply to any researcher from a particular background that is using that background or experience to understand the meaning behind the actions. The danger in starting from one's own experience is a danger that can apply to any researcher - solipsism or even ethnocentrism. What the researcher can do to guard against this is to be rigorous, to question and provide evidence, and to challenge one's own findings as in Belenky et al (1997).

Perhaps here there is an understanding of how objectivity can be celebrated. The researcher can participate in the enterprise she is studying, to formulate hypotheses about other participant reactions. The concern for objectivity has not been totally discarded. Reinharz (1992, p258) concludes that the stance that acknowledges the researcher's position up front is the best. She professes to feel that reports without a statement on the researcher's experience "*seem woefully incomplete and even dishonest.*" I choose the term feminist as a self-label which influences the approach to research as well as the focus of study and I draw on my own history and experience to understand and to challenge my own findings.

Action research

Action research as an approach allows an involved and interventionist orientation to research. The definition according to Reason and Bradbury (2006, p1) fits well with my own aims and motivation for research on female student experience.

Action research is a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview which we believe is emerging at this historical moment. It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit

of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities.

Action research allows a range of perspectives and approaches where researchers can “*delight in and celebrate the sheer exuberance and diversity that are available*” (Reason and Bradbury, 2006, p xxiii). The evolution of action research has been linked to Marx and his proposition to change society, not just to understand it (Reason and Bradbury, 2006). Action research is said to have been established by Kurt Lewin (Kemmis and McTaggart, 2008) drawing on his work in community action programmes (1946) and is now well grounded in feminism: “*Succinctly, the point is to change the world, not only to study it*” (Stanley, 1990, p15). Maguire (2006, p 67) claims that feminist informed action research can challenge and propose alternatives to the gendered conditions of oppression in which we teach and train. She also raises the essential need to recognize the diverse and interlocking nature of men and women’s positions in race, class, gender and age if action research is to transform the world. Reinharz (1992, p196) places feminist research within the scope of action research “*to the extent that feminism is change-oriented by definition, all feminist research has action components.*”

My research approach consisted of cycles: planning, acting, observing and reflecting (Kemmis, 1993). A traditional method of the research cycle would go round once touching the subject/s briefly (Rowan, 1981, p101) but an involved, participatory research cycle would touch at several levels and a number of times, the cycle became a spiral or interlocking multiple cycles. The approach of involvement and action with reflection was in accordance with the chosen approach for my study.

‘New paradigm’ research

A methodological approach advanced by Reason and Rowan in 1981 promoted a challenge to objectivity drawing on action research. They termed the approach ‘new paradigm’ research and the name has remained despite its current longevity. They argued that, while there was a need to examine the traditional methodologies, there was also a need to actively oppose them. They opposed what traditional research does to those whom it studies and to the

researcher and “*the dreadful rubbish that is sometimes put forward as ‘scientific knowledge’*” (p xii). On the other hand, they asserted that naïve enquiry which is totally subjective is prone to error, bias and prejudice, although it is involved and alive. Reason and Rowan suggest an objectively subjective method of enquiry that is a synthesis of naïve enquiry and orthodox research. The new paradigm moves beyond the traditional qualitative methods such as phenomenology, participant observation, grounded theory and ethnomethodology, and dismisses them because they “*only move half way towards a new paradigm*” (p xx). The argument is for researchers to do research which matters to them. Researchers do not have to follow traditional orthodoxy; they need to care about what they are doing and to do this, they need to be involved, critical and questioning.

My research proposed to examine a higher education built environment department in UNI as a detailed qualitative study of the female student experience. The study aimed not just to explore and endeavour to understand the lived existing experience of the students but to draw out their ideas for change; it also aimed to examine the culture of the department and the influence of this on teaching practice of lecturers. The research aimed to work with lecturers to identify where and how practice needed to be changed and therefore involved working with two sets of actors within UNI to try and gain a holistic perspective on the experience of students and how the practice of the lecturers affected that experience. The research aim gave a clearly involved approach to practice, with a concern for the topic and the outcome, and a view that the research should bring about change to practice. As Reason and Rowan (1981, p136) assert “*we have a special responsibility to choose research topics which are healthy for us – likely to lead to our own growth – and healthy for our subjects and co-researchers too.*”

Reason and Rowan (1981) return to the notion of truth and objectivity in a discussion of validity. A perception of reality that moves away from the objective / subjective split is called for, with a move to perspective, “*a personal view from some distance*” (p xviii). The conflict is therefore not just theoretical, it is also political. The new paradigm is a broad set of assumptions that seek to counter the traditional principles of research. Two characteristics are held in

common: minimising the manipulation of the research subject, and attempting to develop a genuine relationship with the subjects. The researcher in effect becomes the subject's partner. My work with the lecturers has been undertaken as collaborative action research, so that we work together to understand issues and suggestions for positive change in accordance with the 'new paradigm' approach.

My study aimed to "*understand the experience of women (students) from their own point of view and to conceptualize women's behaviour as an expression of social contexts*" (Reinharz, 1992, p51) in this case within built environment higher education courses. I initially decided to adopt an ethnographic approach because I felt that as the relationship between student and staff was within a power / authority context the researcher was clearly not a student and could not share the experience of a student. I wanted to encourage a sense of trust between myself and the students, in that their views would be confidential and whether positive or negative should be expressed freely, but I was aware that they would not own the research. I felt that I could build this trust relationship without trying to convince them I was one of them, but rather keeping a sense of distance between them and me. Clegg, Traherne and Johnson (2000) adopted a similar approach to their study of three courses aimed at understanding how women participate in IT classes. The research drew on reflective journals completed by students, and observation of classes and interviews. While this approach could work, I felt that my research approach demanded a strategy that was less formal and more inclusive.

On further consideration, I decided to adopt a collaborative approach according to the 'new paradigm' (Reason and Rowan, 1981) with the students. By adopting a dual approach to my research, and adopting an ethnographic approach for the students, I was only moving half way towards the stance that I had chosen, which comes under Habermas' (1971) category of "*emancipatory interest*" (Reason and Rowan, 1981, p xvii). The collaborative approach (Kemmis and McTaggart, 2008) draws on human rights activism drawn from Paulo Freire's (1993) concepts of equality in relationship, mutual respect and understanding. Since I wanted to change practice, I needed to include the female students in that process. They as women would have views and

perceptions that were as valid as the lecturers and the approach would mean they could gain as well as give.

Since 1981 the concept of 'new paradigm' research has been developed and confirmed as a philosophy and practice of research which is collaborative and experiential (Truman and Humphries, 1994). 'New paradigm' research has often come to be called by the term 'cooperative enquiry' (Reason and Bradbury, 2006) but a 'new paradigm' continues to illustrate the concept nearly thirty years later. The Centre for Action Research in Professional Practice (CARPP) at the University of Bath, led by Peter Reason as Director has become the UK academic centre for participatory research methods since the early eighties (McCardle, 2004). The main proponents of the concept have helped to develop a significant research community that support and develop a practice of research carried out 'with' people rather than 'on' people, and those who adopt the methodology still challenge some of the mainstream approaches to research.

This view of a collaborative research methodology fits with a feminist research methodology, and provides an opportunity to give an example of such a piece of research relevant to the methodological choices in my dissertation. Coleman (1991) investigated women's experience of a university organisation, her own, as well as a significant element of self-exploration as a woman, as a student carrying out the project, and as a member of the organisation. She used the framework offered by Reason and Rowan (1981) to allow the interconnectedness and personal perspective, in order to reach an endpoint for the research. The model used moves inwards from self-reflection and subjective contemplation on the one hand, and outwards exploring and considering the experience of others on the other hand sequentially over six stages of the project, that is being, thinking, project, encounter, making sense and communication. She drew on her own experience as a woman being in a disadvantaged position (real or perceived), and feeling inadequate and voiceless. In speaking to other women on her course, she found that she was not alone in this experience. At this point as Rowan and Reason say "*she turned against old ways of doing things*" (p12) and used her problem as the problem for research. She wanted to use her own reflections, to help theorise, and to seek alignment between her "*propositional and experiential worlds*"

(p12). Without that experience and starting position it would have been extremely difficult to explore the same issues, and improbable that the issue would have been identified as one worth exploring. The example exhibits similarities to my own context for research and the 'new paradigm' approach matched my concern for finding solutions to issues of concern.

Reinharz (1981) does suggest that new paradigm researchers need to beware of becoming converts to a cause, becoming defensive or ignorant of the shortcomings of this style. As Reinharz (1981, p426) says "*criticism and challenge follow the new paradigm researcher at every step.*" She asserts that the researcher will need a supportive environment, commitment, and the skill of communicating their ideas as well as a sound knowledge of mainstream research. The approach is risky, but on reflection, was the only one suitable for the project and for my own belief in the need to improve the learning experience for women students.

Summary

The aims of my research required a move away from a mainstream perspective in order to challenge the dominant views that overlook the social dimensions and ignore difference (Truman and Humphries, 1997). A feminist perspective has been adopted, but within that perspective there is a need to understand that "*feminism has never been universal*" (Skeggs, 1997, p 140) and that 'race', class and age interact with gender to create a diversity of experiences needing acknowledgement and understanding of the intersections. Action research has provided me with an interventionist approach that matched my need to bring social change for women. The involvement and experience of the researcher in this research cannot be denied, and is indeed at the centre of being able to discover the underlying nature of built environment culture in higher education. My methodological choices therefore included 'new paradigm' collaborative research. The aim was to be subjectively objective, to follow a critical path of enquiry and to include those involved in the research as partners. This did not mean I handed over my analysis and findings. I drew on the experience of others who have followed this path (Coleman, 1991; Belenky et al, 1997) as

well as the two sets of actors involved to reach and communicate my own findings.

Chapter Five

Data Collection and Analysis

Introduction

This chapter develops the methodological approach to explain the detailed methods and tools adopted in the research. As Oakley (2005, p209) explains, the most important element in the choice of research method is the fit between method and question. Having adopted a 'new paradigm' and a feminist perspective the tools adopted to collect data need to fit appropriately. As the research has developed, the tools and methods have evolved and the chapter explains and justifies the choice of methods to support data collection and data analysis reflecting on choices made. The ethical risks and measures put in place to preserve confidentiality are also covered.

Outline of the approach

While the topic for the research had been developed from my experience and involvement in women's education and work in the built environment, the development of the tools to collect data was less clear at the start. The main research and its data collection has taken place over more than four years and has evolved in stages, responding to the findings, the results and the life occurrences of the women as the project has proceeded.

The overall research design was to work with two sets of actors, a group of students and a group of lecturers in an inclusive way with participatory research according to the 'new paradigm' identified by Reason and Rowan (1981). An integral part of the research in my project has been feeding information back to informants (Reason and Rowan, 1981, pxxi). The research was planned to feed through the cycle as detailed by Reinharz (1981, p 430) as a complete cycle. Within this main cycle are smaller cycles or spirals that have lead to the final stage (Fig. 1).

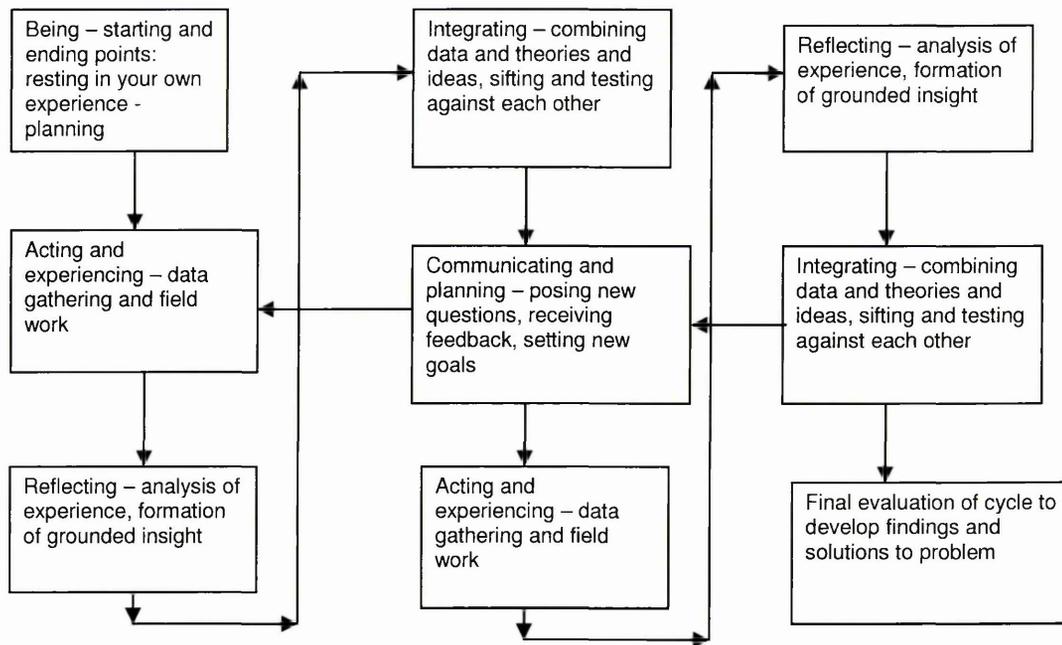


Fig. 1 The spiral or continuous loop (developed from Rowan, 1981)

The project has become a part of my working life, rather than being a separate part time 'normal' research project. My role as leader of a team that are working to improve the participation of women in SET and the built environment has enabled me to embed and evolve practice as well as to observe difficulties and issues alongside the students and staff involved in the research.

The participants

I proposed to identify a small number of female students (five or six) to be the focus of the study. The students would be drawn from a range of courses and experiences to reflect the type of courses offered including undergraduate / postgraduate; full time / part time; mature students / 18-21 students; and students at different stages of their course. In addition I hoped that the students would reflect a diverse ethnicity. As Bing and Reid assert (1996, p175) too often the voices of women of colour and the economically disadvantaged were unknown even in feminist research. The stories of women from different backgrounds would add a perspective on the female student experience that appeared to me to be missing in many studies of women in SET and built environment. The original intention was to interview the students as a group to

explain the nature of the research and data collection and to bring the students into the research. In practice the recruitment of the students took considerable time and different students joined the research at different times. This meant that the students did not come together as a group, but they remained separate throughout the life of the project.

In order to recruit the students initially I circulated details of my project to student cohorts with the assistance of course administrators and course leaders. In addition I contacted students that I already knew of in my former position as tutor within the Building Surveying course, as well as drawing on my involvement with the various networks of women students. The original idea of a small group feeding in reflections and reviewing findings on a linear structured timeline has been somewhat problematic. The students concerned have had life issues and student pressures impacting on them during the time of the research which has resulted in a stop-start process. I developed a somewhat wider group and continued to add to the group as the project has proceeded. In the course of the project I have encountered and recruited other women students with different experiences and in different cohorts on recommendation from colleagues.

The total number of students significantly involved in the research was eight. They are described in Table 4 below. I provided pseudonyms in discussion with the students to preserve confidentiality.

Student name	Description (from the date of original participation over four years)
Bel	<p>Building Surveying second year / placement / final year sandwich degree / graduation – personal approach - known to me from teaching and I was formerly a personal tutor.</p> <p>Bel, a white British woman, came to the course via a traditional route – A levels at college and expecting to go to university – although she chose a vocational subject against the advice of her tutors. She has family already working in the built environment and they supported her choice. She feels more comfortable in a country setting than in the city. She has</p>

	brothers and feels very comfortable with male students. Her cousin had studied building surveying at UNI and recommended UNI to her. (2005 – 2008)
Lynn	Building Surveying second year / placement / final year sandwich degree / graduation – mature student recruited via contact with student cohort. Lynn, a white British woman, came from a very traditional working class background and she has a split family. University was not on the agenda for her after school even though she had taken A levels. She followed a traditionally feminine vocational career path in curtain making initially and had doubts about how universities would treat someone with her background after a negative experience elsewhere. She has a passion for old buildings which came from trips in her childhood, but she has not been supported by family in her career choice. Very driven to make the best of her career. (2005-2008)
Madalyn	Building Surveying second year sandwich / short placement / part time study / suspended studies / recommenced final year – personal approach – informal support ongoing. Madalyn has two children and as a black British woman who followed a very traditional feminine career path is not a traditional built environment student. She came to the built environment by way of a short course for women run locally in UNI. She is dyslexic. She has taken time out during the course due to family problems but has rejoined and persevered. She had a number of problems in finding work placement for her year out in industry. Her husband has since followed a similar course and career path. Support for her studies comes from the children and husband, but not all family. (2006-2009)
Sue	HNC Building first year / second year part time / graduation – recruited via contact with former students in employment – informal support ongoing, mature student. Sue, a white British woman has family, her father, in the built environment and is the only one of her siblings who had not studied beyond 16 and gone to university. She followed her father into building industry,

	<p>but in administration. Her built environment colleagues encouraged her to take her studies further and she started the HNC, hoping to progress to degree study. Her employment situation changed which prevented her continuation in 2008. She has since decided to return to degree study in 2009 after a bad experience in employment. Sue has a very supportive partner and family. (2007-2009)</p>
Naomi	<p>Architectural Technology second year / placement / final year sandwich degree – recruited via contact with student cohort. Naomi is a white British woman who progressed as a traditional A level student via college to local university. Her teachers and family encouraged her and she has been very focused in her career aims towards architectural technology since school. Her experiences in her work placement have been very positive. (2005-2009)</p>
Parveen	<p>Building Surveying final year fulltime degree student / graduation / returned after a number of years break to complete course – personal approach - known formerly when teaching, mature student. Parveen is a British Asian Muslim woman with two small children. After A levels at school she worked for a local authority in an administrative position and her technical / professional colleagues encouraged her to take her studies further. Her family supported her and she studied away from home for her first year, but on marriage she returned to the region and continued her study at UNI. Before completing her studies she moved with her husband to Canada and had children returning to UK after 7 years when she picked up her studies again. She has struggled to find suitable employment since graduating. (2007-2009)</p>
Jill	<p>Construction management final year part time student – personal approach - volunteered as a role model for school outreach work. Jill, a British white woman with a working class background left school after A levels following a traditional female career path in administration. She did not want to go to</p>

	<p>university and was not ambitious at that time. She tried accountancy but did not find it interesting and then working for a small local construction company she was encouraged to continue her studies at university part time in construction management. Becoming aware of the small number of women in construction she offered herself as a role model for schoolgirls and now regularly visits local schools. (2008-2009)</p>
Anita	<p>HNC Building first year student / left course – personal approach - transferred to HNC from a women only short course. Anita was a British white working class woman who had left school at 16 and followed a very traditional career path. She worked first in secretarial work, then took a course at college and on failing to get a job afterwards went to work in a factory for 6 years. She came to work in UNI as an administrator in Estates and after 18 years in the same job attended a short course for women in built environment. She enjoyed a number of aspects of the course and gained a place on HNC, but dropped out part way through. She is still considering how to further her career but in a course in teaching or childcare, rather than the built environment. (2007-2008)</p>

Table 4 Student profiles

Some students have faced a number of personal issues that have delayed the data collection, and the relationship with me through the research has been one of support more than requests for information and interviews. Other students have only been involved with me for the purpose of the research.

A small group of lecturers was invited to participate in my research to add some external views to my own intervention with the students. The lecturers also agreed to draw on their own teaching practice and their knowledge of the organization of courses and student support to see how they impact on the female student learning experience. The group was chosen to represent the breadth of courses delivered within the built environment department as well as drawing on those who had an interest in the study. Since the research drew on their time, and could need their motivation to discuss change, the group was necessarily drawn from willing and involved participants. The group has been

asked to contribute to the research so that it evolves, and they are partners in the findings. Bringing the lecturers together has also been problematic, such that small group discussions and individual interviews have been the standard method for reviewing the findings with lecturers. The pressure of timetables and other duties has prevented me from getting all seven lecturers together in one place at one time. The lecturers are allocated initials to preserve some confidentiality.

Lecturer name	Role Description
B	Male lecturer and course leader of HNC / HND, longstanding module leader for building technology undertaken by all built environment programme students at a number of levels. Has taken part in Let's TWIST gender equality training and is focused on teaching. Has been at UNI for many years and is approaching retirement.
F	Female lecturer who started as Building Surveying course leader and has since become Built Environment Programme Leader, Module leader for a number of modules at all levels, formerly studied built environment at UNI as a mature student. Has been involved in delivering women-only short courses and supporting women's involvement in community design projects.
L	Female lecturer who began as researcher in materials, with a background in geology. Year tutor on Built Environment Programme, Foundation Degree course leader, science module tutor in built environment programme and active researcher in heritage and building materials when teaching allows. Has taken part in Let's TWIST gender equality training.
E	Male lecturer who is active in concrete and environmental materials research. Science module leader in built environment programme, Has undertaken Let's TWIST gender equality training. He is active in union and in local community with an interest in public transport. Has been at UNI for many years and is approaching retirement.
W	Male lecturer who is construction management tutor and module

	leader for a number of modules. Worked in research at the university, then left to teach in further education before recently returning to university as a lecturer.
W2	Male lecturer and subject leader for Architecture, module leader for technology modules at all levels in Architecture programme, Architectural Technologist specialist. He developed the architectural technology degree and is active in CIAT. He has a keen focus on teaching.
G	Male senior manager responsible for learning and teaching in the faculty, module leader for a number of valuation modules in built environment and property appraisal and development. Has undertaken Let's TWIST gender equality training. He is approaching retirement.

Table 5 Lecturer Profiles

Interviews with the research supervisor and the director of research in the department have taken place to establish an understanding of the research culture alongside the broader assessment of general teaching culture in the department with the group of lecturers.

Data collection methods

There have been a range of methods chosen as the project has progressed, as Reinharz (1992, p 201) suggests that the multi-methods approach...

increases the likelihood that these (feminist) researchers will understand what they are studying, and that they will be able to persuade others of the veracity of their findings. Multiple methods work to enhance understanding both by adding layers of information and by using one type of data to validate or refine another.

Reflective diaries

The primary method of data collecting in the early stage of the research (2005-2006) has been through reflective diaries submitted by email. Bolton (2001) explains the benefits to self reflection in professional practice as providing the link between the professional and the personal. She explains that setting out into reflective practice with an open questioning mind can take the practitioner (or student) into fresh and dynamic territory (p200). I asked the students to write for a period of time (five or six minutes) continually without consideration of grammar or style – reflecting on aspects of their experience as I outlined in

my request to them. Madison (1969) carried out participatory research with students in college over a period of four years drawing on interviews and college journals that were diary-like descriptions of learning events usually carried out on a weekly basis. This allowed him to build up a close view of what the students themselves saw as important in the day to day. The reflective diaries within my research have become longer term reflections by the students as I have responded with questions to explore the issues raised by them in their initial journals and they were only completed over part of the data collection period – approximately two academic years. I produced an explanation of reflection for the students to help them understand what would be required (see Appendix Four).

Reflective Writing needs to be done with an open mind and a questioning attitude. This diary is not just a record of what you have done and when. The diary will be an opportunity for you to properly think about how you experience your study, about your interaction with others and about the environment you work in. This is probably unlike other academic writing you do – you do not need to think about structure or spelling or grammar or about what will please the tutor. The diary is meant to include what is important and relevant to you.

As Bolton (2000, p201) explains “*in order to undertake this enquiry we allow ourselves to be thoughtfully unthinking in the way football players are taught not to think or else they’ll mess up their own playing, and the game.*”

Interviews

As the research progressed I decided I needed to question the experience of the students to understand it in greater depth. The reflections had provided some useful, insightful and revealing aspects of experience, but after discussion with the group of lecturers I felt I needed to understand more about the individual course experience. I needed to have the facility to respond immediately to points raised and therefore decided that informal interviews at varying times and stages of study would be the most appropriate way of gaining better and deeper understanding. Interview research includes opportunities for clarification and discussion that reflective diaries do not. According to Marshall and Rossman (1995) the researcher can explore general topics in interviews that help to uncover the participant’s meaning, but respect how the participant frames the response. The limitations and weaknesses referred to in mainstream interview techniques cannot be ignored with a

participatory research interview. The issues being explored can be sensitive and the person being interviewed can still find it hard to share information, even if they have a positive relationship with the researcher. Reinharz (1992) refers to the popularity of interviewing in feminist research (p19) partly because this method ensures women's voices are actually heard as an antidote to many years of ignoring the voices of women. Belenky et al (1997, p11) used many open ended questions "*because we wanted to hear what the women had to say in their own terms.*"

Interviewing allows participants to be actively involved so that connections can be built and if careful listening takes place, then new avenues can be opened up. There is disagreement however on the aspect of "*stranger or friend*" (Reinharz, 1992, p26) as the beneficial relationship between interviewer and interviewee. While an existing relationship can allow easier access to hidden aspects, the absence of a relationship may also give a greater feeling of anonymity. What is a key element in feminist interviewing within participatory research such as this study is an ethical approach, with confidentiality and honesty within the outcomes that show the words spoken and meanings given to those words by the interviewee.

I contacted all of the students that had been recording reflective diaries and took the opportunity to bring additional students into the research from different courses. I arranged individual meetings within the university (recorded) with a set of initial questions shared with the students (see Appendix Six). With new students I included preliminary information and with the students from the existing group we carried on from where we had left the diaries. Some of the students within the group have needed additional support and contact outside the interviews. The additional meetings and conversations with these students have taken place both within the university and outside the university, face to face and by telephone and email, and do not form part of the primary data collection and analysis. We agreed that it was better to formalize the research related interviews; this created some boundaries for confidentiality that were set by the student, rather than by me as researcher. Inevitably my knowledge of the situations and difficulties being faced by the students, that is, that contributed to their need for support, informed my questions in interviews, but

the student could then choose what to reveal for the purpose of the research data. A timeline of all interviews is shown in Appendix Seven.

Document analysis

One of my objectives is to unpick the culture of the built environment department and to do this it was necessary to discover prevalent underlying attributes and values. I am trying to identify the way an organisational culture functions in practice (Halford and Leonard, 2001, p67). Yet, as Alvesson and Billing (1997) assert, culture in this respect is not measurable in any simple sense - it calls for interpretation, unpacking and deciphering. The research was able to draw on an earlier study in 2004 that involved interviews with female academics (Turrell, 2004) to try and identify gendered aspects of culture experienced by female academics in UNI. I also needed to collect indications of the wider culture of the department and artifacts that could have an impact on learning experience such as course documents, student guides, assessment frameworks, course reading material. The aim of analysis was to support the identification of the attributes referred to by Schein (1997) and listed in Table 3 in Chapter Two that link to gender and to a definable culture for the architecture and built environment programme as listed in the research objectives. Becher and Trowler's (2001) work to unpick academic cultures and identify 'academic tribes' was a useful source against which to set the subject areas covered within the scope of my research. This initial placement enabled me to set the abstract links of hard (masculine) and soft (feminine) subjects against the way the students experienced the learning in these areas.

The documents to be analysed as cultural artifacts possess a "*found quality*" (Reinharz, 1992, p147) and can be reviewed in an unobtrusive manner. The search can also be for what is missing (p162). Quantitative content analysis evaluates the quantity of the presence of women in course documents and assessments; while the qualitative content analysis seeks the position of women within documents e.g. the number of references to gender in a management module providing quantitative data and the nature of the presence of a woman in a case study as a housewife rather than a surveyor would provide qualitative data. I sought to identify the atmospheres and territories that illustrated the culture of the university, the department and the

courses and referred to Greed (1991) who had previously examined culture in surveying education. Her references and attributes served as a useful baseline to assess the current culture within UNI. Additionally, photographs were taken to provide supportive evidence of the artifacts e.g. damp meter or drawing board or laboratory equipment.

The range of sources and aspects involved included the following and are listed in the UNI references section:

- University Core Values and Corporate Plan,
- Widening Participation Strategies,
- Gender Equality Plan,
- staff and student satisfaction survey reports,
- definitive course and programme documents,
- staff management structures,
- course team published documents,
- quality action plans,
- Quality Assurance Agency reports,
- university market intelligence,
- faculty annual quality review,
- module documents and files,
- assessment board results,
- university student enrolment and progression statistics as part of the HESA submissions.

Finally there were elements of the student and lecturer interviews that were relevant and also elements of my own experience as a former member of the department.

Group discussions

Interviewing in groups has been an adopted technique in working with the lecturers. Although it has not been possible to draw all lecturers together, I have been able to operate group discussions through the research cycle with most lecturer participants. The situations allowed me to propose areas and issues raised by the students for lecturers to debate and discuss in relation to their own practice. Importantly the group discussion also enabled the lecturers to raise issues that students may not be aware of that influence the teaching and learning experience. The distinction between the researcher and those

participating in the research disappears so that having shared my findings, the group decide how relevant they are and how any changes could be implemented. The group discussion is not clear and ordered, but differences in status give way as shared decision making takes over (Reinharz, 1992).

Heron and Reason (2006, p151) suggest that researchers using such collaborative inquiry groups as used in my research should consider three issues:

- Group members need initiation into the methodology of inquiry so they can have ownership.
- There should be participative decision-making and authentic collaboration.
- The climate within the group needs to be able to acknowledge tensions as well as agreement freely.

My former relationship with the lecturers chosen and their commitment to the research aims has supported me in meeting these three aims. The final round of the cycle ensured that the group had a stake in the final recommendations of the research. I have also interviewed a number of academic staff as individuals. All group and single interviews with the lecturers have been within the university and have been recorded and transcribed. I prepared a set of open questions for discussion within the interviews and set a time limit of approximately one hour (see Appendix Five). See Appendix Seven for a timeline of data collection.

Analysis of findings

Grounded theory methods are a set of flexible analytical guidelines that enable researchers to focus their data collection and to build inductive middle range theories through successive levels of data analysis and conceptual development. (Charmaz, 2008, p204)

The origins of 'grounded theory' are seen by many researchers to be a means of doing qualitative research with a positivist style (Charmaz, 2008). Yet the concepts of examining data and seeking meaning, developing categories to understand the multi-layers of data are also the procedures that I have adopted within my data. Charmaz (2008) provides an argument for drawing on 'grounded theory' guidelines but adopting them for twenty first century

methodologies. Glaser (2002) expressed concerns about corrupting analysis by importing concepts and forcing meaning into data. There remains a tension then between the perceived possibility of an objective analysis of data set against an acknowledged and aware subjectiveness that comes from experience and standpoint. Nonetheless, grounded theory adapted to fit a non-positivist methodology, and the associated immersion in the data is the best fit for the analysis I have undertaken. From the data emerged two analytical structures: a thematic analysis and a case study.

The search for themes

Thematic analysis in my study took place at different stages along the research spiral. I drew out aspects from the students' reflective diaries and sought topics for discussion with lecturers. I drew on themes from the discussions with lecturers and fed them back in to the interviews with the students. Because the data in my research was collected at different stages and in different ways from conversations as well as formally transcribed interviews, I needed to be careful, thorough, meticulous in my recording and well organised. I collected and noted all data and logged it so that it could be accessed and referred to under each student. Formal interviews with students were all transcribed, diary emails saved, notes recorded and individual paths were followed looking for individual themes as well as general themes. Notes were taken referring to informal conversations. Phrases that occurred in one context were explored to understand better the view and then cross referenced with others to contrast and compare similarities and differences. These aspects were then discussed with the lecturers and these discussions transcribed and logged. Data was then available for rereading, consulting and reviewing as analysis proceeded. Judi Marshall (2006) a proponent of collaborative enquiry talks about her personal experience in making sense of data explaining that it is a very personal process rather than being an organized and standard process. My own process of data analysis evolved as the data emerged and I immersed myself thoroughly within it, for example reading and re-reading transcripts and emails, noting similarities and differences between and amongst the participants and within some individuals over time, and searching for confirmations or contradictions between different elements of the data.

I embedded myself in the data collected from all methods including the documents collected for cultural analysis to look for themes and contradictions with existing theories. Initially I had a framework of themes that had been drawn from literature, but ideas developed from the data. I was able to develop Greed's (1991) study to draw a framework of themes to contrast the cultural landscape in 2008 with that experienced seventeen years earlier. Wherever I saw contradictions in emerging themes I returned to the literature to seek other meanings to support my findings or to challenge and unpick my findings. As Charmaz (2008, p 208) asserts for her data analysis "*data need to be informed by our theoretical sensitivity.*" I was able to develop a matrix of themes and students that illustrated a range of key issues that clarified the data and the resulting meanings. I constantly challenged myself about the findings, searching for alternative meanings, checking what was said and what was meant, just as I had done in the original collection at interview and reflective journal stage. Initial themes that emerged are given below in Table 6.

- | |
|--|
| <ul style="list-style-type: none"> ➤ How they get there – how career choices are made ➤ Why come and do it? – career choices – women's career paths ➤ Experiences on Arrival / initial impressions - welcome ➤ Progression – different levels, different subject areas, growth in belonging ➤ Confidence ➤ Students and staff relationships ➤ Support needs ➤ Culture of subject area – stereotypical views of masculine values of SET and BE – self perpetuating? ➤ Culture of university – class and status ➤ Landscapes that attract or repel ➤ Teaching styles – feminist pedagogy: ➤ Learning styles – women's way of thinking? ➤ Learning environments – difference ➤ Gendered environments ➤ Workplace culture ➤ The difference between women – age, race, class – NOT just difference between sexes and intersections ➤ Identity – what is shared as women – women in society |
|--|

Table 6 *Emerging Themes*

I worked with these themes, merging some and drawing out others more fully, seeking inter-connections and paradoxes. Eventually three broad themes emerged:

- the BE domain at UNI – landscapes and territories
- pathways and arrivals – identities and choice

- progressing and learning – experiencing the BE.

These themes are explained and discussed in Chapters six, seven and eight respectively.

The case study

According to Yin (1989, p14), the case study “*contributes uniquely to the knowledge of the individual, organizations, social, and political phenomena.*” He explains that the case study can illustrate and give meaning to individual life-cycles as well as other social phenomena and he identifies three purposes for a case study – exploratory, descriptive and explanatory. Marshall expresses a concern for breaking down data into themes and headings because it seems to rob a case of its wholeness (p 396, 2006). I decided that a single descriptive case study would add value to the data collected by illustrating in detail one student’s life experience while at the university. In choosing the student from the group to be the case study I wanted to illustrate some of the key aspects and experiences of one woman student that exemplifies a contrast to the dominant view held of a built environment student as ‘white, male and aged between eighteen to twenty one’. The case study draws on a number of interviews formal and informal (referenced in agreement with the student) over the timeline of the four years of the research and is presented in Chapter 9.

Participant response

My original plan to follow a full collaborative process for the research over a planned period was not completely successful. My restricted time and the availability of my participants meant that the collection of data was drawn out. While the findings and analysis have come from students and lecturers as well as documents and artifacts, they are my own interpretations. The final phase of the spiral involved the feedback to the participants of my findings and discussion about the results. Their views are fed in to the conclusions as part of the outcome. Validity is achieved in ‘new paradigm’ research according to Reason and Rowan (1981, p241) by asking three questions:

1. Can I discriminate what is actually there and what might be there – emerging possibilities?
2. Can we try out what we find by changing our practice?

3. Is the meaning right for the people involved and is it useful or illuminating?

My response to questions 1 and 3 are positive. The response to question 2 will come after the written part of the research is complete. Reason and Rowan (1981, p244) also suggest two ways in which validity may be questioned: “*through unaware projection and through consensus collusion.*” I originally wanted to bring my participants together for discussion and feedback. This became increasingly difficult as some participants have left the university and suitable times for all could not be found. I eventually made contact with participants individually by telephone or face to face or by email to inform them of the outcomes and conclusions. All participants have supported my findings. To guard against the threat of projection and collusion, I drew on the research literature and I did not seek or expect complete consensus with my participants.

Ethics and confidentiality

This research conforms to the four requirements of ethics in research (UNli, 2004, p4): “*beneficence, non-maleficence, informed consent*” and “*confidentiality / anonymity.*” Collaborative enquiry provokes an additional need for care within its research methods. I have indicated that I worked with the participants, and this closeness was designed to provoke a better understanding of issues, but the closeness can also reveal additional confidential data from a participant (Reinharz, 1992). Feminist research by its nature also encourages a closeness (Reinharz, 1992) with a longer lasting relationship between researcher and research participant looking for intimacy and self disclosure (Oakley, 2005) so that women’s voices are heard.

At the start of the research I was an academic within the department concerned, and the nature of the research did throw up a number of difficult ethical issues. There were concerns from members of staff outside the project about the nature of disclosures that students might make and about what would happen if critical statements were made by students. Maintaining the confidentiality of individuals is always difficult in such a small study. These concerns had to be addressed in one to one discussion with those concerned to ensure that trust could be established.

Undertaking research with students inevitably involves issues of confidentiality. Students need to be able to impart views which may be critical of teaching methods, and this data needs to be fed back into the research and to the tutors involved in the research. I have had to demonstrate to students that confidentiality will be preserved, but needed to ensure that the lecturers involved in the research were also committed to confidentiality. The lecturers outside the research have had to be approached and worked with in order to negotiate access to students on varying courses. I have had to win them over with an assurance of confidentiality. Issues of concern raised by students have to be negotiated carefully with students and with lecturers.

Issues that are raised that question the culture of the department need to be handled with care. The department has been and continues to go through change as part of university-wide restructuring and adaptation to outside pressures and markets as well as internal management changes. These changes have resulted in conflict and so sensitive issues that arise, such as my research topic, need to be handled with even more care. I have needed the support of the senior management within the department.

At the start of this research I was experiencing aspects of a culture that was male dominated. As a woman manager I experienced difficulties with some individuals and this had an impact on how I carried out my research, because I needed access to students and I wanted course tutors to be aware of my research and to see it as 'non-threatening' to them. One academic deliberately misled other course tutors about the nature of my research and as a result of his intervention some tutors declined access to students on their course. Initially I was very concerned about this reaction, but I decided to meet the tutors concerned individually and find out what their concerns were. After I heard their misgivings I was able to explain the true nature of what I was planning along with the confidentiality safeguards I had in place and they quickly came around giving agreement for me to access students on their courses. My move to another part of UNI with my team has eased the situation by providing a degree of separation between the experience of students and my own position. Our team continues to work closely with lecturers involved in

delivery who have an interest in gender and who want to improve the participation rates of women on their courses.

As part of my research an analysis of the culture and context is included in order to better understand the lived experience of women students. It became clear as my study proceeded that just as there were issues of confidentiality with individuals in the research, the landscape of the institution should also be considered. I decided to name the institution 'UNI' and to make all references within the research anonymised in the same style. The name of the institution is not directly relevant to the research findings and confidentiality of sensitive information is preserved.

Reflection

The original planned methods and tools for the research proposed a collaborative approach to the research in accordance with 'new paradigm' and feminist perspectives. The length of time allocated for data collection originally within the research was over one academic year. In practice the research has evolved over four years mainly as a result of my having a full time workload alongside the research. On reflection however, I feel the research has benefited from being over a longer period. The involvement with the students and the lecturers has been more of a long term intervention which has enabled growth and development to take place. I have learned about the students' experience at different stages of study and work; I have seen the interruptions to study that some have experienced; and I have witnessed the changes in the teaching environment. The original recruitment of a small group of students was problematic and the additional time has allowed me to involve different students at different stages and on a range of courses. The diversity of the student group originally identified has been achieved and this has given the study a rich basis of diverse experiences to draw from. The 'new paradigm' approach has enabled me to manage the variations experienced through the research project. In working collaboratively with participants in the research and having a number of interventions with the subjects of the research in a spiral (rather than with a single cycle with one intervention) the study is enriched as well as being flexible.

I have found tensions within the research. My inside knowledge of the academic culture and the lecturers could have been used to influence the student views. I had to remain separate from any internal conflicts within BE and to try to ensure I did not exhibit bias. Being outside the department has been a significant help in this process.

Summary

The chapter has provided detailed explanations of the methods and tools chosen as part of the research. I have adopted a multi-methods approach that developed during the research, rather than working from a clear formal planned approach set out at the start. The choice of methods matches the methodological approach given in Chapter Four with a 'new paradigm' and feminist perspective throughout. The diversity of students and the expertise and knowledge of the lecturers are key elements of the methodology with an adapted grounded theory approach being adopted towards analysis of data. The case study method adds value to the research in providing the key aspects and experiences of one woman student. Themes emerged from the data and were checked with the participants to ensure the collaborative process was maintained. The research project evolved as a spiral of data collection, reflection, integration, communication and planning for further data collection and analysis, with a final check with the research participants. The foundations of 'new paradigm' research validity were considered at all points of the research cycle and the viewpoints of lecturers and students provided me with challenges and endorsement.

Chapter Six

The Context of the Built Environment Domain in UNI

Introduction

This chapter is the first of four in which I present my analysis of the data I have collected. It draws, in particular, on institutional documents from UNI, supplemented by observation and interview data from both the lecturers and the students.

This chapter seeks to explore the context and analyse the culture of that environment at UNI within which the built environment students learn and the lecturers teach. The primary reason for examining the culture of the built environment department of UNI is to establish whether and in what way the culture itself can be described as masculine. Phipps asks (2008, p24) in examining science and technology “*is there an inherent masculinity and patriarchy embedded in practice and knowledge?*” If the answer is yes, then I need to understand how this cultural domain impacts on the women as students on a built environment course and as members of UNI. I seek to discover whether ‘built environment’ in UNI has an identifiable set of culture attributes or whether it is simply a combination drawn from other academic disciplines. I have drawn on the cultural signs and symbols referred to in Chapter Two described by Schein (1997, p8), Parkin and Maddock’s typologies (1995, p71), Halford and Leonard’s post structural perspective (2001, p14) and also the aspects utilized by Becher and Trowler (2001) as they describe the attributes associated with a number of differing disciplines within universities.

In seeking gender within documents and processes I look for what is missing as well as what is present (Reinharz, 1992, p162). The emphasis of the chapter draws heavily on documents that can highlight the contributions to and the impact on the female student experience. I also draw on Greed (1991) who identified a number of factors in surveying culture that impacted on women’s experience over twenty years ago to see if things have changed. The numerically male dominated aspects of the courses in the built environment at UNI impact on experience and culture and therefore statistics are included

here. Sources of data include of a range of documents (mission and values; departmental and course documents; analysis of student numbers; examination board and module documents), visible attributes and finally analysis of themes from interviews with staff and students.

Landscapes

Here I look at four landscapes contributing to the context and culture of the built environment domain at UNI: the university, the faculty, the research institute and the built environment (BE) department.

The university (UNI)

There is little in Becher and Trowler (2001) that refers to the gendered nature of higher education culture. In exploring the concept for my research I have tried to understand the cultures and the landscape at different levels and for different groups as well as focusing within that culture on gendered aspects, drawing on Britton's (2000, p431) proposal of understanding culture through workers themselves in conjunction with the mainly gender-blind analysis found in Becher and Trowler (2001).

UNI is a post 1992 new university in a northern city. Student population at 2007 was 29,400 students with 75% as undergraduates, 68% studying full time and 89% UK / EU students. The ratio of male to female students in 2007 was close to national average of 49:51 (UNlii, 2007). There are 4,100 members of staff employed in the university with 49% being academic. Over all 56% of the staff are women, with significantly more in administrative than in academic positions and with males dominating at all higher positions in academia from Principal Lecturer upwards. According to HESA (2008) the proportion of female academic staff in all grades in England and Wales for 2006/7 was 42.3% with the greatest proportion (47.4%) at Lecturer grade (including Senior Lecturer for new universities). Twelve subject areas have been rated as excellent by QAA; built environment is not within the twelve (UNli), 2008). The core values (UNliv, 2008) of the university are espoused as being "*employability, forward thinking and supportive.*" The University Executive Team is male dominated (30% female) as is the norm across higher education. According to Singh (2002) the proportion of women in Senior Management Teams in UK universities was

18.6%, but the numbers of women at senior management levels are better in the new university sector (Shepherd, 2008) and the university reflects this in that 3 out of 4 Faculty Deans are women.

Aspects of the attributes of university life as listed earlier in Chapter Two with reference to Knight and Trowler (2000, p69) are reflected in lecturer comments made during interview:

- Intensification and long hours working.
- Hard managerialism means staff are less trusted and given more administration.

The lecturers were all aware of the tensions between giving time to students and carrying out their other roles. Issues that could impact on student experience included reduced contact time, increased student numbers and increasing administrative and management duties. The time needed to support students and prioritizing time for face to face contact with students in teaching was seen as a constant tension.

I think the main thing.....the constant drive to do much more for less. I think it is devastating because you are trying to cover the same material with the same calibre of student or possibly even lower calibre of student, because we are not sort of saying 'oh you can't come here unless you have six 'A' levels' so you have got students, who, through no fault of their own, are coming in at a lower academic level and need more help bringing up and we are cutting down support time that we need to give them to bring them up to that necessary level. And if you don't do that they struggle. So what happens is that the students who feel that they are struggling then come and see you in tutorial time. So it is all back door, eating into your time that, if you don't support them, students don't get the benefit and you don't then get the benefit of the good students in the next year. Catch 22. (L)

There are several issues raised here that affect the culture of the student experience. Widening participation strategies have been criticized in Chapter Two by Waterman-Roberts (1998) as “mechanistic” so that students have to develop coping strategies. As Moss (2004) found mature women students experience a greater sense of inequality in this situation. L who taught science felt that things were not as good as they used to be.

“Yes there was a lot more timetabled time to do teaching, to do lecturing, to do tutorials. If you had a lab based subject, it was taught in addition to the lectures and tutorials. It was an underpinning mechanism and staff seemed to have more time.” (L)

However one lecturer with management responsibilities did not agree that administrative workloads were necessarily a negative factor. He explained that with the new central review of workloads and workplanning he had been able to strengthen an argument for more staff to cope with increasing numbers. He also explained that he thought many staff will try to do too much: *“they will all aim too high, they will aim for 150 per cent of what they should be doing and achieve 120 per cent of what they should be doing and feel disappointed with that .”* (W2)

The Gender Equality Scheme (GES, 2007) for the university has been set out under the Equality Act 2006 and serves to indicate the past, present and future activity to support gender equality. The university has introduced a scheme to encourage more women to apply for professorships and with some success (moving from 14% when the initiative started in 2004 to 22% women professors in 2007). The shortage of women professors is of national concern with only 17.5% nationally in 2007 (HESA, 2008). The GES recognizes a need to focus on the under-representation of students in some courses, although built environment is not specifically mentioned.

In 2008 (UNiv, 2008) the university set up a Gender, Race and Disability Forum for staff across the university to participate in discussion about policies and concerns (Britton, 2000). The evidence is mixed with regard to the success of the university approach to promoting equality of opportunity for women. While there are initiatives and discussion groups, the university is consistent with the general culture of higher education as described by Becher and Trowler (2001), briefly and retains a clear structural system and framework that according to Becher and Trowler (2001) discriminates against women and their career progression. The factors discriminating against women include a gap between policies and successful implementation (Bagilhole, 2002), a lack of transparency in procedures at the higher levels and a reliance on research profiles (Doherty and Manfredi, 2006). However Doherty and Manfredi (2006) did find that more transparent procedures were present in new universities compared with ‘old’ universities.

As a new university there is a strong focus on widening participation at entry and UNI has included it as part of its Mission since it became a university in 1992. UNI has consistently met or exceeded Higher Education Funding Council (HEFC) targets for widening participation (UNI, 2005). The need for such a focus is partly reflected by the need to recruit from the region within which it is situated which has had education participation and attainment levels below the national average for a number of years (UNI, 2005). The publication of statistics in 2009 (HESA, 2009) shows UNI with 17% of student population coming from low entry categories and 7% above the benchmark participation level set by HEFCE. The retention statistics also show a 'drop-out' rate of 6.9% which is below the benchmark set by HEFCE of 8.3%.

UNI is clearly positioned with a high priority on teaching, particularly at undergraduate level, with 75% of its students being at undergraduate level in 2007 (UNliii, 2007). However, UNI has a small number of active and successful research centres that hold national and international reputations in their field of study (UNlii, 2007). The teaching and learning strategy exhibits a strong emphasis on e-learning and employability. These aspects are reflected in the successful bids to lead on two Centres for Excellence in Teaching and Learning (CETLs) from 2005 to 2010 in these areas (UNliii, 2008) and to collaborate in a third led by another University. The strategy has embedded champions for teaching and learning within faculties at senior management level along with the award of a number of teaching fellowships across UNI (UNliii, 2008). UNI appointed a new Vice Chancellor in 2008 and has gone through a consultation exercise to review values and priorities for the future (UNlii, 2008). Within the market driven culture of higher education as described by Becher and Trowler (2001) the university management has a consistent concern about recruitment figures and the position of the university within league tables. Improvement in the feedback from students in the National Student Survey was seen as an area to target in 2007 (UNliv).

The faculty

UNI is divided into four faculties. The Faculty hosting built environment has a number of subject areas across a wide cultural spectrum split into three departments – Education and Humanities, Applied Social Sciences and Built Environment (BE). *"The variation in how academic institutions elect to draw the*

map of knowledge" (Becher and Trowler, 2001, p42) can have a marked influence on the culture of a faculty. This is clearly relevant in my research as regards the participation of female students across a faculty where in other parts there are a number of subject areas dominated by women students. Greed (1991, p106) also remarks on the climate of construction being influenced by which departments are located with it. The Faculty has a female Dean and an Executive Team of 19 including 5 women. The Faculty Executive Team is dominated by Education and Humanities representatives which reflect the size of this department and its numerical majority for student numbers. The Faculty also includes five Research Institutes including the institute where my team is situated. The Built Environment (BE) Department has no research institute but there is an informal grouping of academics that focus on research (UNlv, 2007).

The next step down within the Faculty is to departmental management teams with BE having four members (male) in 2007, Applied Social Sciences (ASS) with six members (male) and Education and Humanities with eleven members (7 male/ 4 female) (UNlvi, 2007). By 2009 BE had one woman academic in an expanded management team of 21, including 5 non-academics, 4 of these also being women (UNlii, 2009). All management team members across the faculty are white. The National Student Survey for 2007 gave an over all satisfaction rate for the university of 80%. The results for Architecture were 94% and for Building 65% (within BE). Planning (in ASS) received a rating of 93%. While they increased for 2008, Building was still well below other subjects. Some of the concerns expressed within the course of student reflections and interviews as part of my research in the following chapters have been reflected in this review (UNlstats, 2008).

courses within faculty

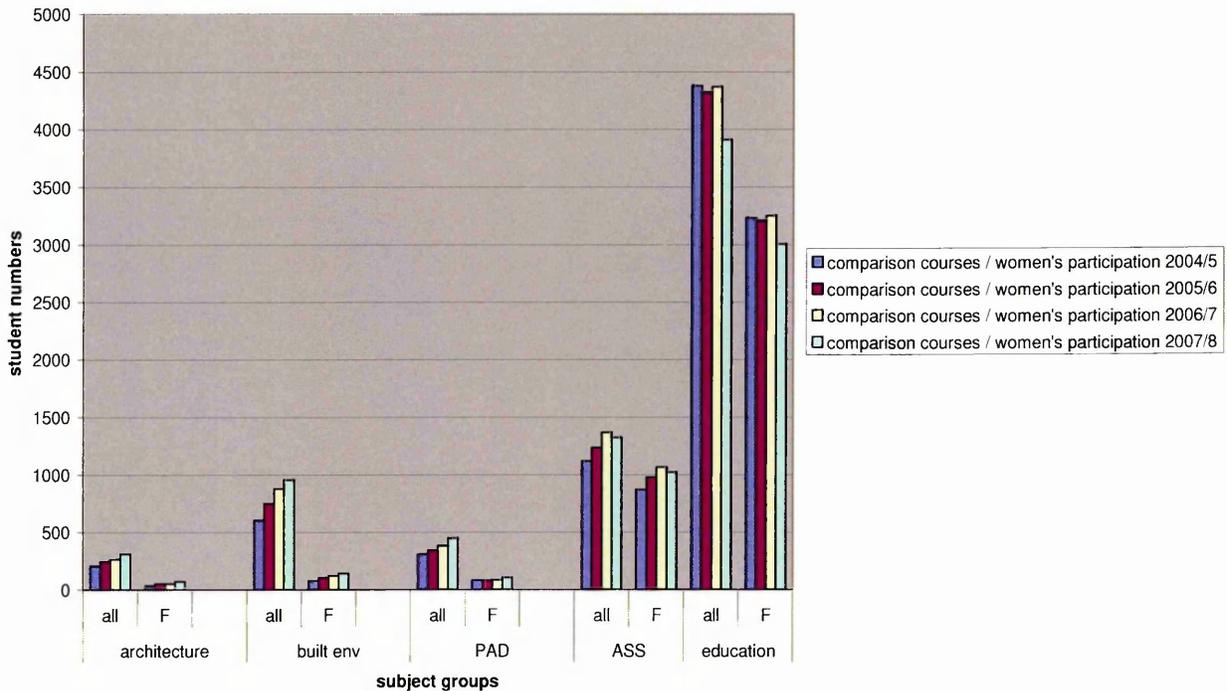


Table 7 Women's participation in courses

The relevant subject groups to the study and the main courses they include are architecture (architecture and architectural technology degrees) and built environment (construction management, building surveying, quantity surveying, construction cost management, environmental management, HNC and HND building studies). Property appraisal and development is situated within the built environment department but did not form part of this study.

Table 7 above illustrates the numbers of students (fulltime and part time) on courses in the Faculty since 2004/5 highlighting a number of factors of relevance to this study.

- The relatively small size of the two built environment programmes (architecture and built environment) and property appraisal and development (PAD)) compared with education and applied social services also in the Faculty.
- All programmes in BE show evidence of growth year on year since 2004/5.
- All programmes within the BE have small numbers of women on courses, but a small increase of women within architecture and built environment since 2004/5 can be seen.

- By 2006/7 there were 20% women on architecture programme and 14% women on built environment programme, compared with 35% and 16% respectively for English universities (HESA, 2009).
- By 2007/8 there were 23% women on the architecture programme and 15% women within the built environment programme with both programmes dominated by male students.

Critical mass has been questioned as a strategy to change culture (Greed, 2000), however there is little evidence of progression towards a critical mass of women students within the department.

In January 2009 consultations were taking place about an internal Faculty reorganization that involved the architecture programme splitting from the BE department to join ASS (UNli, 2009). The impact on gender and culture within the faculty has not been mentioned as part of the consideration in making changes.

Research Institute

One of the objectives for this research is to draw on the current action and strategies being taken to address occupational segregation and to measure their effectiveness in action. The team was successful in winning Objective One, European Commission funding from the Learning and Skills Council (2003 to 2005 and 2005 to 2007) to develop a specific built environment project. This project has had a range of interventions with employers and schoolgirls, but has also developed a number of bridging courses for women which can lead to mainstream BE higher education courses (Formby and Yeandle, 2005). Involvement in these funded initiatives led to the establishment of a stand alone team that specializes in support and widening participation of girls and women in Science, Engineering, Technology and the Built Environment.

The team were situated within the BE from 1998 working on a number of projects relating to improving the participation and progression of women in SET and BE. The team moved to a Research Institute in the faculty after changes in the university structure left BE without a research institute in 2004. The team is now acknowledged outside the university for expertise in tackling

occupational segregation in education and employment. The interventions the team has been involved with in the university to bring about change and improve the learning environment for women have been weighted towards a 'bottom up' approach:

- Training for individual lecturers to raise awareness of gender in teaching
- Presentations to staff and management to promote gender awareness
- Development of a targeted recruitment brochure to promote BE courses to girls and women
- Mentoring schemes for women students and networking activities to provide support
- Delivery of 'women only' university accredited at level 4 courses to introduce women to BE courses and careers giving progression to mainstream courses
- Delivery of various taster activities and courses for schoolgirls to encourage careers in BE.
- Support for non-traditional women entrants to part time BE courses working with employers.

The teaching styles and activities developed for short courses have been designed to be inclusive and to reflect the practices identified earlier by SHEFC (1997), CuWAT (1998) in conjunction with a feminist pedagogy (Hugo, 2002) as described in Chapter One and Appendix Three (Also see Appendix Nine).

The team has been involved at a central level of the university and serves as an informal 'gender in SET adviser' to support and encourage policy decisions to support the position of women. The university has rejoined Opportunity Now and the Athena SWAN Charter in 2008 (organizations supporting progression of women) as a result of the team's advice and involvement in the Gender Forum. Other examples of involvement and influence at university level include running events for Diversity Week 2009, delivering presentations at university teaching and learning conferences and sharing the success of our courses to promote transition to higher education (Higher Futures, 2008). At faculty level the team has taken initial steps to form links across departments with an interest in gender equity, but this is at an early stage. The team has links into BE to course teams and lecturers who have an interest in our work in outreach

to schools and / or transition and access of women mature students. Examples of cooperation include mention of the team in validation documents, BE lecturers involved in delivery on our short courses, member of the team supervising a BE PhD student and joint work with employers on Building Schools for the Future schemes. Finally the team has links to individual students and graduates in BE as informal and formal mentors and training and involvement as role models in our outreach work with schools. The Objective One project mentioned earlier achieved significant success in reaching all outcomes (UNlvii, 2007).

We lack formal links with the management team in BE and there is an absence of specific strategic gender intervention at department level. As suggested by Greed (2000) change needs to be bottom up, top down and be centred on "*planet construction*". My findings indicate there is some evidence of top down and bottom up change to improve the position of women students in BE, however there still much work to be done to achieve the desired embedded and enduring success referred to by Kirkup (2003) in order to achieve a centred "*community of practice*".

The Built Environment Department (BE)

I have identified four sub headings within this section, described in turn: symbols and artifacts of BE; course and programme design; teaching; and academics.

Symbols and artifacts

Drawing on Becher and Trowler's (2001) described symbols and artifacts of disciplines I identified some of the key artifacts and symbols associated with courses and with UNI landscape as well as BE. See Appendix Eight for the complete list, including some images. For the architectural courses there is the drawing board or the computers, while for construction management there is the hard hat, mud and the theodolite or level and a computer. Surveyors' artifacts consist of damp meters and clipboards. For all BE courses the teaching context includes laboratories and drawing studios. The wider landscape includes a reception area and waiting area for students is welcoming with a member of staff available during normal working hours and soft comfy chairs...but access to lecturers is only via the reception...there is no direct

access to lecturer offices. Marketing materials have been produced centrally and have been 'gender blind' with images of white males dominant.

Taking comments directly from my interviews I produced a short check list of positive and negative comments to illustrate culture:

- Positive – *passion, forming bonds, best friends, sweet, fun, supportive, helpful, motivated, a good "gab", want you to succeed, enjoy, good community, welcoming, close, good time, good fun, enjoy, encourage, really good, helpful, super.*
- Negative – *rabble at back, bullying (placement), a bit of a struggle, sexist comments at work.*

Whilst these comments may be found in many courses, they are indicative of the culture experienced by women students in BE.

Course and programme design

One way of understanding the built environment culture in this university was to locate the subjects taught within the two programmes of built environment and architecture (see Appendix Ten for programme content) to understand the influence of discipline and parent culture drawing on Becher and Trowler (2001) and Neumann, Parry and Becher (2002) referred to in Chapter Two to attach attributes to subject areas. Whilst extreme care needs to be taken in putting too much emphasis on these broad categorizations they do provide a basic framework for understanding the situations and sources and underlying culture of the subject areas. The tension in allocating masculine and feminine attributes to subjects relates to the concerns of Wajcman (1991) whereby stereotyping can be perpetuated by such categorization. Paechter (2006, p254) reinforces this concern that we can "*become seduced by the obviousness*" of terms without looking beyond the surface an issue of concern reported on in Chapter One. That said, I decided to proceed with the categorization in order to understand better the relationships between the defined attributes and the perceived experience as described by the female students.

I identified four areas of influence that provide the basis of subject area and placed all modules from the two programmes within these four areas taking into account the relative weighting and time spent on the specified subject area:

- Mathematics and Science based (hard pure) - cumulative; atomistic; quantities; impersonal; value free; results in discovery / explanation.
- Management / Law broad based (soft applied) - functional; utilitarian; concerned with enhancement of professional practice; results in protocols / procedures.
- Building Technology (hard applied) – impersonal; pragmatic; objective; rational
- Design (soft applied) – creative; human and social aspects; subjective and with emotion.

The dominant influence within the built environment programme was found to be management / law broad based, with a secondary joint influence shared between mathematics and science based and building technology with design as a clear minority influence. The architecture programme was clearly dominated by design but the architectural technology course within the programme had a prominent secondary theme in mathematics and science. The other areas had minor roles in the programme. Both programmes have a mixture of hard and soft subjects. However, what was a striking difference between built environment and architecture programmes was the contrast in their development between stages, with the architecture programme divided into its two degree courses (architecture and architectural technology) building developmentally with a coherent and visible identity while the built environment programme (containing a wide number of different degree courses – building surveying, quantity surveying, construction management, construction commercial management, construction engineering and sub degree courses – BTEC HNC / HND building studies and construction engineering and foundation degree) runs generally in a common programme mode, as a series of separate modules until the final year when a course identity is established (UNI, 2006).

The design of courses within the BE is heavily influenced by the relevant professional institutions and the majority of courses require professional accreditation to be viable (Burke, 2003). Examination of the dominant professional institutions' aims and values confirms the management / law broad based nature of the built environment programme. The Chartered Institute Of Building (CIOB) and Royal Institution of Chartered Surveyors (RICS) stress the

nature of business and management (CIOB / RICS, 2008). The institutions concerned with architecture also reflect the course influences with Chartered Institute of Architectural Technology (CIAT) emphasizing the link between science and design and Royal Institute of British Architects (RIBA) promoting design excellence for a better society (CIAT / RIBA, 2008).

If the “*alternative values*” (Alvesson and Billing, 1995) referred to in Chapter Two are drawn on then only ‘design’ could be described as having ‘feminine’ characteristics. Drawing on Neumann, Parry and Becher (2002) the differences between the four areas of influence can be seen to have some impact on the gendered nature of the curriculum. The hard areas of influence exhibit a cumulative approach to knowledge that allows less room for students to develop their own critical perspectives. As Belenky et al (1997) found in their research described in Chapter One, women thrived as they developed their own voice rather than being on the receiving end of knowledge in a ‘banking’ (Freire, 1993, p53) education system found more often in scientific teaching.

The teaching

Caution is needed in interpretation of these frameworks particularly with the nature of this research which is concerned with the experience of students. Whilst the words that describe the different modules and their attributes are useful as a base, the delivery of the modules can be interpreted in many different ways by individual lecturers who are delivering the modules. “*People have a gender, which rubs off on the jobs they do. The jobs in turn have a gender character that rubs off on the people that do them.*” (Cockburn, 1988, p38 in Britton 2000)

Taking Britton’s (2000) views of gendered culture as referred to in Chapter Two, things are not so clearly allocated into relevant boxes and boundaries are blurred. Britton argues in the context of organizational cultures that challenge gendered assumptions at the individual and inter-actional levels (2000, p429) challenging the status quo. Indeed she draws on female engineers as an example where their way of working varies from the stereotype of ‘macho’ styles. Likewise lecturers have control over their subject and can control the way they deliver it to students and students can interpret for themselves which

subjects are 'gendered'. Recognition needs to be acknowledged for the individual involved in delivering the so-called 'gendered' subject area who seeks to create change. The lecturer can interpret the subject in different ways to create a new and innovative teaching and learning environment and subvert the perceived gendered base characteristics of the subject. Indeed this is what I found in a number of the 'hard' subject areas (see also Chapter Seven and Eight).

I've spent whole tutorials doing a topic, just talking with the students about the problems of that group as a whole, ok, you can't talk about individual problems but I think that if you want to make the time you will make the time, now I'm saying that not knowing what the university's got in store for us from Work Planning and so on in the future but I think if you want to talk to, to see students then you will see them. (B in Building technology)

B balances the administrative workload with the face to face interaction with students, but he demonstrates the close relationship with students he sees as part of good teaching practice.

So a good lecture is...where the students engage with the subject, you can see little light bulbs come on over their heads, they have understood it, they are asking questions, you have been challenged on some things - sometimes students say "well I disagree with you on that point". That is very refreshing when that happens. (L in Materials Science).

L, above and W2 below, describe what to them makes a good lecture, again reinforcing the interaction as well as the responsibility the lecturer has to make a subject enjoyable. *"I think students must enjoy the process, I think that if students enjoy learning then they will learn and it's up to the tutor to make sure that the process is enjoyable."* (W2 in Architectural Technology)

These lecturers have taken the value free, objective, abstract, impersonal aspects of subjects and, via their teaching styles, have introduced interaction, dialogue and have lessened the distance (supporting non-traditional students according to Thomas, 2002). They exhibit aspects of feminist pedagogy according to Hugo's (2002, p201) suggestions of a commitment to cultivating ways of thinking, and contrary, once again, to the 'banking' education system (Freire, 1993, p53) as discussed above and in Chapter One and Two.

The over all subject reviews (QAA, 1998) for building in the past have acknowledged a wide range of teaching methods, but have also commented on an over reliance on lectures that were inadequately supported by tutorials. The built environment and architecture programmes at UNI do exhibit a broad learning and teaching strategy illustrated within course documents and reflecting the UNI approach. A varied approach to delivery encompasses community based and experiential learning, problem based learning, reflective practice, inter-disciplinary learning, lectures linked to structured tutorials, case studies and live projects (UNI, 2006).

An examination of a sample range of the module documentation within the two programmes revealed extensive gender blindness in content, with a complete absence of gender in teaching materials. This was not the case for a period prior to 2004 when a number of lecturers actively included materials that challenged gender stereotypes as well as topics covering gender (UNI, 2000). Drawing on the Let's TWIST staff development training materials referred to in Appendix Three that included a checklist of '20 ways to make your teaching women friendly' course materials included:

- Case studies and tutorial problems included women in non-traditional roles as the norm and a diverse range of 'names'.
- Images used in examples were inclusive and diverse.
- Gender, diversity, sexism and racism were included as topics in the curriculum in management studies
- Assignments that challenged a masculine approach to design e.g. nursery and childcare design including research on baby and children's needs or the social and health impact of condensation in houses.

The curriculum has reverted to a gender-blindness as identified by Srivastava (1996) Greed (1991, 2000) and discussed in Chapter Two in contrast to the content of the women only short courses (see Appendix Nine) that encourage women into UNI. This absence could impact on the retention of women long term.

Examination results for the sample modules highlighted the very small numbers of women present in various cohorts and also revealed a number of

instances where the women were placed in the top ten percent of the cohort also found by Greed (1991).

The academics

In an earlier study (see Appendix Two for questions) I interviewed three women lecturers within BE in order to try and unpick the disciplinary differences as well as the gendered nature of being a female in the academic environment (2003). There were certain elements of the '*Gender Blind*' and '*Smart-macho*' (see Appendix Two) typologies (Itzin and Newman, 1995) present with clear evidence that there were ways that the contribution of these women academics was being undervalued by the university. Positive symbols identified within the department centred on the interaction with students, while there were mixed experiences of the working culture ranging from isolation to a strong team ethic. There was no evidence of the women being in an alien culture as identified by Gherardi (1995). There was little or no evidence of the gendered culture attributes described by Itzin (1995, p 48) such as isolation, suspicion of networking, sexual stereotyping or harassment, but the women academics did experience gender stereotypical views from some students. The main disadvantage identified by women came within career progression and lack of acknowledgement of their home and family responsibilities.

There is evidence of increased pressures and a centralized approach of managerialism at a local level within the department (UNI, 2004). Since 2003 there have been a number of changes in organization and where there had been a strong team ethic in some courses, particularly building surveying and construction management, courses have been subsumed into the broader programme. The university-led drive toward large programmes has meant a more remote relationship for some lecturers with their students (Becher and Trowler, 2001). However there was evidence that the course team within the smaller architecture programme had retained a closer relationship with students.

There is a lot of contact with tutors, you've got small cohorts and we're managing to keep the cohorts small, at 40... and at 40 you can just about keep control of that and know the students. It's not 100 per cent, obviously, but that studio contact takes place regularly. Although it's meant to be academic there's a big pastoral element involved. You can't teach students and not engage with them personally. (W2)

An example of this aspect can be seen in the past Building Surveying course. The course team worked closely together to develop a distinctive course, first validated in 1994, that included personal development and support for students with a strong link to practical work experience and modules that built on core aspects of surveying level by level through to the final year. The course reflected the values and wide experience of the core course team who had been drawn from different areas of practice to join the university. There was a clear commitment to equality and a commitment to widen recruitment to those under-represented. By the year 2000 when the built environment programme was revalidated the structures and frameworks for courses were far more restrictive. The economics of running small courses could not be justified. The university and the department had to ensure that the income and outgoings were viable and the number of single course modules (those that had a clearly identifiable building surveying theme) had to be limited. While the course review (UNI, 2000) called for the personal tutor system to be retained and improved for the new programme, this was much more difficult to achieve as student numbers increased alongside lecturer workloads. As various members of the original course team left the Department from 2004 onwards, the commitment to the individuality of the course was lessened and building surveying became subsumed into the broader programme (UNI, 2006). However there has been a positive outcome as part of the inter-disciplinary learning environments being created as a requirement of the professional bodies as referred to by Burke (2003).

Unfortunately there has been a scarcity of qualified and experienced BE professionals interested in entering academia over a number of years while the economic situation in industry has been buoyant (UNIVI, 2007). Universities seek to have staff with professional qualifications, experience in industry and / or experience in research. The department has tried to replace the staff that had left in the past 3 to 4 years but this has been problematic. The student experience has changed and this is borne out in the student reflections and interviews within my research as well as in student experience survey data. Alongside the shortage of skilled staff there have been increases in student

numbers as a whole, bringing increasing pressure on to overburdened staff and resources comparable to other areas of BE higher education (Burke, 2003).

The university as stated earlier has a positive approach to widening participation access to higher education. Some professional societies including the RICS have linked professional accreditation to qualification levels (Burke, 2003; Wilkinson and Hoxley, 2005) limiting the access of non traditional students and this has resulted in a tension for staff in recruitment to accredited courses. As women have been more likely to enter BE study as a career change, for instance by way of women only introduction courses, this can discriminate indirectly against women students (Phipps, 2008). However a number of courses without the restriction do have an open approach to recruitment. The students who come to university via access courses or without formal qualifications have greater needs in learning support and in adjusting to university life. Support systems need to be in place for these students when they arrive.

Thus the culture of the department has been influenced strongly by the university culture and increased pressure to achieve targets and income (UNI, 2004). At the level of the lecturer, however, there remains scope to operate within one's own sphere of influence. Those lecturers who take job satisfaction from interaction will try to provide the support requested by students. However this is fraught with difficulties.

I'm finding it very difficult because I try to have an open door policy and I tell the students that they are welcome to come and see me with any problems and then what you find is you lose whole days just seeing students, one after the other, and a lot of it is a petition of complaint, they've got a problem with a particular issue or, and seeing people about somebody else's tutorial because that person didn't come in for 2 days and they can't get in to see them and I think as of next year I'm going to have to manage it better. (F)

So you might have a lecturer who's just a researcher who doesn't want to keep doing courses, just does the business and comes out, so it's the make-up of the lecturer here as well, isn't it, and how the lecturer views the lecture, how the lecturer views the university, if it's a 9-5 job or if they want to do research... you're not necessarily interested in the dynamics and care sufficiently... I'm not saying you don't care but don't care sufficiently to encourage adequacy in student (access)... you might not be that interested. (W)

The students having access to these individual lecturers experience a supportive culture, almost in contrast to the 'official' culture. The way an academic supports their students has a significant impact on the culture experienced by students.

Have things changed? Atmospheres and territories

I wanted to compare the students' observations with the findings of Greed some seventeen years ago for atmosphere, territories and the way of college life (Greed 1991). While the landscape of HE has changed considerably since then, a check on the negative aspects for women students that might have endured as well as a check to identify positive progress in the environment is a useful tool to assess the current culture. Many of the negative aspects of higher education environments described by Greed are absent and unfamiliar to the current students.

I think it's quite fun actually I enjoy it... I like coming in Uni and being part of it 'cos I've never experienced it before at all... I like the University because it's nice surroundings; it isn't dirty or nasty it isn't ...or anything like that (Sue)

The experience of the subjects taught within the courses has not generally been convergent with views from Greenfield (2002) in Chapter Two as "*abstract, impersonal, hard or disconnected with real life*" at all. Neither do the students see themselves "*as fish out of water*" (Moss, 2004). Thirdly there is no evidence of an assimilation effect with this group of students as identified by Powell et al in engineering (2004).

The following is a summary of aspects that I have taken from Greed (1991, p106) to identify the unwelcoming culture for women in built environment higher education in 1991 and this is compared with how UNI appears seventeen years later.

Territories

A brutalistic architecture was described by a woman student in Greed (p106). UNI has a typical city centre former polytechnic environment that has now been considerably refurbished to provide up to date and modern learning facilities.

New facilities provide a positive atmosphere for students including social space, disabled facilities and a café atmosphere which are all central. Lecturer rooms are shared or open plan and the departmental reception act as gatekeepers to lecturers in a similar way to a doctor's surgery. *“On a Monday morning we meet down in cafe area and have a good ‘gab’ about things and if somebody's struggling; we all help each other as well which is good.” (Sue)*

Greed found the overwhelming maleness in some surveying departments in 1991. At the university this has not been the case since Faculty reorganization and university campus changes where female and male dominated courses are now on the same campus and within the same buildings e.g. biological sciences and education in the same areas as BE. Engineering is different and is in a block on its own and therefore Greed's male dominance is still evident in other faculties.

There was little space for women in 1991 with even the Student Union buildings being male dominated. On UNI campus now there are a number of café / social areas with lots of mixed and well lit spaces outside together with additional diverse facilities to match the diverse nature of the student population including Prayer Rooms for Muslims. Like other universities UNI's student population is more than 50% women (UNLiii,2007). There is an over subscribed nursery which caters for staff and students. Inadequacy of the number of female toilets was remarked on by Greed in 1991 but as the female student population as a whole has grown, provision has increased especially since refurbishment took place across UNI campus.

Greed remarks on the regional *“nuance”* of courses with northern courses being tougher and more practical. This may well remain true, but many northern women come to the university and they might see themselves as tougher too. The practical nature of the surveying course was considered a positive by the students within my research (see below).

Sport interest was identified as a male attribute by Greed in 1991. But why should sport be masculine? The ability to challenge masculine stereotypes in sport at university is a positive aspect. I was able to access a sport, indoor

hockey, when at university in the seventies that I would never have found in my normal experience. The sport was mixed and included a diverse mix of students – I joined at the invitation of a Sikh male student on my course. One of the students in my research was upset that classes were on Wednesday afternoons so she could not do sport! Giving sport a masculine culture can reinforce a stereotype – we need to break down the perceptions of men’s and women’s sports (Paechter, 2006). It is rather the gendered culture around the sport that can be ‘macho’ and unwelcoming to women (Mac an Ghail and Haywood, 2007).

‘Hard’ or ‘soft’?

Greed found that across the wide spread of emphasis in surveying courses there was still little evidence of an accommodation of social issues. Within the university there has been a difference between construction (“*more macho*”) and surveying (“*smoothie*”) cohorts as perceived by the lecturers and there is some tension between architecture and architectural technology (in status) but probably only construction has been seen as really masculine and white (drinking, sport, muddy boots for some cohorts). This is less the case in part time cohorts where students are more mature and are often men with family responsibilities. This is where the women students have found friends and colleagues. So when a cohort lacks mature role models and has no women students a different culture grows where there are

some very strong personalities that seem to be controlling the group dynamics and in a slightly negative way. So they tend to be much rowdier, much more laddish and it might be because there's actually no female students and basically mature students in there to balance that up. I think that's most of the observations but it was the same in the first year, it was noticeable in the first year that they were a very laddish, a very slack work ethic, (L)

The surveying course flavour has been a mix of technical/ corporate/ design in the past but is now more technical/ management as it has been subsumed into the built environment programme. The women within the research enjoyed the practical nature of surveying.

If we go back to the second year, the actual building surveying topics like Building Pathology and Building Technology, they were the best. The very best ones. (Bel)

I'd say I learn better by doing so I can see what I'm doing. It's like when I go out to site and I see what the men are doing I understand it then, whereas if you're just reading it on a drawing I don't always understand what it means. (Jill)

The student experience

In 1991 Greed found that the social aspects of subjects were either too difficult for surveying students to relate to or they held lower status or indeed even revealed prejudices of students (1991, p118). Planning and related subjects, such as option modules in the built environment programme, in the past have been able to focus on soft issues and they have brought lecturers from different backgrounds into built environment programmes. The lecturers involved have confirmed that BE students did have difficulty in relating to the social aspects of the course. The new built environment programme, post 2004 (Appendix Ten), has less scope for inclusion of this social content, with a return to a technical and more rigid framework, but opportunities do remain. Architecture does have some visible cultural and social streams within design (Appendix Ten), but not specifically including gender. The lecturer involved has committed himself to consciously thinking about this in the context of design projects as a result of being interviewed within my research.

Greed reports on "*the coldness of the way they teach is a real barrier*" (1991, p107). Whilst there is still evidence in some lectures of the "*chilly classroom*" (CUWAT, 1998) this is but a small minority. The majority of lecturers are perceived by the students as enthusiastic and motivated and this rubs off (UNI, 2006). There are some problems identified in a small number of subjects but these do not necessarily link to core subject areas. Problem subjects identified include economics, law and management which can be traced back to part time tutors, researchers and new lecturers or service teaching from outside the department.

The role taken by women working in group projects was identified as an issue by Greed (1991). There has been evidence in the department of a number of problems related to gender where women students have been isolated. Sometimes these were tackled by lecturers and sometimes the problem was ignored leaving the woman student to struggle in isolation. The research has

also found a number of examples of problems in teamwork not necessarily linked primarily to gender. Timekeeping and arrangements for meetings have caused issues for mature women working with young single men. The men were unreliable and the women needed to structure time because of outside responsibilities.

Greed draws on experiences in the classroom and staff meetings that illustrate either a lack of listening or putting down ideas from women - sexism. There is still some evidence of this from students to students (see Chapter Seven) and some lecturers have adopted this attitude within their teaching styles (see Chapter Seven). The outcome is withdrawal of participation in the classroom and sometimes withdrawal from the course as described by Hayes (2002) in Chapter One.

Inter student relationships will always be the case as students are attracted to each other, fall in and out of love, relationships come and go, some endure. Within courses where there is a more balanced split between male and female students this aspect is not an issue for remark. I know from my own experience in teaching that gay students have found it very difficult to be open within BE courses without support from lecturers. Age and gender do raise issues sometimes between students, for example older women and younger men with very different lifestyles and working together can cause conflict.

Greed describes a number of examples from teaching about problematic reactions from students when including "*women*" or "*gender*" as a subject (1991, p115). The building surveying course team prior to 2004 did consciously try to address the gender blindness within the course (see above). Since the original course team has moved on I have not seen any evidence of gender or women as subject within the module files examined. A small number of lecturers have been gender aware (those taking part in research) and others are '*gender blind*'.

Parenting

In 1991 Greed found little evidence of crèche facilities and a general opinion that having babies was '*inconvenient*'. My research has evidence of women

lecturers being indirectly discriminated against when they become pregnant and return with family responsibilities. Examples given in confidential interviews included an expectation that a woman would continue to supervise research through her maternity leave; allocation of teaching timetables that made it difficult for women with small children to manage whilst their male colleagues had their teaching arranged around their external consultancies and also women, particularly working less than full time, experiencing decreased opportunity for promotion. University nursery facilities are oversubscribed. The number of mature male students with childcare responsibilities has helped to change attitudes within the department as did the lecturers (male and female) who have brought their small children into the university and even into the classroom.

Part time courses

Part time study was identified as a positive aspect for women by Greed in 1991. The part time routes have been maintained in the department and have been a positive influence on culture for women. The women and men on the part time routes are more mature and motivated and they have helped to influence other fulltime students. In my research the women students studying on the part time route have found a positive and supportive atmosphere in their cohort.

Summary

The examination of the context and culture in the built environment within UNI has been difficult and complex. There are many and contrasting perceptions of culture and the higher education landscape is broad and complicated. The understanding and interpretation of gender in organizations is also complex. The analysis of statistics may provide the information that the subject area is male dominated, but that alone does not mean it is experienced as gendered. There are a number of layers at UNI that have different pressures and influences and many actors involved whose practice impacts on the gendered nature of the student experience.

The chapter has examined the attributes of UNI at institution, faculty, department and course level to understand the culture and how it impacts on women students studying in BE.

Negative aspects

- Limited numbers of women students and staff contributes to isolation of individuals and a lack of awareness by staff of gender
- Limited time allocated to lecturers to provide support to students and build confidence of women students to reassure them that they belong and can achieve
- Absence of gender in curriculum
- Absence of tackling stereotypes in curriculum and teaching materials
- Lack of awareness of gender in new staff and at departmental management level
- Limited aspects of 'soft' subject areas within built environment programme curriculum
- Lack of support for difficulties faced in with employment by women students
- Inequality experienced by women academics

Positive aspects

- A positive approach to widening participation and equality and diversity within central UNI policies and procedures.
- Faculty includes subject areas with female dominated subject areas and '*soft*' subject areas
- A number of gender aware lecturers – male and female
- Support for students and staff from the Research Institute
- Support for increasing recruitment of women students from the Research Institute via short courses
- A strong teaching and learning strategy across the university that supports innovative and a broad approach to teaching styles and delivery methods.
- A number of motivated and enthusiastic lecturers who can relate to students and teach creatively and with respect
- A woman friendly environment and spaces within UNI for students
- University policies moving forward to implement Gender Equality Duty

The research has identified a number of attributes of UNI culture that are inherently masculine in line with the dominant culture of higher education (Bagilhole and Goode, 1998) but the university does have a significant minority of women in higher management. The analysis shows that university policies and staff attitudes are generally positive towards students from diverse backgrounds; and the distance and remoteness often described as a part of higher education is not evident.

At faculty level, placing BE with education and applied social sciences impacts positively on the senior management culture, structure and membership. Along with its physical placement in the main buildings there is little evidence of an unwelcoming domain. However, there is an absence of gender awareness and a lack of visibility of activity to support women at department level of management. The numerical dominance of male students and staff in the department and on the architecture and built environment programmes continues to have some impact on the experience of women students and staff, at the least by ensuring they experience higher education as a minority.

Examination to discover a clear culture for BE is problematic since the subject area draws from a number of very different disciplines. The women students have described a number of positive aspects of the culture that provide a contrast in significant areas with the male dominated territories and culture described by Greed eighteen years ago in 1991, yet some negative aspects identified by Greed have endured.

There have been a number of aspects of a supportive culture that are missing including curriculum content related to gender and staff awareness relating to gender. These aspects would positively contribute to change and have been identified as contributing factors in achieving an inclusive learning environment. In addition the tensions between support for students and increasing workloads have been identified as potentially being of particular significance to women students in the study.

The analysis has also confirmed that the descriptions of gendered culture can be over simplified. The stereotypical label of a subject as '*masculine*' can be influenced and thus delivered very differently depending on the approach of teaching and learning strategy and by the approach to teaching from the individual lecturer. The analysis has also shown that the women students themselves have not taken a stereotypical view of so-called '*masculine*' subjects nor have they been alienated by the attributes of subjects such as mathematics and materials science. Instead they have embraced and enjoyed these subjects with as much enthusiasm as any other subject.

Chapter Seven

Pathways and Arrivals – Identities and Choice

Introduction

Women entering built environment higher education have made a choice that is not traditional for girls and women. This chapter draws out the varying paths the women have taken before arriving in higher education at the university and also attempts to explain what brought them to this stage, who influenced their choice, what they found when they first arrived and how they made friends and joined or remained outside the community. The identities they bring are shown to influence experience and the new identities they build within their course and their studies. The chapter draws directly on data from reflective diaries and interviews I held with the women in the research over the period of the study. The women's backgrounds influence their experience on arrival and their differences as well as their similarities are highlighted. The diverse range of gendered identities they hold impact on the women's confidence at entry to higher education and their careers are multilayered and complex. The discussions with lecturers about the findings bring an additional viewpoint to the issues raised by the women and provide a complimentary perspective.

How do they get here? Influences, identities and difference

The range of routes into BE higher education taken by the women were wide – including very traditional direct paths via school to A level study in sixth forms or college and then via UCAS. Some women entered higher education at a later stage after leaving school and going straight into employment where they followed more traditional women's work roles. For some it was university that was outside their horizon rather than a BE course within university, for others the choice of BE was greeted by teachers, friends and family with surprise. A route into BE higher education for women is not a routine career choice, according to the EOC (2006) almost 75% women choose the 5 C's (clerical, catering, caring, cashiering and cleaning). A number of women had family connections in the BE and in this case their choices were perceived as more natural by families. Bel had a number of family members already in the built

environment sector, as she said “*she had lived on a building site for most of my life*” and then a cousin told her about his Building Surveying course. According to Bel

My family were all very pleased with my choice and really encouraged me, and they still do...At college my tutors told me that I had made a wrong decision, that it wasn't worth while and that I should be choosing something that required higher entrance grades...I just ignored them, I don't think that my college gave very good career advice.

The challenge to Bel's choices came from education where a stereotypical view of a BE course and career may well have been as a vocational or less academic and lower status career for a bright young woman (Burke, 2003). Greed also found women students who had been actively advised against surveying (1991) but because of the 'unsuitability' for women.

Sue had also had a long relationship with the BE sector through her family

My family used to have a company called Don Joinery, three generations in family...used to go for a bit of pocket money....me dad asked me when I was 16...if you want a separate bedroom you've got to help me build it... I'm now thinking about Project Management...and all this that and the other and I'm thinking I wouldn't mind doing that so it's my dad's influence really.

Sue had built up her knowledge and experience such that she was able to make decisions based on that experience and this had become part of her 'habitus' similar to how Hodgkinson (1996) described the young woman who chose car-body repairs in Chapter One. While her original career choice had again been traditional (EOC, 2006) it was within the BE sector.

Naomi had always wanted to be an architect. She started talking about what she wanted to do at the age of 8. At the end of year 9 she had to make a choice between PE and Art – Art was very popular and the Art teacher made a speech to them all and tried to discourage those that were not so good at it to limit numbers.

How ever afterwards she asked me if she could have a word...and basically said we were the ones that she wanted to teach because she knew we were good...Through years 8 and 9 my design and technology teacher was always impressed with my work...she would use my work to show the class...so I made my choice (Art and Design and Technology).

Naomi had benefited from encouragement in education – a ‘key institution’ (Pilcher, 1999) but also from a curriculum that allowed skills in this area to flourish... *“the teacher pushed me I suppose to try and get more out of me which, I think that’s what geared me more towards the technology.”*

Background and early experiences can be a significant influencer on confidence of women to make choices about what they do and Naomi had considered the issue of being a minority in her career choice. She had decided that her other life experiences would provide her with the confidence and ability to cope that she needed.

To be honest I know many females don’t feel comfortable when they feel in a minority. But to be honest this doesn’t bother me at all. I have been to a school where I was the only white girl...and then I didn’t feel different. I suppose it’s because I have grown up with all kinds of people, I also have 2 brothers...I’ve never known anyone ...tell me that boys are supposed to do this and girls are supposed to do that. I believe everyone has an opportunity and it’s up to you what you make of that opportunity...there’s no point in regretting your life, you may as well as live it as well as you can.

All of these women had grown up in situation that provided some encouragement to take up a career in the BE as part of their normal development. They grew up in circumstances that could counter the stereotypical gender roles but as referred to in Chapter One there is a need to be aware of hegemonic beliefs in “*uncertain settings*” (Ridgeway and Correll, 2004, p514).

The other women in the study had different early experiences. Lynn came to BE higher education as a mature student. She had left school with A levels and entered a traditional career straight into employment for a woman with her background. Her experience at school is aligned with Paechter’s (2007) reflection on stereotypes being more prominent in working class education. She was fed up with her work making curtains and being self employed and she lacked job security. She had seen a surveyor locally and she was interested in the Restoration TV programme where the presenter was a female building surveyor (Marianne Suhr). She did research on the internet and obtained various prospectuses. She took careful and well prepared steps towards her new goal but had to think carefully about how she approached her family with

her change of career. She felt able to draw on a female role model to support her career change decisions. The value of female role models alone as an influence for change is questionable (Byrne, 1993) yet it is recognised that the visibility of women working in the BE can reinforce a positive viewpoint.

I felt at home the first time I visited the university, everyone was friendly and down to earth. It wasn't what I had expected. I thought it might be snobby, not for the likes of me, a working class girl...I decided to apply but prepared myself that I might be rejected...I didn't tell anyone except my boyfriend ...and his family...they were all very supportive and encouraging, his stepmother in particular as she is very keen on women going into male dominated professions.

I decided not to tell my family...until I knew I had a place...as I anticipated a negative reaction and I didn't want anyone putting me down and lowering my confidence. Nine months from open day to the time I got my place...I was excited and surprised that I had been accepted so quickly. It was encouraging as I felt that the university must believe I can do this. My natural father was pleased, however my adoptive parents were concerned with how I would manage financially and that I should work instead.

Lynn was taking a risk in her choice but she was reassured by the environment of the university and the people within it. There were still significant challenges to whether she would fit in the environment she had chosen. Her previous experiences and her influencers suggested that university study was “*not for the likes of her*” (Hutchings and Archer, 2001). As was discussed in Chapter One (Ringrose, 2007) the simplistic perception is that girls' educational success is universal and yet there remain many barriers to progression including socio-economic background and ethnicity.

Parveen was working for a local council as an office worker in the Development section. She was surrounded by building inspectors, architects and town planners and the building inspectors encouraged her to progress her interest. She enrolled herself in a college Building Studies course and funded it herself. Following this she decided to go to university to study and left her home to go to London. She left London to return to study closer to home, then had an 8 year career break moving to Canada to bring up her children with her partner and only then returned to complete her degree. As she says in this extract from an interview, her college experience had prepared her for anything.

I was the only Asian girl in a class full of builders and I got everything there, yes I did. None of them were racist, none of them were abusive or anything – but they tried it on all ‘hey look at these photos’ trying to intimidate me. And I’m like okay, yeah, whatever. I didn’t let it faze me and I soon became one of the boys...By the time I got to university I wasn’t going to be intimidated by anyone...The lecturers were all nice, there wasn’t like anything like a big deal because there were Asians in the class...I came (here then) and by then I was an expert (laughs). It didn’t faze me who I sat with in class or anything.

..it was actually the building inspectors who encouraged me to go further...and I thought why not? I’ve always been encouraged to study. I think I had mixed reactions from my family ...first of all none of them knew what that job entailed...‘what do you want to do that for?’... and I made out like it’s a professional (sic), which it is, and you get a lot of respect. ...and my mum had a difficult time accepting it...but she was pleased I was going to university. I had to do my house chores and everything as well as normal but I just got on with it.

Parveen’s gendered identities on arrival at the university are drawn from her ethnicity and culture, from original parental aspirations for her, from behaviour, that I would label racism, experienced in further education (Let’s TWIST, 1998) and finally as her role as a mature woman, wife and mother. Parveen’s varied experiences had given her that political “savvyness” referred to by Harnois (2005) drawn from a black woman’s life experience. Her choices matched the experiences of the Muslim students in Archer’s (2002) study that challenge the passive stereotype of Muslim women who have a background in British culture.

Jill fell into one of the natural (EOC, 2006) career choices for women (clerical). Her examination results at GCSE were better than expected and she stayed on to do A levels in “girly subjects” as she describes them. After achieving 4 A levels she decided to take a break from education and went to work for a construction company in administration.

I wanted to do accountancy but I thought once I’d done a course in it, I didn’t realise, I thought it weren’t for me, so I decided to do admin because I’ve got typing and computer experience so I thought I could put that to use and did three years at (the firm) in the admin and then I approached one of the directors to see if I could do anything more because it wasn’t challenging and he suggested applying for an HNC at university because of my A levels.

So Jill had the benefit of knowledge of the sector to support her decision, similar to Sue and she had an influencer (her boss) to support her decision.

'Habitus' had been challenged by transformation in personal experience and from an influencer challenging the limiting view (Hodkinson, 1996).

Parveen, Jill and Lynn were coming from situations where their career decisions were not the norm, but their gendered experiences differed because of their individual background and differences in class, age and race and experience. So that while Bel, Sue and Naomi were following a more natural choice for them as women who had experience of the BE sector, Parveen and Lynn had challenged their traditional gendered, classed and 'raced' choices. Jill meanwhile had moved from a traditional gendered choice to a position where she was able to draw on transformational experience that had changed her 'habitus' (Hodkinson, 1996).

I wanted to know why the women had chosen the BE rather than some other course and why our university was the chosen one. Bel had chosen building surveying against the wishes of her teachers, she knew she wanted to go to university and she knew she wanted a course that would lead to employment rather than "*a pure subject like physics or geography*". For Lynn a university education had not been seen as a natural progression from school (Paechter, 2007). When Lynn went for an interview for a job as a librarian at a university her doubts were reinforced.

They were really patronizing and spoke down to me. They were very posh and were mocking my CV, it was a really horrible experience...they were extremely rude. I felt I was glad I didn't go to university if that was what it was like.

Only Naomi felt she had been fully encouraged in her clear career aspirations at school and college. All other women had either perceived active discouragement in their 'different' career choice or a lack of encouragement in aiming for anything aspirational from at least one influencer. All of the women brought with them an awareness of their difference, but also a motivation to get to where they wanted to be in spite of opposition. Only Bel had chosen a university outside her region. All other women stayed within their known geography and travelled daily to university from home. The location of their chosen learning institution may have been limited as Green (2002) and Reay et al (2001) found when exploring non-traditional student choices. Yet as Burke

noted (2003) BE courses are often situated in the new university sector because of their vocational nature and history.

Anita started her HNC at the university after participating in one of our short women only courses that was designed to encourage women to progress from administrative backgrounds to consider a technical career. She had worked at the university for eighteen years as an administrator. Anita dropped out of the HNC and decided that she could not commit herself to the high workload she was experiencing. She explained that it wasn't that she didn't feel she belonged on the HNC completely, but because she had been out of education for a considerable time, she was older than many students and she was finding the subjects she needed to study very different from what she was familiar with and too challenging.

So I had ideas of what it would be like, and I was nervous as it was a long time since I'd studied, and also I was nervous about integrating with people 20 years younger than me. But there was another older lady there and we had to work in groups so it wasn't too bad. It started getting a bit difficult when I thought 'I'm not interested in cement and concrete'. There was part of the surveying I'd liked before and I drew upon that experience, and then the maths kicked in, and this other girl there well we were pretty much in the same boat, she was worried about maths too and she went into it with the same ideas I'd had.

She also felt that lecturers may have underestimated the amount of work that the course would involve for someone like her. “*S encouraged me, maybe a little too much, maybe I had a false impression.*” Anita's experience as a non-standard learner reflected that which was also found by Waterman-Roberts (1998) and Thomas (2002, p431) in Chapter Two as a “*fish out of water*”.

Why do they choose this course and this place?

All women had set goals for themselves and had made their career choice with prior forethought. Whilst each of the women had discovered their career goal at different times, they all knew what inspired them and why. They believed that the BE could meet their career needs. As Naomi said:

I have always wanted to be an architect. The thought of designing a building has always amazed me. I have always been good at drawing from an early age, it was never anything I was forced into doing it's just something I enjoyed doing.

Sue's choice was also about career aspirations. She was ambitious and wanted to progress in a career. She was the only child in the family who had not gone on to university. She was able to progress from her traditional post as a secretary after some negotiation.

I wanted to progress...and with building surveying it was just like welcome me with open arms...so then they decided they were going to put me on HNC... obviously had a bit of ooing and aahing about that because I was actually brought in as a personal secretary and they hadn't actually done that before, move a secretary to become a building surveyor or whatever... now it's great yeah so I am there now in the end.

Lynn had made sense of experience that had built over time to a decision that although unconventional still fitted with what she had learned over time. She had made a conscious choice and had a story to tell (Faulkner, 2005).

My mum used to take us on coach trips looking at stately homes. I think that as I've got older, even in the job I had before university I really appreciated craftsmanship and traditional skills are mixed with that as well...the quality that's what I think it is.

Lynn's influences were built over time and her attachment to the conservation sector has been found to be a more attractive part of the BE sector (Buxton, Turrell and Wilkinson, 2004) for women generally.

Parveen had tested her place within the BE with the help of her work colleagues. She knew what the choice meant, but she was also conscious of choosing a career that would have some status as a profession to support her in her choice.

I'd already worked around the inspectors...I went on site visits...and nobody said no to me...and I quite enjoyed it...I thought may be building surveying because I wasn't getting dirty feet as the building inspectors did...okay I'll apply for it and I did and I went to University of Westminster in London.

Both Lynn and Parveen exhibit the multi-dimensional and intersectional aspects of gender with 'race', class and age influencing their identities and life experiences, but their motivation to succeed in their choices is reflected in Tett's description of "hope and desire" (2006, p102) referred to in Chapter Two.

Early days

UNI, as a new university and a former polytechnic (the region had joint lowest progression rate to post compulsory education in UK in 2005/6 (Office of

National Statistics Online, 2008)), and the department has an active widening participation agenda to target non-traditional students (see Chapter Six). For the women who had not taken a traditional route to higher education the importance of arriving somewhere where they could feel comfortable was seen as important. As laid out earlier in Chapter Two (Thomas, 2002, p432) one of the characteristics that can support the transition of non-traditional students to higher education is having “*staff attitudes which minimize the social and academic difference between them and students that enable students to feel valued and seek guidance when it is needed*”.

As Lynn described:

at the Open Day I immediately recognised F from an article on the university website about her. I could tell that she was genuinely pleased from the enthusiasm in her voice. I also knew from the article I had read that she was the same age as me when she started her degree... I felt that if she could do it then there is no reason that I can't do my best...it was good to know that somebody that had been through it, and could understand any concerns that may arise.

Having a female role model who matched Lynn's social identity fairly closely had a positive impact on Lynn's motivation to succeed. As Byrne (1993) found the often claimed positive effects of role models cannot be substantiated except where a close identity on a number of levels can be established.

Even for Bel who had come straight from sixth form it was important not to feel out of her depth in her transition to university.

The best thing for me was that the building surveying course was very small. I'm very confident in a small group of people, however, no(t) so in a very large group. Having a small friendly community of building surveying with tutors such as yourself and S that you knew were dedicated to you was very reassuring and welcoming.

The first days and weeks at university are very influential on a student's ability to fit in and become part of the community (Yorke and Longden, 2008). The environment of the university, the induction process and the attitudes of tutors are all important. The attitudes and backgrounds of other students and the ability to make new friends all impact on a new student. When a woman makes a non traditional choice and finds herself in a minority it can be a shock (Greenfield, 2002; Greed, 1999 and Powell et al, 2006), but other aspects of

her identity such as class, age and ethnicity also impact on women entering higher education giving multiple complexities (Andersen, 2005).

Many of the women also mentioned the excitement they experienced on arrival (Tett, 2006). Naomi mentions that it was only when she finally came to university to study that she really became aware of the numerical domination of men and to some extent the perceived advantage they had over women like Naomi.

What can I say, it was great, I was finally where I wanted to be. At first it seemed like lots to learn and I didn't really understand what everything was, to be honest I felt stupid because most people particularly the boys seemed to know what most of the terms meant. It was only here I realized that Architecture was a subject mainly dominated by males, I didn't really know that before. When I first entered (the city) centre I was very excited, it was as if I had made it to the last hurdle. All I had to do now was jump.

Lynn however had significant misgivings. This was a risky time for her and she was nervous.

I was apprehensive at first. I remember being sick in the toilet with nerves and telling myself to pull myself together...I was surprised at the number of female students, I had expected to be the only one, there were about 9...the tutor was friendly and approachable actually mentioned that M was a mature student in the class, I hadn't noticed her, which is how we became friends.

Lynn's feelings of isolation came as much from being at university as being in a non-traditional subject and being older than many of the other students. She had to keep strong and build her motivation to belong as described by Waterman-Roberts (1998) in Chapter Two.

I distinctly remember the first female student that spoke to me. She had asked my age and then said 'don't you need qualifications to get on the course?'...I didn't reply, but thought I am not allowing myself to be put down. I was annoyed though...as I do have qualifications but didn't have the opportunity to go to university when I was 18, something I have always regretted.

The students who had made the transition to university and BE as a more natural path still experienced "uncertain settings" (Ridgeway and Correll, p 514, 2004) on arriving at university. Even Sue who had grown up within the BE was surprised at the numerical dominance of the males. She was also nervous

about finally being at university and about being a mature student as well as being female.

I was nervous, I wasn't scared, I was also excited and remember walking in...Noticing that there was an awful lot on this HNC, and they split us into groups, realizing that I was one of the oldest and also realizing that I was one of the very few women which surprised me actually.

Jill confirmed the nervousness experienced on arrival. All the women had feelings of nervousness. New male students may also experience nervousness on arrival, but they do not have to experience the 'difference' that women feel in this situation (Greenfield, 2002; Faulkner, 2006). They can hide in the mass. Women tend to stand out and be visible as Jill explains.

It were a bit nerve-wracking. When I came to the open day it were, like, we all went into this big room and there were quite a lot of women in the room and then it's like, right, we're going to branch off into your courses and I were the only one there, all the other girls went off onto different courses and it were, like, just me and this other girl, so it were quite daunting. I thought, "I'm not going to fit in, what are they going to feel about me?" I did feel a bit nervous about it but...

The majority of students highlighted the initial contact through open days and induction as being of real importance to them and their generally positive interaction with the lecturers involved made a strong impression. The conscious attempts by lecturers to ensure that groups got to know each other and to experience some practical activity in induction did not always succeed. Bel's experiences show that sometimes lecturers do not always communicate their purpose or consider the wider benefit of university social activity.

I found it difficult that during freshers' week we were asked to do work, I later found out that this was more just an exercise to get us all working together and that it would not be marked, although this was not explained at the time...I felt compelled to do the work on the evening and missed out on many of the fresher activities.

All women found it easy to identify lecturers to whom they could relate and all women felt that it was important to be able to talk to staff and to feel they belonged. This, once again supports Thomas's (2002) frames of reference for achieving success with non-traditional students described in Chapter Two. Sue contrasted her school experience where she was bullied and did not fulfill her potential with her university course experience. In entering a BE course as a

mature student she was motivated and confident in her change of direction as the Women in Work commission found in 2006 (Eaton et al, 2006). She reflected on a lack of Voice (Hayes and Flannery, 2000) that she was determined to overcome.

At school...sad little girl at the back S who hasn't got a clue. I found it quite bad like that you know, at ...here it isn't. It doesn't matter at all... I think when you go through an experience like that I think you always try extra hard you want to be successful because you need to prove to yourself that you can be. I'm convinced that I wasn't very good at school and now I turn round and look and think, no, I were I just let two girls get to me basically.

The lecturers proposed that the enthusiasm of the staff team made the positive difference for open days. They recognised that not all staff in the department would appear enthusiastic to students, but a number of those who were involved enjoyed teaching and enjoyed their subjects and this enthused students. Additional points suggested by the lecturers that were seen to be important in achieving successful open days were good organisation, plenty of time for students to meet course teams and to find out about course content.

I think you actually have questions that you don't want to put your hand up in a lecture theatre full of boys and their parents...you don't want to be the one that stands out before you even get to university. (L)

There was some discussion about whether women only open days would be a good idea, but there was concern that this might put some women off. The importance of the early experience of students at university has been generally recognised with many researchers building on Tinto's research (1987). Billing (1997) referred to in Chapter Two explored issues impacting on retention of students drawn from diverse backgrounds at Westminster University that corresponds with the views of the lecturers and the women students at UNI about these early days.

Not all women could identify themselves as being part of the mainstream community that made up their course cohort. Their varying identities and backgrounds meant that their gendered identity brought them together with different sub-groups within their courses and not always with other women. Their sense of place and belonging was multi-faceted (Ridgeway and Correll, 2004) and not singular. I asked all of the women to tell me where they sat when

they started the course and how they formed early friendships. Bel explained how she started with the women but later made friends with a group of men, feeling comfortable in the situation because of her family background.

There were 4 other women in my BS group, initially I went to sit with them probably because it felt the right thing to do, I got on well with all the girls, but over all I got on better with the lads.

Jill did not feel the need to sit with other women, but made early friendships that she retained. She found the part time students were more likely to be mature and their experience of university would be different to the full time student. *“On my first day we had to do this group, we had to get into groups for a coursework and I ended up with 3 really nice men and it were really good and I’ve stuck with them ever since.”*

Sue clearly separated herself from the full time students – ‘*the rabble*’ as she describes them, the young, male, white students who make up the majority. She found alliances with part time students. She was nervous about starting at university and she needed to concentrate.

Yes, I went and sat right at the front, because I needed to pay attention, and I didn’t want to sit up at the back because there were all the rabble and what-have –you and I actually went and sat next to a girl who is now my best friend on the course.

Lynn and Parveen did not make immediate friends with others when they arrived and did not form close relationships in the university. Parveen’s experiences matched that of the women in Moss’s (2004) study where students had to manage space and time in university with their life outside and they remained on the periphery of the community.

So yeah, it is more difficult because you’re not really a hundred percent involved with the student life and I found that really difficult. But then, having said that, when I was in London, I was never really a hundred percent in with the crowd of building surveyors. I don’t really like to get into groups which are just them or just them – I like to be, sort of... everywhere (laughs)... So I’d never get one hundred percent into a group per se...(Parveen)

Lynn’s age and background contributed to her difficulty in settling in and finding a place.

I suppose it has taken about a year to make friends. It is difficult and only now I am getting to know people on the course a lot better. It is

difficult as I am old enough to be the mother of the younger students and have more in common with the lecturers really as I am closer in age to them. I am finding though that the younger students have the same doubts and concerns that I have.

Naomi found herself in a course that needed more commitment than some of her other friends were finding on different courses outside the BE. The loss of a small number of students – male and female from her course in the first year was discussed.

if you're wanting an easy ride then it's not the course that you want to be on because it's full on all the time, I know you see people going out all the time but, you can do it sometimes but you can't do it all the time on the course.

Aspects of gendered identities at the intersections of 'race', age and class consistently contribute to the experience of BE higher education. Different women are experiencing their BE differently. Some women found a place and developed a feeling of belonging in the community (Wenger, 1998) and some remained as outsiders. Some were also experiencing the unfamiliar culture of higher education at the same time as being a minority student of the BE.

Belonging

Anita was the only woman involved in my research that had dropped out before completion of her course. Anita explained that there were a number of contributory factors that brought about her decision to leave. She found the maths and science hard but said the lecturers were very supportive. She hadn't had the confidence to ask for support when she started to find things were hard...her friend was also finding it hard and as she says "*we were kind of encouraging each other that this wasn't what we wanted. Maybe if I'd teamed up with another girl it wouldn't be the same.*" This self doubt and early lack of confidence of women within the BE subject area reflects that found in other studies of women students in SET and BE (Greenfield, 2002; Gehring et al, 2002).

The remaining women took different amounts of time to fit in. For Bel as she overcame her early feelings of discomfort in such a large city and a large institution she became part of the course community, but she still had

reservations about the city. She enjoyed the practical and applied nature of the subject area and had a good relationship with the staff. Her placement confirmed to her that she belonged in the BE (Wenger, 1998; Kirkup, 2003) and by the time she returned for her final year she was very much a part of a close community.

The University itself... maybe the University itself is maybe a little bit big for me. I don't feel like I've become part of the University community, but I do feel like we've got a very good Building Surveying community.

Lynn's concern about fitting in continued but she also had a negative experience in her learning that impacted on what she wanted from the course. She did find a place where she fitted in her placement year on the sandwich course. She was able to fulfill her earlier interest in built heritage that fitted closely with her need for a caring culture (Buxton, Turrell and Wilkinson, 2004).

I suppose going to the National Trust I couldn't have gone to a more supportive environment. I've gone to people who are really looking out for me. And that's not just the surveyors I'm working with - that's the contractors side who know things as well. Everyone knows me and they all, you know... I don't know if I've got a job there at the end of it but they're encouraging me and they want me to learn

Parveen's university experience included a break of 8 years. Her progression was interrupted and returning to complete her course she was unable to become a full member of the student community with her additional outside family roles continuing to influence how she managed her time, but she still managed to enjoy her experience, despite remaining on the periphery.

I've really enjoyed it and I can't wait to get going with my Master's. But the only problem is what would I do with it, as there's so much to choose from? I've had a really good time. The lecturers are fantastic. I can't thank them enough. Ever!

Naomi became a member of the course community quickly and she had arrived in the place she had been working towards.

We went to York, that were really good that actually, but we got to know, kind of bond together, it's like, I don't know why it were really, I mean lots of little groups that bond together but it were mainly ATs.

However there were some tensions between the two courses – architecture and architectural technology (AT) (see Chapter Eight) and because Naomi did not live in the city she retained her friends at home. She also managed the space between home and university (Moss, 2004). The studio is the main place

where students from both courses congregate and this space helped to create a working community (Wenger, 1998; Kirkup, 2003).

In the first year I probably spent most of my time at work in the studio when we did group work and things but for a lot of the year when it's not really busy allowing you to concentrate on your own work but in the second year I found it more helpful to work in the studio because other students were there and if you were stuck then you could call out to whoever's around and ask questions and so I'd say that there were times that everyone was working together and you get used to that and in practice you are working with other people in the room.

All of the women, even those who did not gain full belonging during the course did not express an experience of the alien male-centred environment that is described by Greenfield (2002) in science or Powell et al (2004) in engineering and by Greed in 1991. There was very little evidence of the women becoming assimilated into a heavily masculine culture in order to conform – taking the attributes previously described in Chapter Two within SET (Powell et al, 2004) and BE (Greed, 1991), that is, jokes and banter, lack of listening, aggression, poor communication, an individualistic approach, sexist comments, paternalism and patronizing behaviour. There were problems experienced by the women and some of those problems had a gendered aspect which I will return to, but the women had retained and built on their varying identities as they had progressed and grown to belong within their course community to varying extents. All of the women had found aspects of the arrival and the initial contact with lecturers and their courses a positive experience.

Confidence and support

Over the period of the research some of the women had progressed through three years of study and had developed in confidence as well as confirming themselves as belonging in the BE community. Some were aware that their experience had not always improved as they progressed and the issue of support during study remained an issue. Confidence has been identified in research to be a significant aspect of difference between women and men in SET in general (Greenfield, 2002) and in the subjects of mathematics and physics in particular (Mendick, 2005; Murphy and Whitelegg, 2006). Lecturer L explained how she found different attitudes to confidence between her male and female students.

I think they sometimes feel that they are the only ones making mistakes, all the lads seem so happy and confident and they are just cruising through and they seem to be getting good grades. 'Yes, but you only notice that they get good grades because they shut up when they get bad grades and they won't flaunt them, so don't worry about that, that is just lads being lads - you are a good student, you can do it.' And basically it is just explaining they can do it, they are no worse than anybody else, and sometimes a lot better than others, but it is lack of confidence which is completely unfounded, absolutely, completely unfounded generally

Some of the women expressed a contradiction in describing their natural confidence that is not always translated into the classroom, as Sue explained which linked to 'voice' (Hayes and Flannery, 2000).

I am confident and that's only cos of the way I've been brought up basically...and also because of what I want to do you can't be a quiet woman in this job...but when it comes to actual discussions in class I go quiet, especially when the lecturer goes 'who hasn't answered a question?' It probably is lacking in confidence...I'm one who tends to absorb it all and I know I don't contribute.

Parveen explained why she thought feedback on performance was more important to women on the course. Her views relate to Flannery's perspectives on gendered ways of knowing (2002).

Feedback...I think girls take it more personally as a reflection on themselves that they are not good enough – especially on a male dominated course. There's always something to prove when you're a female on a male course....It's just something they think they're naturally born to...but with girls even though they might be the same, it's always perceived they're not... They (boys) feel a bit intimidated (when girls get higher marks)...but then they want something to blame it on like 'oh they're getting extra support and that's why they're getting better marks'. I've noticed that. Girls are more interested in feedback because they want to be successful. They have to be successful. There's no way a girl can come onto the course and be a failure and get away with it.

Parveen chose the subject of mentoring for her dissertation referred to in Appendix Three (Atwal, Morton and Watts, 2007). She explored the need for support for women students and found that some of the male students would have liked a mentor as well. The funding for a mentoring scheme for women students had finished before Parveen took her final year. She felt it could have made a difference to her learning experience in the final year. *"It would have helped me in my family situation and helped me plan my work better...and probably put me on a more direct route to where I'm heading instead of going my own way."* But she found that not all women students agreed that

mentoring was a good idea. *“Some said why are you just labeling us and stereotyping us even more. You know, making out we’re thick in a way, that we need extra help...”* This expression of not wanting to stand out has been found in other studies of women studying in non-traditional areas illustrating the tension of being a minority and being seen as different, and therefore needing help (Greed, 1991; Powell et al, 2004).

Lynn’s experience had not improved as she progressed through her course. After finally settling into her first year she was less satisfied with the second year and felt that students on her year had a raw deal because of organisation and resource difficulties with the course. Talking to me while on placement for her third year of study she said she was not looking forward to returning to university for her final year, being aware of course management problems referred to in Chapter Six.

...I don't feel like there's anybody I could speak to who will listen. So I've just got to the stage where I'm going to keep my mouth shut and just get through it. Instead of going 'right, there's obviously problems going on how do we sort it out?' but external things are being blamed instead of saying there's something wrong here.

The work placement year for the sandwich students (Naomi, Bel and Lynn) had provided a significant boost to confidence.

Basically it's a small outfit with just about nine of them so, basically the work that I've been working on is varied, a bit of everything, from drawings to... I actually got projects to myself, so I've done a lot of work this year... in the practice that I work with we've got two outfits...so it's quite interesting, so it's quite a varied role with varied people. Karen just qualified last year as an architect so... it's been excellent, and along with the other partners it's been quite good for me.

You've got to be able to rely on your own knowledge and be able to stand up for yourself and say I am right. And obviously when you're not right, you need to be able to stand up and do the opposite. (laughs)

There's very much to learn. There's just so much to it. It is quite challenging... I think what I like about it is the quality and the sense of workmanship to it. Things have to be done right. There's procedures, there's no bodging

They had all made the transition to industry described as problematic for women by Dainty et al (2000). Not all experience was positive, but they had handled it and developed self confidence. Dainty et al (2004) had found that

women quickly became disillusioned about construction once within the workplace.

I discussed the problems of isolation for some of the students with the lecturers and we talked about the need for social networks (Thomas, 2002). Different teams had run social events during the early part of the courses in previous years, but pressure on their own time and increases in student numbers had contributed to this aspect being dropped by a number of the teams. Only the architecture subject group had retained a course trip to build a course group identity. The lecturers outside architecture were aware that this meant that some students did lose out. They were aware that other reasons contributed to a lack of internal support and friendship networks "*If you don't drink or have to be away to look after children, then it is very difficult to find an interest...as a social thing.*" One of the lecturers who had been a mature student herself suggested there may be scope for an online network for women students just to say "*I am struggling with my work, or I am so lonely and all the lads in my group are...well whatever.*" She suggested that with an archive of frequently raised points women could look back over, at least women wouldn't feel so alone or out of place.

One lecturer explained that it was stupid to pretend that everyone could be treated the same, but it was also hard to prepare for different situations. He gave an example of working with two Muslim women students who were entirely different characters and needed different relationships with tutors. One was very quiet and part of him wanted to bring her out of her shell to be outgoing like the other student, but at the same time he was wondering whether it was the right thing to do, because she clearly wanted to be reserved. This nervousness around students who are different is partly due to lack of experience and indicates the importance of ethnicity awareness raising as proposed by Acland and Azmi (1998) and the gender awareness training such as Let's Twist (1998) referred to in Appendix Three.

Summary

A number of themes have been identified from the data within this chapter that focus on the differing and intersectional aspects of the identities of the women, their choices and pathways into the university and the aspects of experience that enable them to belong and progress gaining confidence and seeking and receiving support when they arrive. There are similarities and differences between the women that influence the individual gendered experience.

The routes that lead women into BE are as varied as the women themselves, but all women in this study made a clear choice to study a BE course. Whether knowledge and enthusiasm came from family members, teachers, colleagues in the workplace or from television, once the women had made their decisions they paid attention to where they could and would study and were influenced by the experience of open days and the staff they met. 'Habitus' (Bourdieu, 1990) played a part in their career paths and the ways in which they made their decision to study the non-traditional area (for women) of BE. The women from working class backgrounds met barriers within higher education and the women who were mature, with responsibilities or from an Asian background encountered barriers of a different type that inhibited them in becoming a full member of the community. Issues faced were different for different women but their experience was gendered according to age, 'race' and class.

If women are to be confident in overcoming barriers they face in becoming part of a BE community as a minority group they need to know that they are welcomed and that they will fit in. Alliances with other students were made based on age and background as much as on gender. Identities are not singular and gender is not necessarily the dominant aspect of any women's identity such that intersectionality must be considered (Bagilhole, 2009). Having lecturers that they related to and a course team that was supportive to them was clearly important for the women. Mature students, men and women have been seen by the lecturers in a positive light because they are motivated to learn, and the extra effort that women have made to arrive in BE higher education has also been appreciated by the lecturers. However, issues of isolation were experienced by some of the women and lecturers have seen evidence of this in women students. It is recognised that early community

building, good communication, mentoring and support for social networks could make a positive contribution to progression for these women.

Chapter Eight

Progressing and Learning – Experiencing the Built Environment

Introduction

The lived experience of women within the subject area of BE higher education is the focus of this chapter. The chapter explores the experience of different women on different courses, different modules and different modes of study and as they progress through different levels of study all within the BE. The analysis begins to explore differences between the cultural source of different subjects in order to identify any natural links between so called 'masculine' or 'hard' subjects and so called 'feminine' or 'soft' subjects. The chapter draws from the data in reflective diaries and interviews I held with the women over the course of the research. The views of lecturers are given about the student experience for all students as well as teaching and learning styles and how issues of concern expressed by women can be addressed. Teaching as experienced by the women students as well as wider influences on them and their learning experience are discussed to identify how difference and belonging previously identified in Chapter Seven impacts on learning. I explore the women's engagement with the learning experience to see if any aspects of feminist pedagogy as described in Chapter One can be identified. Experiences on placement and in the workplace are discussed as a significant influence on the women's route to become members of the BE community beyond higher education.

Women in 'masculine' subject areas?

What was the experience of being at UNI and studying in a subject area where there were few women as students or female role models as lecturers? Does the nature of the subject area necessarily imply a gendered experience? As discussed in Chapter Two, the Roberts' review of SET identified the need to inspire girls in these subjects; Faulkner (2006) found that women struggled more than men with the mathematics in engineering; Powell et al (2004) talk

about women students being disillusioned about engineering and Greed (1991) described surveying higher education in the late eighties as having little space for women. The women in my study did not express views that aligned with those studies of women in SET found in Chapter Two. Their engagement with subjects was influenced more by the lecturer's approach to teaching than by the perceived nature of the subject itself in all cases (Britton, 2000). As Britton submits, seeing organizations, or subjects in this case, as inherently gendered is problematic.

The examination of subject areas and their cultural placing within the architecture and built environment programmes and the consequential influence on ethos was covered in Chapter Six. Within this chapter I wanted to focus on some of the core subjects as experienced by the students. Mathematics and science are key foundation subjects upon which all BE higher education courses build to different extents. Mathematics has been described by Becher and Trowler (2001) and Neumann, Parry and Becher (2002) in Chapter Two as hard pure (masculine) with a list of typical attributes - cumulative; atomistic; quantities based; impersonal; value free; results in discovery / explanation. The women's view of mathematics was gendered in some ways, often linked to their experience of the subject as taught at school and although they saw it as hard (difficult) it did not put them off. As Sue described it:

Maths...algebra - ye God I can't even remember doing that at school...I am purposely concentrating on that one cos I weren't good at maths at school...and my other half he's brilliant at maths...he's chucking me odd bits and bobs to do at home when I'm watching tele...I do look forward to that lesson. My favourite I would actually say is maths.

Sue did not see mathematics as an alien subject because of her gender, but because of her background and school experience and perceived abilities. She has taken hold of the opportunity to learn at university and is as enthused about mathematics as she is about any of the subjects she has taken up. Bel's view is different – she was ill during her A levels and absence affected her studies. She particularly enjoys mathematics within an applied context but puts her success in an exam down to “*learning by heart*” rather than her own capabilities

as has been found in research looking at gender differences in 'doing maths' elsewhere (Mendick, 2005).

I really struggled with A level maths but I would not consider myself weak at maths that I can relate to real life. The first year maths at university was easy. I didn't learn very much but the basic maths that was taught was essential for other people on the course. The second year structures maths was a lot harder. I excelled in the exam because I learned how to do each of the different type of problems by heart. I understand that many people just do not understand maths: I'm helping my sister revise for GCSE maths at the moment...it's so difficult as I don't understand why she doesn't understand...

Jill had chosen very traditional subjects for a girl at A level and although she did not find mathematics a “*natural*” subject her motivation ensured she was committed to it, in a similar way to Sue and she worked hard (Mendick, 2005).

(at school in mathematics) I skipped between set A and set B because sometimes I were all right with it and sometimes I weren't, so it were a bit... up and down but when I did the surveying, because I didn't understand it I worked harder and I ended up getting 91%.

One difference within BE higher education could be in the applied nature of the mathematics taught that is different from the “*chilly climate*” style of teaching referred to by CUWAT (1998) and Faulkner (2006). Teaching methods for so-called hard subjects that set abstract knowledge in context have been found to be more appealing to girls at school (Murphy and Whitelegg, 2006). Motivation to learn is clearly another influential factor in working at the subject even when it does not come naturally, another reference to Tett's “*hope and desire*” (2006, p 102) as mentioned in Chapter Two.

Materials Science was another subject based in the hard pure (masculine) area according to Becher and Trowler's (2001) and Neumann, Parry and Becher's (2002) descriptions. This was another subject singled out for praise by most of the women. The reasons given for the popularity of this subject was the enthusiasm and passion the tutor had for his subject alongside a very approachable caring attitude to his students in contrast again to the “*chilly climate*” described in many studies (CuWAT, 1998) and more in line with feminist pedagogy as described by Tisdell (2002) in Chapter One.

oh yeah is he passionate he lives for it doesn't he? But when they are like that it's interesting and they want to share it with you (Sue).

Basically you get some lecturers that interact more with students...some are just going through the motions. I really like xx...you can get to him and he'll always give you time. When I first met him he was a bit strange at first and he's so into his subject...but once you get to know him a bit more...I think he really stands out. (Lynn)

The lecturer's approach to teaching and learning has been a key influencer on how the women experience any subject. Where the subject has been new to the students e.g. in building technology or materials science, an inclusive delivery style and / or a style incorporating feminist pedagogy has been well received. That said, the positive aspects highlighted have not been specifically placed within a feminist context, but rather they are attached to a style of teaching that is inclusive to all students as individuals (Powell et al, 2004). The 'masculine' culture of the subjects (mathematics and science) according to Neumann, Parry and Becher (2002) was not found by the women to be significant to their experience of learning. This supports Henwood's (2000) concern referred to in Appendix Three about making subjects specifically 'women friendly' which almost reinforces a stereotypical view of technology and also reflects Flannery's concerns for universally gendered ways of knowing (2002).

When asked about whether there was a difference between students studying science one of the lecturers explained that she did not identify a clear gender difference. However her view of mature students' lack of confidence could have some element linked to a gendered experience in school (Paechter, 2007).

I think it is some mature students who haven't done science for a long time sometimes fear the science but once they have got into it, that's alright, I understand that. I think they fear the unknown rather than the actual going through it. And I think some of the, possibly students who haven't had the science background do struggle more, which is obvious. But you can't look at a class and say "oh, you're struggling...." (L)

The engagement with the applied nature of subjects was frequently referred to by all the women as a positive aspect of their course, reinforcing the findings from a number of previous research projects working with girls and women in SET and the BE referred to in Chapter Two (SHEFC, 1997; Faulkner, 2006; Murphy and Whitelegg, 2006) and in contrast to the experience found in the

eighties by Greed (1991, p103). So Parveen enjoyed maths in the abstract but she really enjoyed the application of maths in surveying.

Yeah, and I like working out the backsights and the foresights and the intermediates. That was like one of the most fun things actually - even at college when I remember doing surveys with the chain and the theodolites when we got to University level. And then drawing the plans afterwards - that was really good because it shows you that what you go out on site and that you measure and things, you can actually come back and put it on paper and it gives you a certain amount of satisfaction that that's what this means when you put it on paper.

Naomi reinforced the enjoyment of practical applications: *"I really enjoyed the courses that we did, the workshops, things like playing around with bricks and building bridges... understanding how the forces are going...because you're working on it..."* Sue talked about *"hands on"* being her favourite way of learning; Joanne when asked about favourite subjects said the *"ones with some practice"* but the students also enjoyed the challenge of something new, even though sometimes they felt at a disadvantage to the men in the class, replicating Fassinger's (1995) findings about participation in the classroom by women discussed in Chapter One. As Naomi identifies the subjects she found difficult:

I would say construction, like technology and construction... just basically because you don't have any experience on site. I mean I understand drawings and how they work but you can only imagine so much and you can draw all these drawings but you can't, or you don't have the confidence to talk about it, because you don't understand what it is and you've never seen it so you're thinking, it should actually go there but I don't know why that should go there.

Jill enjoyed construction technology as a new subject area, but she felt that many other students came with knowledge, particularly the male part timers who had experience. Lynn described her concern that because she did not have a trade background, she needed to ensure she got the best degree possible to help her career, endorsing the perspective that hands on experience somehow provides an advantage in the BE. This is a view the professions have tried to escape from (Burke, 2003).

Lynn had experienced a problem with a *"knowledgeable mature"* male student intimidating her, but she stood up to him. As she explained *"if the course had a majority of men with experience like him it would be difficult to cope"* reflecting research elsewhere in the construction sector of education where such

behaviour will eventually drive women away (Dainty and Edwards, 2003). But she also acknowledged a very different and positive experience with “*mature knowledgeable males*” on a SPAB (Society for the Protection of Buildings) course, so she realized that you could not generalize. The different aspects of different cultures illustrate the differing ‘communities of practice’ (Wenger, 1998 and 2000) discovered and experienced as referred to in Chapter Two.

Naomi had not experienced the ‘crit’ negative experiences referred to by Greed (1991) and De Graft-Johnson et al (2005) in Chapter Two. As she explained the system involves meeting with tutors as design projects progress, so as long as you are attending the meetings, you will have discussed your design informally before you go into the ‘crit’.

I think we've always had a fair approach to all of them, well, how our work's been handled, and that really is the core thing, that's basically what they're criticising is the work, not you... So the tutors are really, they are all professionals and they know what they are looking for, and basically they are only trying to help you. Some people might think that they're trying to get at you because they say something but they're not, they're helping you learn.

She did not recognize the bullying described in Greed (1991) or in the recent De Graft-Johnson’s account (2005) and this may reflect the positive relationship Naomi had with the tutors concerned.

Learning and teaching

The women identified a range of positive and negative teaching styles that they had experienced across the range of modules within their courses not directly related to the subject and its ‘*hard/ masculine*’ or ‘*soft/ feminine*’ attributes.

He had just a difficult approach to how he teaches the subject. Like you ask him a question and you don't necessarily get an answer, or he'll say, "I don't know, find out"... so it were like you had to teach yourself two whole modules in order to get through the exam and that reflects in people's marks.

Jill’s perceptions of this teaching style as not being right appeared on the face to be in conflict with the philosophy of self directed learning generally followed within higher education. The lecturers in discussion pointed out that some students who criticize lecturers for not giving enough information are usually missing the point about student-centred learning and want to be “*spoon fed*”.

But as Hayes and Flannery (2002) in Chapter Two argued, dominant learning theories take no account of difference in students and give the example of self directed learning being alien to non-western cultures. However, the lecturers also acknowledged that contact time for part-time students was limited and this was an issue of concern. There may be substance beyond Jill's concerns about the lecturer's approach that reflect his confidence in the subject area. As described in Chapter Six the department had experienced problems with recruitment of lecturers. Jill was clear that other lecturers had a different approach to helping students to understand.

(x and x) I like their style of teaching, what they're teaching, and they've got a genuine interest in it and it shows when they're teaching you it, you can understand what they're saying better because they're willing to go out of their way to help you understand it better. (J)

Lynn (below) gives a description of economics as a "dry" subject and with a lecturer that does not have a good relationship with his students, yet once she is working on an assignment on her own, she is motivated by the subject. This once again emphasizes the importance of the lecturer's approach to teaching as described in Chapter One by Fassinger (1995).

economics... (lecturer) I think the subject is fairly dry and you've got to pitch it right to get people enthusiastic in it. I actually found that one of the assignments I did, when I was doing it at home I was really getting into it...but in the actual class...nobody wanted to go to because he was a bit...well, he kept putting people down and didn't help people understand. They might have been really basic to him but it was horrible and you just didn't want to go in there.

The women understandably had different views about different teaching styles but they had all experienced a wide range of methods of teaching and confirmed that the relationship the lecturer had with their students was what made the positive difference. Thus the frames of reference pointed out by Thomas (2002) were all significant and present where the students identified a good learning experience. The first one: staff attitudes which minimize the social and academic difference between them and the students to feel valued and seek guidance when it is needed is illustrated by Lynn and Sue.

What is a good teacher? Not patronizing, and you can talk to them and you can feel relaxed.

favourites...x...he comes across really well and his passion for his subject. You can tell he loves it. Contractual procedures...I think I'm

going to stumble...I'm starting from scratch...and we've got a lady...she seems to know her stuff and she's nice... 'my door is always open'.

These examples illustrate the influence of motivated and caring lecturers who have had a positive impact on the women's experience of BE higher education. The descriptions of staff attitudes do contrast with some of the experiences described by Powell et al (2004), Faulkner (2006) about engineering and by Greed (1991; 2000) about BE and surveying education.

The women's preference for teaching styles that were supportive and interactive reflect somewhat the confidence issues referred to previously in Chapter Seven that were raised by some of the women who had entered university as mature students and also reflect general confidence concerns of women in a male dominated subject area consistently identified in many other studies of gender (Greenfield et al, 2003; Faulkner, 2006; Mendick; 2005). Lynn tried to explain that her confidence varied from situation to situation:

I find there's a difference between doing things on paper. If I have to do a report or anything I feel quite confident about doing that. But when it comes to speaking to people, it totally depends how they are. If they're quite confident and have an aggressive nature I find it quite hard to stand up to them. Even if you know exactly what you're doing, your mind can go blank.

A number of the women made the connection to the aspects of 'voice' as discussed in Chapter One that explain how women and men's participation in discussion and questioning in class can differ (Tannen, 1994; Hayes and Flannery, 2000). Tutors were seen to need to encourage norms that include a range of forms of talk and interaction and be aware of their impact on students. Lynn explained her preference for a situation

...where people can speak freely and are listened to...and maybe those people who don't feel that comfortable speaking out in groups can be encouraged to interact. Especially if you're new and you're coming to a class where there are lots of people and lecturers really push for everyone to talk and it takes some people a lot longer to be able to do that. I don't think that should be pushed.

In between hearing from the students I was also talking to the lecturers to see how they viewed their students and their own teaching. The lecturers described what they thought made a "good lecture."

*So a good lecture is where they are interacting with you and saying they disagree and you can encourage that by saying "yes, you are supposed to disagree, you are degree students, that is part of the remit."
And they even come and speak to you after the lecture and enthuse on the way down the corridor that is the sign of a really good lecture. And they are liquid gold when that happens - it's fantastic.*

The lecturers involved with my research also connect to Thomas's (2002) first four characteristics supporting non-traditional learners to achieve success as described in Chapter Two. They did not repeat the 'banking' form of education (Freire, 1993) but supported the 'connected knowing' of Belenky et al (1997). . The part time student cohort particularly those who arrive with a background working within BE, are seen as a particularly rewarding group to teach:

and I think this is where part-timers, they're not afraid to say things, they'll argue, they'll challenge what you say and they tell you're going wrong which is nice because you then get other people chipping in, so I always think that's great.

The lecturers viewed mature students and particularly part-time mature students as rewarding to teach, and this finding mirrors the enthusiasm of the mature women coming in to study a 'new' subject area (Eaton et al, 2006). The lecturers in the department talked about their perceptions of different students. All lecturers said that they thought mature students were, in general very rewarding to teach. According to L:

They interact, they ask questions when they are not sure, they turn up, they sit at the front, they ask questions, they enthuse about your subject and they are generally a pleasure to teach...and a fair number are women...are very much more motivated...so they have made a conscious choice twice, they are going to university and they are going to study something that is traditionally male dominated.

The young students were seen as variable, with some very driven while others "you sort of poke them and... 'oh I don't want to be here, it's Wednesday, I have only just woken up'." Previous studies of women in engineering (Faulkner, 2006) raise the issue of presuming prior knowledge which can undermine women's confidence. Mature male students will be the most likely to have that prior knowledge, so there could be a tension. There is a need for the variety of interaction called for by Hayes (2000) to meet all the different needs of a diverse group of students, but the lecturers here challenge some of the stereotypical view of non-traditional students in higher education (Thomas,

2002) as having a deficit. However the lecturers were clear that young women full time students could not and should not be placed into a single category. The dangers of assuming a single universal characteristic for women has been an enduring theme of my research findings. As stated in Chapter One the range of behaviour among people of the same sex will be greater than the average difference between women and men (Ridgeway and Correll, 2004).

The different aspects of the student cohort do provide some challenges for the lecturers. The architecture programme consists of architecture and architectural technology and the two courses attract different students. This is a characteristic of the nature of the broad range of BE education and its history discussed in Chapter Two (Burke, 2003). As one lecturer explained

the architecture students tend to have a more middle class background and architectural technology students tend to have a working class background and that tends to alter their perspective on higher education.

This caused some tensions between students that were identified by Naomi that showed that perhaps the men on the course were more aware of the class difference than the women who were willing to come together:

When we went to Berlin last year we found that all the AT boys, not all of them, most of them, they kind of went off in little boy groups and do their own things. If you're going to be like that then fine but it were only because, we presume it was because they thought people on the architecture course were (stand offish)... but considering we spend half of our lectures with them, I mean, they should understand that we are pretty much, we're not the same but we are kind of a group, and we've got different points so we could learn from each other rather than cutting out.

Some key 'unwritten' elements were suggested by the lecturers that contribute to a positive learning experience for women students in the BE who may feel unsure about their course and their ability to progress. Many of these aspects of good practice could have applied to all students, but their impact on the experience of women students was seen to be more significant. The list includes : getting work back quickly to give feedback, implementing small assessments in the first year so that progress can be seen (rather than a large assessment with late feedback), stressing that you do not have to be an expert from the start. The policy of UNI that first year marks do not contribute to degree classification (to encourage retention) was supported. The lecturers

explained that they should build confidence over time with reassurances along the way and have sensitivity as to when rules might need to be stretched particularly in the case of part time students. Finally they stressed the need for lecturers who care and will see students outside lectures / tutorials.

Do these unwritten elements fit with what the literature suggests for inclusive teaching? They coincide with Thomas's (2002) list of characteristics referred to in this chapter and in Chapter Two that contribute to non-traditional student success. They also correlate with a number of the aspects listed by Hugo (2002) in Chapter One relating to feminist pedagogy. I have searched for evidence of these aspects in the discussions with the students and lecturers to try to establish whether aspects of feminist pedagogy can be found in the teaching within the department.

1. Commitment to Effective Delivery of Content

The women identified the subjects that they believed to be delivered effectively and in these the lecturers did show awareness of women's experiences. Specific examples of consideration of women's experiences in teaching and texts were discussed in Chapter Six and found to be mainly absent. The women identified when and how they preferred interaction to take place in class. The lecturers viewed mature part time students, including women without a background in BE, as being active in class discussion but they were unaware of the self doubts expressed by some of the women.

2. Commitment to Modeled Ways of Being

The lecturers did have a good awareness of the factors restricting some women from being full members of the community and tried to take measures to encourage them. However they also identified a need to do more.

3. Commitment to Cultivating Ways of Thinking

The testimony of women about the lecturers they liked clearly included the aspect of encouragement and development of belief in their own abilities to cultivate independent thinking. The lecturers also confirmed that they encouraged students to become confident and to be able to challenge them – an important aspect of becoming an autonomous learner (if this concept is

accepted as a requirement for higher education). However they were not always aware of how to bring about confident learning.

4. Commitment to Self-Efficacy

The women were clear about the positive aspects of support from lecturers. The lecturers were also aware of the need to nurture women students and of differing needs of women students. However, while individual lecturers aimed to give support, it was clear that not all lecturers viewed this aspect with the same degree of priority. Additionally the university management systems did not appear to encourage or allow sufficient time for this aspect of nurturing according to a number of the individual lecturers.

5. Commitment to Seeking a Better Society

I found this aspect of feminist pedagogy clearly evident in one lecturer in particular – Materials Science. All women identified his passion for his subject and his belief in his students that won them over. My personal knowledge of him supports the evidence of his challenge to the status quo particularly in his commitment in environmental issues. He has been a consistent supporter of gender awareness within the department and he consistently communicates this message to his students. This review of Hugo's (2002) requirements provides many positive aspects of the learning experience as found by students and described by lecturers. However there is still further progress to be made on a number of aspects in order to achieve a fully inclusive learning experience.

Experience in the workplace

The culture of BE education is historically linked closely to the professional institutions and professional practice in the workplace as previously described in Chapter Two drawing on Burke's study (2003). Burke (2003) also explained the range of institutions and the differences in status between the different groups that still impacts on the culture experienced by those studying and entering employment. The same difference in status as was found in the architecture programme by Naomi and described above, as well as the construction management 'macho' cohort described by lecturer L. The workplace culture clearly remains as a key point of influence on the experience of women in the sector and remains as a potential for the "*leaky pipeline*" to

occur (SHEFCE, 1997; CABE, 2005). As Dainty and Bagilhole (2006) found, the entrance point to industry remains a key translation point into the BE community and better understanding is needed of the measures required to support successful transition.

Most but not all of the women on BE courses had experience of the workplace either as part of their sandwich degree or as a part time student when not at university. I wanted to find out how they experienced work and to explore the impact and influence from work on their learning at university as well as how they experienced work itself. As with all the findings so far the individual identities of the women had an impact on their experience in the workplace. Jill was on the final year of a part time construction management degree. She started work as an administrator with the company now sponsoring her education.

I can remember when I started my job, it were, like, women made tea and that were it. It were sexist but it's changed a lot over the 7 years, like, I never expected them to encourage me to do a course in construction but they did. My training director wants me to do a Master's degree. I don't know, maybe in a few years when I've got some experience.

Jill's experience as a woman moving from a traditional woman's role to a technical role had encouraged her to reflect on women's place in construction and she chose this subject for her dissertation. Her experience while studying had been a very positive one with encouragement from her Director throughout. Could it be argued that the part time experience can support the difficult transition between education and industry as described by Dainty et al (2004)? The support that Jill received from an inside influence (her Director) has been found to be a significant aspect to support positive change (see Appendix Three; Morton et al, 2006). Sue was another part time student who received a lot of support from her workplace colleagues and bosses while studying for her HNC.

we've got like, we've got two trainee building surveyors with us, I think they're in their final year ... they are ever so helpful, they really are, if I need any books or anything like that they try and get me the books or they lend me their books and yet if I am a bit stuck, like at the moment we've got an assignment to do I haven't got a clue but they are trying to help me at work.

However Sue's positive experiences changed completely when her boss left. She lost support for studying and the chance to progress in her career. Her new boss wanted her back in her traditional role. She left her job because of her negative experience and although she managed to finish her HNC she still has no support for progressing to a degree. She is also facing a number of difficulties in her new place of work with her immediate line manager's attitudes to women in non-traditional roles and is actively seeking a new job. She has experienced sexual harassment and a bullying culture in her new workplace. She is not disillusioned about BE as her chosen career however, in contrast to Dainty and Bagilhole's (2006) findings. Because she has a good understanding of the industry from her family and from her previous employer, she remains positive and is determined to find a more suitable place eventually. Sue also received informal support from the Research Institute team via email, telephone or face to face chat as an informal mentoring scheme (Atwal et al, 2007) as well as strong support from her partner and her family.

Bel spent her third year on a work placement as part of her sandwich degree.

I never would have been able to do the final year without this placement. My particular experience was that I did get chucked in at the deep end...some things I just couldn't cope with at all (a trip to Scotland)...I don't want to drive all the way up there, and I don't want to stay up there all week...but they made me...and I did and it's fine now.

The benefit of a work placement for full time students if properly supported and structured clearly aids the transition to the workplace. This is true for male and female students, but can be more significant for women's successful transition into the workplace (Dainty et al, 2004). Bel experienced some problems with bullying from a female member of staff which she handled and reported but the negative feelings remained. She decided to find another workplace that suited her better and she continued working there part time through her final year.

The support offered by the university for students on placement varies. Some students had good support while others did not. Lynn had two placements during her sandwich year, she enjoyed the first one but found the second a very different experience.

I've gone to people who are really looking out for me. I feel like I fit in, like they treat me like one of them – which is really nice.

When I got to the Architect's place which was a really difficult experience...in 5 minutes I knew it wasn't right...'there's no room for you – you'll have to come and sit at my desk'...I wasn't introduced to anyone...there were 2 architect students who were very patronizing. And when you're in an environment like that, it just makes you feel small and doesn't build up any confidence in what you're doing.

The workplace culture that Lynn found at the first placement working with historic buildings matched the 'women friendly' and more arts based culture found by Buxton et al (2004, p9) in her study of building conservation, a culture that required "*patience and attention to detail*". The culture of the second placement however whilst still focusing on building conservation was different and undermined Lynn's place and this immediately affected her self confidence, leaving her on the "*periphery*" as described by Kirkup (2003), in the Introduction to this research, and doubting her place in the community.

Lynn was visited very late in her placement year, by a new tutor she did not know. Both Bel and Lynn would have benefited from support from the university to handle the negative experiences. Naomi on the other hand had a very positive experience at work and had been visited by one of the architecture team that she knew well. She gave me a copy of a presentation she had given to her co-students on how her placement had impacted on her as part of the course activities.

I feel that I now have the confidence to work as a professional in practice. When I finished last year I wasn't a 100% confident in my construction knowledge but now I find myself picking up a pen and drawing out my details and explaining them to others. I look for fine detail and am quite capable of picking out mistakes on my drawings before the famous red pen comes out.

Naomi now sees herself as part of the architectural community and has moved to the centre (Wenger, 1998; Kirkup, 2003).

Not all students on sandwich courses are able to find placements and women who are mature with families often find it particularly difficult. Students can take the courses full time but they miss out on experience which gives them an advantage in progressing to employment on graduation (Burke, 2003). The support offered in gaining a placement varies between courses. Places are

advertised on the notice board and on the course intranet, but there is an inconsistent amount of active placement support within courses. This has been acknowledged in the Faculty Annual Quality Review (UNlv, 2007). Parveen ended up graduating as a full time student, this was clearly influenced by the significant interruption to her studies, but her age and family situation were also relevant in her attempts to find work experience. She recognised the importance of involving working surveyors within the course and suggested that there should be more speakers working in practice involved as lecturers. This could provide alternative indirect experience for students unable to find a placement.

I was out for nearly eight years (laughs)...I wish I'd had work experience before I'd come back...hence my 2.2. but nonetheless I managed perfectly fine. It was a bit of a struggle with just having a young baby but I did it. I think I've taken the long way round...I've done hard!

Following completion, Parveen continued to find it hard to get into suitable employment and she has taken a temporary post within local government away from surveying. Parveen is not only a mature student with family responsibilities, but she is also 'different' in her appearance as an Asian student that makes it harder to enter the industry and confirms earlier research findings (CABE, 2005; Steele and Sodhi, 2006). The work experiences of the women students have raised a number of issues for the research. The support measures provided by the university can be critical in addressing the barriers that women face at the transition between education and employment. The gendered experience of the workplace remains as a barrier for a number of women, particularly those who have the added factors of age, class, 'race' and family responsibility.

Leaky pipeline or complicated route?

Of the group of students involved in my research, the majority have made it through their courses as they intended, but one dropped out and some have had their studies interrupted or not yet progressed into the BE professional community at the end of their chosen course. Anita dropped out early on in her chosen HNC course. She was trying out higher education in a technical subject area, studying part time and she said she found the difference between the subjects taken on the women only short course (that led her into BE) and the

curriculum of the HNC too much to cope with. She said she got a false impression and it was harder than she expected and this view was reinforced by others including family and friends

I used to work with a chap and he just started to call in to the office one day and I sat down and told him I found the course difficult, and he said well you've really got to try and sort out the maths because everyone else will be up there, and that was another thing I thought.

She was very positive about the lecturers and the teaching, but decided she had made the wrong decision on the subject area. Anita has confirmed she is still interested in higher education, but in childcare rather than a non-traditional subject.

Lynn, Bel, Parveen and Sue experienced points of interruption along the pathway where they could have chosen to leave BE. The case study in Chapter Eight also illustrates a very roundabout route to completion of study. The points of tension for Lynn, Bel and Sue have involved experiences in the workplace. For Parveen the transition to the BE workplace has been too problematic and presently she is part of the leaky pipeline. When Lynn decided her placement was not supportive *"I decided to hand my notice in... but I think that if I didn't have the Trust to fall back on, if I hadn't have been there, I think that could have made me feel like I don't want to do this anymore."*

Summary

The label of 'masculine' and 'hard' attached to subjects has not dissuaded the women students from study. Issues of teaching styles and learning styles do however, have a significant influence on women's ability to engage and enjoy the subjects. The hard so-called 'masculine' subjects of mathematics, building technology and materials science were enjoyed even when women had no prior experience of them. While the women viewed them as challenging they were well motivated to learn and they were not just shutting out a masculine culture (Miller, 2002) as described in Chapter Two. Concerns about confidence have been found in a number of women and are expressed in the way the women describe their own ability to do mathematics. This supports the findings of Mendick (2005) where boys were found to be more confident about their own ability in mathematics, whilst girls put their success down to hard work. The

confidence to express their views in class was not always evident for a number of the women. This was also identified as an issue (voice) by Hayes and Flannery (2000) but the women here suggested that confidence varied depending on the situation as well as how the lecturer managed the classroom –or their norms (Fassinger, 1995). The women were very positive about the commitment and support they got from their preferred lecturers. They enjoyed teaching methods that set subjects in context and those which provided hands on learning opportunities which corresponds with Faulkner’s research in engineering (2006). The negative aspects of the learning experience of women students included a model of delivery where the lecturer was not engaged with students, where the tutor kept the ‘*expert*’ role and where distance between students and lecturers was emphasised. Aspects of male student behaviour were also found to be a negative influence on the experience of some of the women. These negative aspects have been found in other research into gender and SET (Greenfield, 2002; Powell et al, 2004). However these negative experiences were considerably outweighed by the positive experiences related by the women. There were several aspects of the teaching and learning environment and the teaching styles of lecturers that supported the themes found within feminist pedagogy as expressed by Tisdell (2002). The framework outlined by Thomas (2002) to support non-traditional students was also evident in the learning environment. The lecturers identified a number of good practice elements that if introduced from the start of courses would support the women in getting a positive experience across the range of courses delivered and improve retention.

The work experience undertaken by the women during their course and the transition to work following their courses were identified as key themes that influenced women’s success in becoming full members of the BE community. The issues faced by women in the workplace are often different to male students. Male students are unlikely to experience sexist behaviour in the workplace or sexist prejudice in recruitment. Positive experiences of work contributed significantly to the confidence and the ability to become part of the community, not least by preventing women who had a negative experience from becoming part of the ‘leaky pipeline’ (SHEFC, 1997). Finally the variation in gendered experiences of the women continue to reflect the differences,

intersections and the identities that the women hold in relation to age, 'race', class and family responsibilities.

Chapter Nine

Madalyn's Story

Introduction

This chapter explores the story of Madalyn, a mature black woman who has been studying building surveying. The chapter aims to highlight some of the key themes within the research and illustrate how they have impacted on one woman. Madalyn does not conform in any way with the dominant or familiar view of an independent learner as young “*white, male, middle class, able bodied and domestically unencumbered*” (Leathwood, 2001, p 17) who is progressing from formal education. The data in the chapter draws from interviews and conversations with Madalyn during her time at university.

How she got there, identity and why she came

Madalyn took part in a taster course run by UNI in March 2004. The course, funded by the Learning and Skills Council, was a women-only course designed to encourage women to consider a career in BE. The course included hands on activity in design and surveying as well as craft level delivered in a safe environment with plenty of support and confidence building activity. On successful completion of the course and assignments students gained 10 university credits at level 4. Madalyn's career started in cookery and then she moved on after an accident into working with children. She became a social worker and although she tried to further her education she was steered along a vocational pathway reflecting a traditional working class woman's career path (Paechter, 2007). Gaining promotion to management during a departmental reorganization did not give her the improvement to her career that she hoped but instead it became a very unhappy, stressful and pressured workplace. She eventually took time out and it was while she was at a low point that she saw a poster advertising the course. Up until this point she had followed a very traditional career path for a woman within two of ‘*the 5 c's*’ (EOC, 2006) caring and catering (the other three being cleaning, clerical and cashiering). No other members of her family had gone to university. She managed to get over her fear and take a chance and arrived to discover a place where she met “*women who didn't stab you in the back and who were supportive*” she said “*it was*

surreal" (Eaton et al, 2006). The course gave her an insight into a potential path to a new career and the lecturers who delivered the course gave her the confidence to apply for a mainstream course. Gaining a good set of marks in the 10 credits at level 4 supported her application, and partly because she was so motivated and determined in her career change she gained a place on the Building Surveying degree without any other formal entry qualifications. Madalyn was very determined and showed great strength of character to achieve her first goal of a place on the course. This illustrated again some of the political 'savvyness' referred to Harnois (2005, p6) that comes from experience and identity as a black woman.

So, at this point, it was in for a penny - in for a pound. I'm going to try and go straight for the degree and I didn't know I could be so braveand (lecturer name) just saying 'get this woman on the degree. She's so driven. She's so eager - Give her a go!' So from that year to this, I'm still on a degree.

For her first year of study she was not formally part of my research cohort of students. I had discussion with her lecturers and we decided that she had enough pressures in studying for a degree and managing as a mature woman with two children who had been out of formal education for some time, without the added pressure of my interest in her experience. While there were other women on the course and two Asian male students, there were no other black students. Our team continued to offer informal support when required, whether with her studies or just as a social network. Madalyn also offered herself as a role model to other women and girls taking part in activities to promote BE careers whenever she had time. She even made occasional contributions to a local radio programme.

Madalyn had support for the choice she had made but she also had challenges.

Early on it was very negative. Why is a black female who's in a successful career wanting to leave all them trappings behind. I've got a good pension so I thought why do I want to leave that? The background I come from, women don't go into construction. I know there aren't loads of women in construction. But as a black female, it's 'why? Why are you doing this?'

Support came from her brother "who drives her hard" and her husband and two children who make her feel "anything is possible." This was still a very risky decision to make and contrary to social norms and traditional feminine roles

(Risman, 2004) she had experienced to date. A challenge to Madalyn's 'habitus' had come about via her participation in a course showing that women can work and be successful in BE (Hodkinson, 1996). When asked to describe her version of a successful student she said

That's a hard one. I would have thought the most successful ones would probably be very middle class to upper class. White, male, parents or family already well established in some sort of construction field or wherever.

This perception is not far from the natural majority of students in BE.

Progression, belonging and support

Just like the other women within my research Madalyn really enjoyed some of the science, particularly one module on the second year. She said it was something she had "sort of left and never developed", but she enjoyed finding out about how it impacted on the building more than the building construction itself. The setting of context and the delivery of one lecturer in particular helped to make the subject come alive for her.

He's somebody I could never forget because the other science teachers have either got me to hate science, really got me to loathe it. But he got me to understand in a creative way, what he was trying to put across to me.

Madalyn did feel 'like a fish out of water' as Thomas (2002, p431) describes sometimes when she had the impression that lecturers did not feel she belonged. Her experience on the first year science module illustrates the 'banking' form of education described in Chapter One (Freire, 1993, p53).

I'm someone who likes to ask questions. I asked questions on, say, three occasions and he was so derogatory towards me. I mean maybe a teenager may not understand what he was inferring but me as an adult, I thought he was being very covert with his comments and put me down. And I just went through months of going to a lecture which I never really understood.

The impact of that first year on her learning in subjects at a later stage where she didn't feel she belonged clearly impacted in a negative way. Later in her course she was still conscious of feeling different. Madalyn's answer to the question as to whether she challenges things she doesn't agree with in lectures match closely with what Belenky et al (1997) found in their women students as well as what Hayes described (2000) as 'voice' described in Chapter One.

I don't think I've challenged anything in particular and that's because of experience with a negative lecturer. I do find it difficult to say what's what because I just feel I'm going to be stigmatised anyway. So I don't tend to challenge.

At the same time as these negative experiences Madalyn could also describe the very positive learning and supportive learning environment created by other lecturers. These lecturers who showed respect and limited the distance between student and academic but also inspired and projected passion for their subject area were the ones she responded to and who ensured that she could see place for herself within the BE.

... Such a passionate lecturer... He's made me look at fungus and dry rot in a different way altogether. He's in a league of his own. Absolute league of his own. I'd have never thought he was a principal lecturer - never ever because he was just so laid back. If you needed anything answering, he was there and he made it sound so simple...so simple and straight forward. The first time I met him on the first year was nothing to do with pathology. He's just a normal person where another lecturer like the first science person I felt as though I couldn't pitch any conversation towards them. But..., he's in a league of his own.

The support and close relationship with some lecturers helped to keep Madalyn going when she “*felt she couldn't cut it.*” The delivery was the other key to a successful learning experience according to Madalyn:

Some of the small tutorials have been quite dry - but it depends on the lecturer, who you get. Someone like... makes something that seems boring on the face of it but he brings it to life with his own experience. So it just depends on who's doing the lecture. It could be in the middle of a forest but it depends on who you get and how well it comes across.

A mature black woman with two children, Madalyn had to manage her time between learning and her family responsibilities. While being a minority on a male dominated course she also had to manage dyslexia. The UNI support system for students with disabilities is well structured and Madalyn has benefited from learning support available such as proof reading and additional time. Her experience with the way some lecturers highlighted her difference and treatment have made her feel “*thick*”. As she says “*I'm scared it's going to stop my chances though...it just gives another aspect to the stereotypes.*” Madalyn explained that she did not believe that the university was really prepared for mature women with children to be at university. She explained that the structures and timetables did not take account of how women with family

responsibilities managed their lives. She believed that there was scope for the university to do more to support mature students – such as mentoring and social networks (Atwal et al, 2007). Whilst the university offered such a scheme, there were very limited places, and demand always exceeded what the scheme could offer. She suggested how a “*mature woman with kids could prepare the next person in what to expect.*”

Moving into work and difficult transitions

Part way through the second year of the course Madalyn started to look for a suitable placement for her third year. She knew how important the placement could be in giving her sufficient experience to make a successful transition to the BE workplace (Dainty et al, 2004). She felt she didn't get enough support from UNI at this stage. She described the additional barriers she faced in getting a placement as a black, mature woman confirming the issues as described in Chapter Two (Acland and Azmi, 1998; CABE, 2005; Mirza, 2006).

But the key thing is that when I put my CVs in, I felt I've had positive feedback but once I've opened the door, I knew I wasn't going to get in. Although I've been hopeful and thought that I could stand a chance, I knew...and the amount of excuses they come up with is unbelievable. One person did actually ask how old I was!

Madalyn had a number of unsuccessful applications including one with UNI estates department, where a known vacancy had been denied when she enquired. The underlying perception of this response was of either racism or sexism or a combination of prejudice. Discriminatory behaviour in the construction industry has been described as commonplace (Dainty et al, 2004; CABE, 2005; Steele and Sodhi, 2006).

Finally, Madalyn was offered the opportunity to work with a local voluntary organisation. The part time short term placement offered was on a project to refurbish a classroom as part of their building. She would need a mentor to support her in this role and I was approached and agreed to take the role on. Madalyn at this time also joined the group of students taking part in my research. She was very concerned about not getting enough experience before her final year. She could have proceeded direct to her final year and gained a

fulltime degree rather than a sandwich degree but felt this was the wrong choice.

I almost feel further behind now because I haven't got the experience a lot of students are coming back with. They're more equipped to take on this higher role. So now I'm sort of re-considering going part-time for the final year to get some work experience alongside the actual studies? Yeah, because I don't feel ready. I don't think that I can give what I'd like to give. I might be able to just pass - but just pass has never been good enough. And failing, if that happened, I'd fall apart because I feel like I haven't got the time - I've got to do it right the first time.

Madalyn did gain a formal placement eventually for part of the year. She attended the Women in Construction Award Ceremony and via women's networks was able to meet someone who offered her experience in a housing maintenance context doing surveys. Our informal mentoring arrangement continued and we met to discuss the racism she was encountering in her work – from her colleagues directed mainly against the tenants whose houses they were surveying. It seemed that she faced barriers on multiple fronts whichever way she faced as described by CAGE (2005) and Mirza (2006).

Madalyn started back on her final year in the autumn of 2007. The pressures on her did not lessen. She was experiencing personal problems outside the university course but did not want to let them interfere with her studies. She had to admit that she was coming to university some days so stressed and had “*not understood a word of what has been said.*” She felt expectation and pressure to succeed but she also felt positive about the changes she had gone through.

I have learnt a lot of things about myself and for me that is the key thing. I've learnt a lot of things that I didn't know I had inside me have awakened - not re-awakened because I didn't know it was there in the first place. For me, it's learning about myself I can take forward and say this is me now and that was me then. So in three years, although I found some of the journey really hard, I'd say that I've changed immensely. The modules I don't remember so much because it's gone by so fast, but for me, from the person who was so petrified at the beginning to now choosing what I might be doing in a few years time, I can't believe I'm actually in this place, talking to P (laughter).

Eventually Madalyn decided she just had to take time out and focus on her family and handle the personal problems. The pressure to succeed in her career needed to be put on hold for a while. She withdrew and recommenced

her final year in the autumn of 2008. As she explained she felt at times as if she was letting the lecturers who supported her down, but her family had to come first. Sometimes as lecturers we lose sight of the fact that there are more important things in life than studying for a degree.

One year on Madalyn's life has settled down to some extent, she has managed the family problems and she is motivated again to complete her education and become a building surveyor.

I really don't know why I started the journey altogether but I know I have to follow it through because I've got so many things at the end of it, to see my kids' faces. Every year that goes past my girls are saying 'wow mummy'.

She still has a circle of supportive family and lecturers around her. However there are also new lecturers who have arrived to teach who have not seen Madalyn before. These are new lecturers without any training in gender awareness and who gave her the impression that someone like Madalyn doesn't really belong on a final year building surveying degree. She knows it is still hard but as she says

... it's a male dominated area. It doesn't mean that women can't do it. It's just that men feel they can do it a lot better than us. And, as my daughter said, they're experts. That doesn't make sense to me but it's generations and generations of like-minded people who we have to change the minds of.

By December 2008 her earlier perception that a new lecturer had questioned her place in the course had abated, partly due to the marks she received in her first assignment (a first). In addition she had received very positive feedback from her dissertation viva and was looking forward positively to her final semester. This time she is managing expectations and her time so that she can study successfully but also manage her family responsibilities. She has also found a way of making time for herself by taking up swimming (to raise funds for charity) even though she still feels guilty in taking this personal time for herself. As Moss (2004) describes in Chapter One she has found a way of managing her complex life.

What does this mean for the university?

Madalyn's experience as a non traditional student in a non traditional subject area highlights a number of shortfalls in the widening participation policy implementation within UNI. UNI policies as described in Chapter Six do aim to support widening participation, but the demand for support as described by Madalyn exceeds supply, certainly in terms of mentoring needs. Further than this, the lives of women such as Madalyn are complex with multiple responsibilities outside UNI as described in Chapter Two (Moss, 2004).

Madalyn's experience of discrimination when making the transition to the workplace illustrates another significant barrier (CABE, 2005; Steele and Sodhi, 2006). Without informal support and links to positive employers, Madalyn would likely have been part of the "*leaky pipeline*" (SHEFC, 1997, p3). The tensions on resources, the drive towards increased numbers and the aim to support non-traditional students can be contradicting (Becher and Trowler, 2001).

Summary

The case study chapter has illustrated one woman's experience in BE higher education in UNI highlighting both the positive aspects of her experience and the negative aspects. The entry access short course that brought her into BE provided a pathway that is needed if widening participation policies are to be successful (Appendix Nine). With the support and encouragement from lecturers and others, Madalyn's story has illustrated that non traditional students can be successful in progressing within BE higher education even when the hurdles that need to be negotiated to success are complex. The transition to employment can also be successful, subject to the university having sufficient strategies in place to provide strong links to employers that promote an inclusive workplace.

Chapter Ten

Conclusions

Introduction

This last chapter draws the research together, giving an overview of the context and background to the research before summarizing the main findings and drawing out key themes in order to form substantive conclusions. The chapter reviews the aims and objectives of the research and assesses whether these aims and objectives have been met. The contribution to knowledge made by the research is explained. The research approach I have taken and my perspective as being 'an insider' has been at the heart of the research. There is a desire to change practice and improve the situation of women in BE higher education. My conclusions therefore also reflect on to what extent change is being achieved as well as trying to identify any missing elements and what change is still needed at UNI.

Overview and context of research

The research has taken place in a new university over a period of five years on a part time basis with the involvement, along the way, of a number of participants. The women students who have taken part in my research come from a range of backgrounds, are of different ages, from different locations and they have studied on a range of courses in part time, sandwich and fulltime modes of undergraduate study within BE. The women in the research have willingly contributed their stories, their difficulties and their achievements along their route through BE higher education. My position as an academic leading a team that aims to encourage girls and women in SET and BE, as well as to support the retention and progression of women in SET and BE, places me at the heart of the research. My own personal history has been located within the findings of the research and this provides some historical context to the position of women in BE over the last 40 years, including delivery of the education experience in BE higher education. The male and female lecturers who have been part of the research are drawn from across the BE department and from a range of subject areas and course teams. They have all been supportive of the aims of the research and have taken an interest in improving the learning

experience of women. The context of the research, a new university in the north of England, positions the findings within an environment that is different from more traditional 'higher status' university environments. The aims of this research required a move away from a mainstream approach in order to challenge the dominant views that overlook social dimensions and ignore difference (Truman and Humphries, 1994). I have aimed to be 'subjectively objective' (Reason and Rowan, 1981) throughout, following a critical path of enquiry, drawing on lecturers and students to confirm and discuss findings. However the analysis is mine and it is my findings that are communicated.

This research has had to draw from a number of different academic literature themes in order to ensure that different aspects of the study are sufficiently covered. First, the study is a feminist piece of research that focuses on gender and the experience of women as learners. The situation of girls and women in society and as learners is an underpinning theme to the research. Women's ways of learning (Belenky et al, 1997) and feminist pedagogy (Hayes, 2002; Hugo, 2002) have been found to make a significant contribution in seeking to analyse the university learning experience of the women. The aspect of difference and intersectionality have become themes that emerged through the research findings because of the complex identities of the women. Too often in early feminist research women's differences have been ignored. A woman's age, ethnicity and class become invisible and usually a middle class white experience has been recorded. The differences between my women and their individual identities are important and significant in understanding their experience in BE higher education (Harnois, 2005). I have found only limited research that focuses on the diversity of women within SET and BE higher education elsewhere.

Secondly, the study examines an area of education and employment that is non traditional for women. I have drawn from a range of literature that explores the context of SET as well as the BE professions in order to ensure an understanding of any specific sectoral approach to women as well as to the wider culture, history, employment and education context that BE higher education finds itself within. My own background and experience has enabled me to draw on a considerable breadth of literature, not just from academic

studies, but also from practice based interventions that have taken place over the last twenty years and initiatives that I have been involved with (Appendix Three). The literature on women in this sector is now substantial, but the focus still tends to be on a homogeneous experience for all women, without concern for difference, apart from a small number of studies (Steele and Sodhi, 2006).

Thirdly, the study of higher education itself and the teaching and learning culture in which students find themselves is a clear influence on experience. The cultural attributes of the subjects the students learn (Becher and Trowler, 2001), the cultural symbols of the learning environment as well as the academic culture experienced by the lecturers who teach needed to be understood (Turrell and Wilkinson, 2004) in order to establish the gendered landscape of the university culture and the context of the teaching and learning in BE. My own experience in teaching adds to the knowledge of the academic landscape. While Becher and Trowler (2001) examined the nature of 'tribes and territories' in higher education, they concentrated on traditional disciplines mainly in traditional universities. Although the discipline of architecture retains a high status, the rest of BE higher education is a younger discipline that has developed from a strongly vocational beginning (Burke, 2003) within a broad knowledge base drawn from different 'tribes and territories'.

Discussion of main findings and key themes

Cultural complexity

The aim of my research was to discover the lived experiences of gender in the BE at a new university and I have found a number of different dimensions of culture that influence the experience of women in BE. The culture of the learning environment is complex and multi-layered. Influences from the culture of UNI and its relationship to its students have clearly impacted on the learning experience. A 'new' university with a focus on teaching and learning and widening participation, along with a faculty that includes education, has contributed to provide a culture that can be inclusive to women in BE. In contrast, the culture of the BE professional bodies (Burke, 2003) and the academic culture in the BE department are interlinking aspects that contribute negatives and positives towards women's overall experience as students. There are clearly enduring gendered aspects to this culture, which reflect

societal and economic roles of men and women as well as the legacy of a sector that has always been heavily male dominated. The difference in status between the BE professions was found within the learning experience so that Architecture has more status than Architectural Technology and Construction Management can become stereotypically 'macho' without any female presence.

One of my objectives at the beginning of this research was to find out if BE in UNI has an identifiable set of cultural attributes or if it was just a combination of cultures drawn from other SET and allied academic disciplines. Can it be described as a 'masculine' culture? If so, what does this 'masculine' culture actually typify? Chapter Six examined different levels of the university landscape, the faculty and the department and courses. My findings fit closely with the "*slippery and elusive*" concept of culture I cited in Chapter Two, as described by Itzin and Newman (1995, p12). Rather than finding a clear and homogeneous set of attributes and symbols that indicated a dominant masculine culture, I found a number of different aspects at different levels of the organisation that support elements of a gendered culture. However, I also found many positive attributes that supported elements of an inclusive culture to non-traditional students. The typologies as assigned by Parkin and Maddock (1995) of "*gender blind*" and "*smart-macho*" were found to be present in academic culture that impacted on women's career progression and as described by L as "*the constant drive to do much more for less*" in Chapter Six. However, at the same time there was little evidence of the isolation, sexual stereotypes and sexual harassment described by Itzin (1995, p 48) that typifies a strongly gendered culture for students. Nonetheless the numerical dominance of male academics and students is enduring and this aspect continues strongly to influence the cultural landscape that all women students experience.

UNI culture, therefore was found to exhibit aspects of a 'masculine' culture – confirming that described as the dominant culture of HE (Becher and Trowler, 2001). However, significantly as a 'new' university, UNI has more women at higher levels than most traditional universities with 3 out of 4 faculty deans being women at the time of the research. The faculty culture benefits from being placed with education and social sciences. Both subject areas have a

significantly greater participation of women students and women academics as well as being perceived as more 'feminine' subject areas. This also makes a contribution towards a more 'feminine' cultural experience for students. A positive approach to widening participation and a strong teaching and learning strategy have contributed significant aspects of an inclusive experience for students from non-traditional backgrounds. The lack of distance in the relationship between lecturers and students is another positive attribute that supports women in BE. As a minority, women have been encouraged to feel they are welcome in the community of BE higher education. At BE department level, however there is no evidence of adopting a specifically targeted student 'women friendly' culture. The interventions and the links between the Research Institute and the department are situated at an individual level with lecturers.

Cultural signs and symbols that had a negative impact on women students' day to day experience were found. The need for support and confidence building for non-traditional students in BE from lecturers was found to be at odds with rising administration and teaching loads as part of the academic culture. The absence of gender in the curriculum in the new BE and Architecture programmes described in Chapter Six reinforced a perception of women as invisible in BE (Gurjao, 2007). This contributed to the barriers preventing the women from becoming full members of the BE community (Kirkup, 2003). Support for students making the transition to the workplace was found to be inconsistent. The problems of sexism, racism and bullying experienced by some of the women from different backgrounds in gaining work placements and faced once in employment as described in Chapters Seven and Eight confirm that there is still much progress needed to achieve a positive transition to the professional workplace for many women. This supports the findings of other recent studies (Dainty and Bagilhole, 2006; Steele and Sodhi, 2006; Gurjao, 2007).

The examination of cultural placing of the subjects within BE (Becher and Trowler, 2001; Neumann, Parry and Boucher, 2002) across soft applied (feminine) and hard pure and applied (masculine) categories suggest the positioning of subject does not, by itself, dictate a negative or positive experience for women. It is the teaching and learning strategy and the lecturer's approach to and delivery of the subject that dominates the learning

experience. This point supports Britton's (2000) suggestion for achieving change that I adopted in Chapter One as being a way for an individual lecturer to challenge a gendered culture. The subtle complexities in the findings about gender and culture support the conclusions that over-simplification and stereotypical descriptions of subjects are misleading and unhelpful. The overwhelming positive view of women's experience of Materials Science, culturally situated as a hard-pure (masculine) subject (Parry and Becher, 2002) illustrated the power of an individual lecturer to counter the stereotype. As Madalyn said "*he's somebody I could never forget because... other science teachers have...got me to hate science.*" My findings support the warning about "*being seduced by the obviousness of terms*" (Paechter, 2006, p254) referred to in Chapter One.

There is a need to move away from generalizations about gendered culture in order to better understand where barriers lie and where and how change can be brought about. 'Masculine' and 'feminine' can become terms that are fixed and they can actually reinforce the sexual stereotypes that we are trying to challenge. The descriptions of SET and BE referred to in Chapter Two including the association of 'abstract and impersonal' teaching and 'masculine subjects' with a 'masculine culture' reinforces generalizations about the learning experience in SET and BE as being fixed in a 'masculine' style. My findings challenge the perception that 'masculine subjects' need to be delivered in a 'masculine' style. Nevertheless, the enthusiasm shown by Parveen for applied maths in surveying and Naomi's enjoyment in working with bricks in the workshops referred to in Chapter Eight show that a positive learning experience does not have to be 'feminised' to be effective. The findings support Henwood's (2000) concern about approaches that try to make the learning environment 'women friendly' by introducing so-called 'feminine' characteristics that can reinforce the stereotype that all women are the same and that some subjects are inherently 'feminine' and therefore appeal naturally to all women. We need to critically analyse the factors that influence the context and delivery of a subject and its learning experience for all students if we are to counteract this stereotyping.

The comparison with Greed's (1991) findings on women's experience of BE higher education from the late eighties has illustrated a considerable and encouraging improvement in the cultural domain. However certain enduring negative aspects remain linked to aforementioned gender blindness within the curriculum. An absence of 'women as subject' and a virtual lack of 'social aspects' of BE were found within the BE curriculum and are thus still an issue to be tackled at UNI. The new BE programme as described in Chapter Six and Appendix Ten appears to have no room for the wider social topics and concerns in BE and individual modules lack any visible aspects that counter stereotypes that had been included in the curriculum prior to 2004 such as case studies of women in non-traditional roles as a norm and a diverse range of names. The Architecture team leader has committed himself to addressing this absence of gender in the curriculum.

By unpeeling the different layers, it has been possible to understand the gendered nature of UNI, the Faculty and the BE Department. Significantly, it has also been possible to gain a fuller understanding of the impact of UNI culture on individual women students in order to identify key points that could support their progression and belonging in the BE community, and to meet my research aim.

The learning experience

In order to understand the experience of women studying BE in the university it was necessary to examine their routes to higher education as well as the identities that they brought with them. I wanted to ensure that my research did not generalize an experience for all women, but, rather, examine the varying experiences that women have depending on their social background, age, ethnicity and religion.

The different identities of women illustrated a rich pattern of difference at the intersections within the gendered experience. I also found that gender itself was not always the dominant aspect impacting on their experience (Skelton and Hall, 2001) but that other parts of their identity were significant within gender. For Lynn, her working class upbringing and her age as a mature student, were greater influences on her experience as a student than gender

alone. Madalyn's identity as a mature black woman with dyslexia gave her a very different experience in BE higher education compared with Naomi's supportive and encouraging experiences travelling as a young white woman straight from school to college and thence to higher education.

There were a number of key influencers and 'habitus' (Bourdieu, 1990) challengers identified by the women, in their paths to BE. These were found in many places including family, friends, education and television. Once they got to university the influence of the staff that met the women students was also found to be significant in ensuring whether the women felt they could belong, so that induction and the first few days' experience impacted on retention. Barriers to higher education for working class students, such as Lynn feeling that it is "*not for the likes of me, a working class girl,*" or mature women students like Anita who had been out of education for so long, were clearly visible. They were minorities in higher education as well as being non-traditional students of BE. Women like Madalyn and Parveen also experienced the double disadvantage (CABE, 2005) of 'race' as they entered their chosen subject area, so that when asked to describe her version of a successful student, Madalyn said "*...middle to upper-class. White, male...*"

The literature referred to in Chapter Two, concerning women in SET, frequently mentioned the unfriendly classroom atmosphere as well as so called 'hard masculine' subjects (Greenfield, 2002; Powell et al, 2004; Faulkner, 2006). The literature in BE has also reflected this view (Greed, 1991, 1999; De Graft Johnson et al, 2005). I have already discussed the challenge to the cultural placing of subjects, but it is important to move beyond this to recognize the aspects of the learning experience that were found to be significant for the women students. Lack of confidence in their own ability in BE was a common factor described by the women and also reflected previous studies of SET (Greenfield, 2002; Mendick, 2005; Murphy and Whitelegg, 2006). The ways that lecturers addressed this lack of confidence, (see Chapter Eight - by getting work back quickly to give feedback, setting small, regular assessments in the first year rather than one large one, building confidence over time with reassurance along the way, committing sufficient time to seeing students outside lecture and tutorial time) particularly in the early stages of the courses,

was found to be critical as to whether the women were able to build sufficient confidence to progress.

The findings about what teaching styles the women appreciated and enjoyed, being supportive and interactive, do correlate with previous studies (CUWAT, 1998; Let's TWIST, 1998; 2000) that propose context and applied learning with regular feedback as methods that support an inclusive learning environment. However it is significant that throughout the findings, all women identified the delivery of Material Science by a motivated and enthusiastic lecturer with time for students and passion for his subject as their best learning experience. As Sue said (Chapter Eight) "*...is he passionate...but when they are like that it's interesting and they want to share it with you*" or as Lynn said "*I really like xx...you can get to him and he'll always give you time...and he's so into his subject*" a style that fits with a feminist pedagogy as described by Hugo (2002).

In contrast to this positive experience of science, women did have negative experiences in a few subjects that reflected the literature in 'distance' and a 'banking' approach to learning (Freire, 1993; Thomas, 2002) or where lecturers were intimidating or aggressive, limiting women's contribution to discussion (Tannen, 1994; Hayes, 2002). Additionally for mature women with outside responsibilities, the learning experience had to be balanced against their other lives (Moss, 2004) and timetables, attendance, group work and field trips were seen as hurdles to be negotiated. This aspect of higher education for non-traditional students as a whole was identified by Waterman-Roberts (1998) and was described in Chapter Two.

I drew on aspects of feminist pedagogy, with its focus on women as learners, to help me understand better an area of study often neglected in BE. What I found in my research findings was a pedagogy that was not specifically feminist, in that it did not correspond with all the aspects listed in Chapter One (Hugo, 2002). There was, however, an inclusive approach to individuals as learners in the BE subjects which the women identified as most positive and this approach supported the inclusion and progression of non traditional students generally and women in particular in BE.

The aspects of the higher education learning experience that caused enduring problems for some women in BE involved the transition into the workplace (see earlier section) where sexism and racism are still present. As CAGE (2005) found black and ethnic minority groups are a significant part of a “*decreasing funnel*” (SHEFC, 1997, p3) within BE at the transition to employment. The path through BE higher education was not a smooth path, and a number of the women participants experienced interruptions, with one leaving completely. While the reasons for interruptions to study varied, the importance of support networks and having access to a positive part of the BE community were found to be significant for all women.

The second part of my aim was to understand how the area of learning can be made more inclusive for women. My research has drawn those characteristics together and assessed them against existing literature and the experience of women within one ‘new’ university. This has enabled me to develop a list of seven key aspects that can contribute to a conducive learning environment for women students in BE (See Appendix Eleven).

Difference and belonging

My research has a deep and precise focus on a small number of women from different backgrounds and this has enabled me to explore and identify the need to recognise difference as well as to guard against generalizations. The tendency to generalize about women’s experiences has in the past led to the invisibility of ‘race’, class and age. If these aspects are invisible, the additional and different barriers that are present for women from varying backgrounds are also made invisible. Instead, there is a tendency to focus on white, middle class students under twenty one, which is the majority. The different ways that the women experienced the intersections of ‘race’, class and age as they grew up and made their choices about joining the BE community have impacted on their ability to progress and whether they find enough confidence and support to want to stay within the community. Not all women have travelled via difficult paths, and the supportive nature of parts of the BE higher education and professional community is a positive finding in the research, illustrated in Naomi's case where her place in Architectural Technology has been smoothly established both in UNI with support from her lecturers and in the workplace by

her employer. Some women who have encountered barriers are different from the majority of BE students in more than their sex. Madalyn's experience as a mature black woman with children illustrates many of the positive and negative aspects of BE higher education at UNI. Her experience also shows how the support network between the team in the Research institute and individual lecturers that exists in UNI has been able to support women to negotiate complex intersectional barriers in order to achieve success.

The women found alliances within different parts of the student population that related to different parts of their identities including mode of attendance, age, class as well as gender as a means of support. The women did have negative experiences and their different support systems and networks within (via the team in the Research Institute or individual lecturers) or without the university (family, work colleagues and friends) were significant in helping them to stay in BE higher education. The women who took time out of study like Madalyn and Parveen, or Lynne and Sue, who experienced problems that could have resulted in them leaving BE, were also able to draw on their support networks or previous positive experiences to get them through.

Contribution to knowledge

This research provides a contribution to an understanding of the gendered culture of a BE higher education department in a 'new' university. By making visible the different backgrounds and identities, together with aspects of individual women's experiences in BE higher education, the research has given a voice to the women concerned. The research findings have added a rich depth and diversity to the research currently available in this area. The analysis of difference on positive and negative aspects of education means we are better able to understand the gendered experience of women in BE higher education at intersections of women's identities. Class, 'race' and age are significant aspects of a woman's identity that have often been omitted from research in this area. The risks experienced by Lynn as a mature working class student, the 'savviness' (Harnois, 2005) of Parveen as an Asian mother, Madalyn's bravery as a mature, black woman with two children embarking into an unknown sector and the alliance that Sue formed with male mature part-time

students contrast with the often clear and confident pathways of Bel and Naomi to illustrate the complex nature and variety of women in BE.

The description of a successful and often enjoyable experience of much of the teaching and learning has provided a challenging contrast to the overwhelming negative reporting of masculine subject areas and learning environments as described in much of the research on women in SET and BE. My research has been able to show how the BE learning environment has changed since Greed's (1991) early landmark study. The 'new' university, and the BE department, while still exhibiting aspects of the gendered culture as found across higher education (Becher and Trowler, 2001) and in BE (Srivistava, 1996) is committed to widening participation and has a positive strategy towards learning and teaching – factors that support a conducive learning environment for women in BE. Together with the active role taken by the team in the Research Institute and with lecturers committed to inclusive learning in BE, my research shows how these factors in BE higher education can help to limit the “decreasing funnel” (SHEFC, 1997) while highlighting areas that still need intervention.

The discovery of the positive impact that individual lecturers, male or female, can have on the learning experience of women students and their progression in this male dominated subject area provides encouragement for other BE departments in other universities. The example of Materials Science or other subjects where the lecturer's approach encouraged interaction and questioning by students along with a range of teaching and learning styles illustrate the significance of the learning experience. The research findings also support the need for consistent, multi-layered interventions and awareness raising on gender. However, interventions need to be alongside other identity aspects including class, age and 'race' in BE. This was evidenced in UNI by the disappearance of gender and diversity from the curriculum when staff or programmes changed, together with the inconsistency in support for black and ethnic minority students on work placement, or the perceived importance of the welcome at entry to higher education when you are as "*petrified*" as Madalyn was.

The research challenges a perspective found in some Women in SET initiatives that may unwittingly reinforce stereotypes. Women are not homogenous and their similarities with men are as great as their differences (Connell, 2002), as evidenced by the women who formed their alliances by age and background rather than gender. The findings support the premise that so called 'masculine' and 'feminine' attributes attached to subjects in education can be misleading (Henwood, 2000) such that individual actors can challenge these stereotypical labels in their teaching and women can relish 'masculine' subjects such as maths and science. My findings reinforce the call by Paechter (2007) for an environment where men and women can draw on a range of femininities and masculinities as required such that we move towards a fairer society for all.

The pathways that the different women followed to BE higher education illustrate the range of influences and unfortunately also the restrictions on career choices and pathways that still exist for girls and women. The importance of 'habitus' (Bourdieu, 1990) challengers e.g. Bel's family, Parveen's work colleagues and Jill's boss or indeed Marian Suhr on television for Lynn can be found within the research at different stages of adulthood as well as in childhood and illustrate an important link in countering stereotypical career routes for girls and women.

Bringing about change

Part of the aim of my study was to understand how change can be achieved to improve the learning situation of women in a traditionally segregated area of study. Greed (2000) challenges a perceived view about the "*domino effect*" when, after a certain number of women have entered, they may produce a critical mass, and break down the barriers for others (Kanter, 1977). Greed and others acknowledge that sheer change in numbers is no guarantee of change (Newman, 1995). Kanter (1987), when revisiting her original study of '*men and women of the corporation*', found that there had been some increase in numbers of women and they had exchanged an isolated token status as 'outsider' for membership of a minority group. Kanter (1987) submitted this was an improvement by providing a means for collective action for further progress. Glover (2000), in her study of women in science recognized that critical mass could have a positive outcome in cultural terms by inhibiting behaviour that

isolated women may experience, such as sexual harassment and verbal abuse; it could bring about some cultural change. While the numbers of women in SET and the BE at UNI are not anywhere near a level of critical mass, the location of the BE Department may have helped in inhibiting a masculine culture because of the general numbers of women students within the environment. My findings support Greed's (2000) view that while women in BE at UNI are likely to remain a minority, an increase in numbers alone will not break barriers down. The influence of an inclusive university environment and a positive approach to teaching and learning are aspects that are likely to continue to contribute towards positive change for women, along with a support structure that can help handle the negative experiences.

Kirkup (2003) drew on the theory of 'communities of practice' (Wenger, 1998) and 'social capital theory' (Putnam, 2000) to explore the hidden aspects of gender in learning and work in SET. As stated in my Introduction she called for communities of practice in SET that drew women to the centre, and for those groups active in promoting SET for women to be actively working towards this change in mainstream culture. This approach has been adopted by the team in the Research Institute. Wenger (2000, p239) discussed identity and belonging to a social learning system as well as knowing where one does not belong. Our team in the Research Institute has worked with students and lecturers to encourage a culture that is inclusive to women. While the findings illustrate positive action at UNI level and at individual lecturer level, there remains a gap at departmental level. Even though a number of the women in my study have not had smooth paths through BE higher education, most of them have been able to feel a sense of belonging to parts of the community as described by Bel in her final year "*I do feel we've got a very good Building surveying community*" or even by Parveen who stayed on the periphery "*I've had a really good time. The lecturers are fantastic.*"

Greed (2000) acknowledged the many change agents appearing in construction trying to alter an industry in "*a mess*" (p190) but she explained that these varying initiatives have failed to make an impact on the mainstream. She described the many "*bottom up*" change agents that are like satellites circling '*planet construction*' (p190) and with some "*top down*" change agents coming

from government policies and professional bodies circling above. However, there was little coming from “*planet construction*” itself. The situation found in my research at UNI reflects Greed's (2000) description with interventions being both “*bottom up*” and “*top down*” with a need for more from those at the centre management of BE.

Recommendations for further study or action

This research found that the transition to employment can still be a significant barrier to women students in BE in general and to women from black and ethnic minority groups in particular. There is a need for a greater focus on racism within the BE sector and research to understand how universities can help to tackle these issues for all students and for women from ethnic minority backgrounds in particular. The recommendations made in the CAGE (2005) study are supported by my research and actions to tackle racism in BE need to be addressed urgently by universities, employers and the professions.

The focus of this research was on a ‘new’ university and its culture. ‘New’ universities have a wider range of students (Reay, 1998; Mirza, 1998; Green, 2002) than the elite institutions. The focus on teaching and learning and on widening participation in UNI has made a positive contribution to the learning experience of the women. There is a need to understand better the differences between the elite and ‘new’ universities in cultural terms to see how they can influence the experience of women students in BE. The impact on culture of the placing of a BE department alongside less male dominated areas should also be explored. The higher education sector is not homogeneous and elite institutions may be able to learn from new universities how they can improve the student experience for women in BE (and SET). However, the continued pressures of competition and scarcity of resources on all higher education institutions could potentially have a significant negative impact on the experience of women in non-traditional areas. The situation needs to be monitored so that inclusivity is valued and defended.

Reflections on the journey

My original research question came about from my involvement in improving the situation of women students in BE. I wanted to know if interventions that had been initiated were making any difference and I wanted to understand the culture as experienced by women students. I knew that I wanted a representative group of students but at that time I was unaware of the rich variety of experience my diverse group would bring to the research. The number of women students in BE at UNI is small so I have been fortunate in finding my diverse student group. The theme of difference grew as I collected data and tried to unpick the cultural attributes but there was always the thread of a gendered experience to return to along with a BE context.

My original aims have been generally met and my defined objectives to meet my aims were all actioned by way of the literature review or in the data collection. There are two objectives that I have been unable to complete. The complexity of the culture that I discovered made it hard to measure fully the effectiveness of existing strategies to address segregation and to identify the specific means to bring about cultural change.

The research became part of my working life, rather than a 'normal' research project and my own experience in education and industry before and during the research cycle has enabled me both to understand and to articulate the potential for positive change. My original plan for the research would have meant completion in a shorter time. On reflection, I believe the research has benefited from being carried out over a longer period. I have been able to include issues faced at different stages and to include the interruptions, progression and the development of the individual students that provide a much better understanding of the complex pathways they followed.

My move from teaching initially felt problematic in forging new relationships with students as part of the research, but once I found my group of students, being separate from teaching was a positive aspect of doing the research. Being outside the department meant that the students and I knew that whatever they told me had no direct link to success or failure on their courses. I was still able to bring up and discuss general issues of concern with the lecturers who were teaching them, with my own knowledge and understanding to inform questions

and responses. Following a 'new paradigm' and collaborative approach to the research gave me an impetus to challenge orthodox methodology, to take a non-standard approach and to really work with the students rather than treating them as research subjects. Having been entrenched in a subject area (BE) driven by positivism, the initial move across was difficult, but once made, the methodological approach has served me very well.

Final words

The students and lecturers that have been involved in the research with me have generously and continuously offered their ideas and experiences, with highs and lows and challenges that have provided me with very rich data. The continuous spiral of 'new paradigm' research has not actually finished with this writing up. A number of the women are still in contact to share success, to exchange experiences and to seek moral support for the next point of resistance to be faced, so the process continues. The support for the team in the Research Institute within the faculty and the university is continuing and with this support, the findings from my research may help to achieve more positive change in BE higher education in UNI and outside UNI.

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Appendix One

Research question

What is the higher education experience of female students on built environment courses?

Aim

- To discover the lived experiences of gender in the built environment department at a 'new' university.
- Through this, to understand how a traditionally segregated area of academic study might be changed to become a more conducive learning environment for women.

Objectives

- To find out if "built environment" in higher education has an identifiable set of culture attributes or is it a combination of cultures drawn from other SET and allied academic disciplines.
- To identify the aspects of the teaching and learning culture that may discriminate against or form a barrier to women's learning.
- To identify previous action to address segregation in SET and to determine why no significant impact has been achieved.
- To discover if it is feasible to identify a conducive learning environment for women in higher education built environment / SET.
- To identify means of bringing about cultural change in higher education.
- To draw on current action and strategies being taken to address segregation and to measure their effectiveness in action.
- To draw on students' experiences of the built environment department in the university
- To work with lecturers to identify actions that can contribute towards provision of a conducive learning environment for women.

Appendix Two

This following section sets out the typologies according to Parkin and Maddock (1995) together with a set of questions used to explore the academic culture in BE.

Typologies

Parkin and Maddock (1995) developed a 'gender typology' of culture in public sector organisations which are outlined below. These are listed as an aid to getting to grips with culture and are not necessarily to be recognised in SED.

- *The gentlemen's club* is paternalist and protective of its women e.g. one woman trainee surveyor was not allowed on site during two years of training because managers wanted to protect her from male highway workers' attentions.
- *The barrack yard* characterises organisations modeled on the military such as fire brigades. It is a bullying culture where subordinates are shouted at and rarely listened to.
- *The locker room* is a culture where men actively exclude women, building relationships on the basis of common agreements and common assumptions. "Men still exclude women from 'drinks in the pub'. Its difficult asking a woman because everyone assumes you fancy her even if you only want a chat about work."
- *The gender blind* ignores women's identity and experience. Gender blindness may not mean to discriminate but it ignores difference and reality and generally grows out of an illusion that everyone is white, male and able-bodied. One manager organised 24-hour shifts for all computer employees without reference to transport, domestic responsibilities, or security.
- *The feminist pretenders* are well versed in equal opportunities, but only pay lip service to equality programmes. There is a tendency to think all women should speak in meetings and all black people must have a position on black politics. "I think Mary should be more assertive. I've suggested she read...."
- *The smart macho* culture encourages pressure at all costs to meet those performance and budget targets, never mind the 80-hour working week! The culture is highly competitive, and discriminates against those who cannot keep up. Women managers can be as ruthless as male managers in this culture. At worst they exclude women, at best they discourage them. A majority of women doctors had been discouraged from entering surgery because of this culture.

Question / Areas of discussion with academics about culture

1. How would you view your workplace in terms of people and work?
2. Do you recognise any of the cultural typologies listed above in department / in your professional experience outside the university?

3. How does your professional role reconcile with your role as an academic?
4. What value do you feel is placed on your role within the group and within the School?
5. I am interested in your perception of your experience within the School - where you have been aware of yourself as a woman, rather than just an employee, including the way in which you fit work into the rest of your life or the way you manage your time. Does this bring anything to mind?
6. What part of your work do you get the most enjoyment and reward out of, and why?
7. What would you change about your role if you wanted to make it more rewarding?
8. What would you like the School / university to change about the job to improve the quality of your working life.
9. What do you see as the qualities and skills that attract promotion within the School / University?
10. How do you feel students are viewed and treated from within your group / from within the School / from the University?
11. Are there any symbols from within the school that spring to mind as representative of the culture of the school?
12. If you were to draw a picture representing your experience within the school - what would it look like?

Appendix Three

Initiatives to promote women in SET and built environment

The Women's Engineering Society (WES), starting in 1919 still remains as the largest and longest serving UK based initiative to support women in SET. In 1975 Women and Manual Trades was established as the first organisation in the UK to support women in construction and building services and remains a significant support network for women in the trades. In the early 1980s there was another phase of initiatives introduced to try and address the under representation of women in SET and built environment (Phipps, 2008; Cronin, Foster and Lister, 1999). Some concentrated on promotion of careers in the sector to girls (WISE campaign 1984) rather than support for those already in the sector. Some came about with the growth in women only training for adults returning to education in times of skill shortage in the eighties (Phipps, 2008). The Rising Tide report in 1994 (Committee on Women in SET) documented the loss of girls and women in SET and created an impetus that initiated AWiSE (1994) in Cambridge to support women scientists in research and industry. The outcome of the Rising Tide report was the development of a dedicated team within government to research and tackle the issue (Women in SET Unit). Since then the range of initiatives trying to address varying aspects of women's participation in SET or the built environment have grown and spread across the UK.

In 1997 the Scottish Higher Education Funding Council (SHEFC) published a set of three guide books drawn from its women in SET initiative to disseminate learning and good practice to improve access and participation of women in SET in higher education. The guide books acknowledged there was no quick fix and suggested the following aspects which focus on the women themselves:

- Networks of support to share experience
- Focused career information and guidance
- Mentoring activity
- Bursaries, scholarships and fellowships.

Initiatives to change SET cultures were identified as:

- Inclusive approaches to teaching and learning by broadening teaching methods, encouraging student interaction, teaching teamwork skills and making explicit links between practical and theoretical learning.
- Gender equity training for staff to deal with a diverse student body.

The CUWat project (1998) attempted to set out a framework for a technological curriculum that would widen access to women. They identified a range of issues that they wanted tackling within three themes: pedagogical approaches to teaching, curriculum content and culture. They identified the “*chilly*” classroom climate (p4) that puts women off and the need to contextualize technology in order to make it relevant to women. The culture in technology was identified as “*abstracted, impersonal, hard, cold and disconnected with real life*” (p5) and this culture contributed to the exclusion of a number of students, women more than men. They called for teaching methods that recognized and could respond to a diverse student group with diverse learning styles, that encouraged reflection in students and that recognized the situation of being a minority in the classroom.

Henwood (1996; 2000) has studied the relationship between gender and technology, and the various measures adopted to improve the participation of females for a number of years. In re-examining IT education and gender equality (2000) she discusses the inherent difficulty in approaching changes that are designed to make the subject more “*women friendly*” because they can highlight a perception of women’s “*non-technical identity*” and reinforce views that technology is inherently masculine, which is again, stereotyping. She suggests an approach that needs to understand why and how women are so often excluded, why technology is seen as masculine, and how to understand those who do enter and make a success of it. She suggests a complex situation that might have a beneficial outcome (p224) that confirms with Paechter’s (2007) more general assertions referred to in Chapter One.

The Let’s TWIST project originated in 1998 as a project within the EMPLOYMENT NOW strand of the European Social Fund and ran until 2000 and the approach adopted corresponded with some of Henwood’s findings. The initial main strands to the project were twofold - to develop a staff-training package for lecturers and trainers, and to provide a careers database and

support library for girls and women entering non-traditional areas. The staff development training was piloted in the UK to further education lecturers and a research seminar was held to discuss the materials with higher education lecturers. This seminar in December 1998 (Let's TWIST, 1998) raised a number of issues and resulted in a very lively debate including:

- Treating students as individuals rather than a mass
- How it was obvious that a woman's learning experiences was a bigger issue than just good or bad teaching.

Following the initial development of the training materials, the project went on to deliver training to 153 lecturers across the UK mainly in further education, but also some in higher education and to transnational partners in Portugal. The evaluation (Let's TWIST, 2000) found that some higher education lecturers felt that the problems identified did not exist in higher education (p16) and that prejudice amongst staff was not a problem. However a survey undertaken of students at the same time (another strand of the project) found that the issues were present. The training materials did examine curriculum issues and developed a model of inclusive learning that drew on the research undertaken within CUWAT (1998).

The JIVE project and the JIVE Partners project, funded under the EQUAL initiative within the European Social fund, continued the development and delivery of the staff development training from 2000 until December 2007. The wider partnership of the JIVE project has adopted a holistic approach to tackling the barriers that girls and women face, rather than just focusing on a single aspect e.g. recruitment and promotion. The model illustrated in Fig 2 signified the approach that the partnership believed was required to assist real change that is, working with all slices of the cake and the stakeholders that need to take responsibility for change.

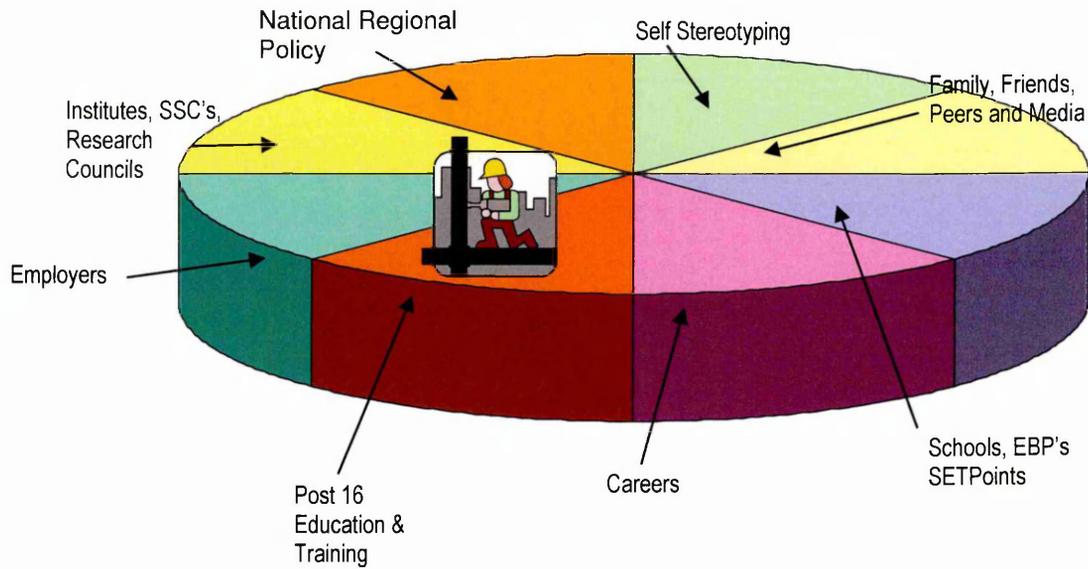


Fig 2. Whose responsibility is it to create gender equality in SET?

The project had also developed a mentoring strand to support women studying and working mainly in engineering and built environment sectors and by 2005, 494 mentors and mentees had established mentoring networks across England and Wales. Mentoring has become a popular concept in many situations where professional or education development needs are supported in a relationship (Terrion and Leonard, 2007) whereby a mentor provides support and listens to a mentee, offering advice and guidance where appropriate. A flexible approach to mentoring was developed in order to meet the different needs of different groups across the project. The mentoring co-coordinators placed in various teams worked hard to develop an approach to meet the needs of their client groups in school, further and higher education and the workplace (Andrew, 2005). Feedback from those participating valued the female contact in a male dominated environment. A number of mentees said they appreciated the benefits of a female mentor, but a number said they would also welcome male mentor. The benefits of mentoring for women built environment students were explored in 2007 (Atwal, Morton, Watts) and whilst the benefits of taking part were confirmed by those involved, there was an element of concern generally from women students about seeing to be 'weak' and in need of support.

The contribution of role models and mentoring are embedded in many of the initiatives described here. While mentoring has evidence of its contribution in providing support to women who might otherwise not progress in non-traditional careers, the position of role models as influence is less clear. As Byrne (1993) explains there is such a loose use of the term that sometimes just means the passive presence of a woman. She explains the concept as derived from educational psychology where a child models her or his behaviour on that of an adult and now interpreted to a belief that occupational goals can be influenced by seeing same-sex role models ahead of them. Byrne found that while it was important to maintain women's visibility in roles that are not traditional, the influence of role models on young people should include education for males on attitudes to girls and women. She proposes that role modeling and mentorship are on a continuum from passive to active strategies (p129).

One project that focused on change as a response to government criticism of equality in construction was the Building Equality in Construction initiative (Rhys Jones, 2006). The project brought together housing associations and building contractors in the northwest of England and as well as producing toolkits with recommendations for good practice, a range of changes in recruitment and policy were introduced. The northwest of England and the sector of the industry have sustained a reputation for greater attention to equality, hosting the annual Women in Construction Awards and developing the Women in Construction Network (CIC, 2009).

In 2003 the Department of Trade and Industry Women in SET unit invited tenders for a new UK Resource Centre for Women in Science, Engineering and Technology to meet the issues raised in SETfair (Greenfield, 2002) and a partnership of further and higher education institutions were successful in their bid to host the Centre commencing in 2004. Since 2004 the UK Resource Centre has established itself in Bradford to be the UK government's lead organization for the provision of advice, services and policy consultation regarding the under representation of women in SET. Clearly the momentum started with the Rising Tide report has now been established as a central part of the UK government economic agenda. The business case is foremost as Patricia Hewitt said in the Government Strategy (OST, 2003, p3) "*the impact of*

this change will go beyond those women working in science, or aspiring to work in science to help create a more inclusive science for the benefit of the economy and society as a whole.”

In order to bring about change for the better there needs to be intervention at all levels of higher education (Bailey et al, 1998) and with all stakeholders to bring about change. The UK Resource Centre for Women in SET is tackling this with a range of tools (UKRC, 2009) and interventions linked to cultural change with employers and other organizations including higher education. A study of those involved in carrying out this work with employers did find examples of positive change within built environment, a key aspect being a ‘champion’ within the company (Morton, Collins and Rooker, 2006). It remains to be seen whether the UK Resource Centre for Women in SET will be successful in the face of the considerable complexities involved.

Appendix Four

Reflective diary brief

A Reflective Diary of the learning experience in built environment higher education.

What am I trying to do and where do you come in?

The number of women studying the built environment in universities has been consistently low for many years. This study is trying to find out about the lived experience of higher education for women studying in this subject area. Women are usually a minority on their course and within their subject area and may be the only woman in some classes. What is it actually like being in this situation? What do they enjoy about the built environment? The research aims to get a deep reflective view of your perspective of learning & working in this subject area. In order to get your perceptions of learning I need you to be open and honest, and thoughtful and creative. I want to capture feelings and views and perceptions – positive and negative, enjoyable, uncomfortable, stressful, inspiring – about the course, the placement, about teaching, about learning, about student peers.

What is a reflective diary?

Reflective Writing needs to be done with an open mind and a questioning attitude. This diary is not just a record of what you have done and when. The diary will be an opportunity for you to properly think about how you experience your study, about your interaction with others and about the environment you work in. This is probably unlike other academic writing you do – you do not need to think about structure or spelling or grammar or about what will please the tutor. The diary is meant to include what is important and relevant to you.

What will happen to the stuff I write?

What you write about will not have any impact on your assessment at all. I am doing research only and am no longer involved within assessment decisions. Confidentiality is very important in a study like this. Before any research like this is carried out the researcher needs to consider any possibilities that have an ethical question. You need to be confident that I will not divulge anything you may share with me that might have implications for your study at university. Should any issues be raised that give me serious concern, they will be discussed and agreed with you the student before any further action is taken. The diaries will come to me and I will respond to you with some further suggestions or questions about the issues you raise. The student research group of about 5/6 women students from different courses will meet together a couple of times over the span of the diary. The issues raised in abstract by the student research will also be presented by me to a Lecturer Advisory Group - in

order to assess current teaching practice, teaching curriculum and anything else that impacts on student experience. The Lecturer Advisory Group consists of about six tutors who are interested and supportive of the research. The findings from the research will help to inform this university and other universities in their delivery of built environment higher education.

How will it work?

Once you start your diary, which can be hand written or on computer, you will send the entry to me. I will read and return to you with any questions or suggestions as to what to reflect on next. I would like you to write a piece every fortnight for the rest of this academic year i.e. until May 2006. The time spent writing each piece should be about 6 -10 minutes – no more unless you really want to. This means your total time input on writing will be around 2 hours 20 minutes (plus thinking time and a couple of half days meeting in a group). I want the writing to be spontaneous, so it should almost just be a snapshot of what is important to you about the experience / issue etc. There is no set template to complete – just a plain sheet of paper with your name and date / the topic or heading (which I will suggest) and then your reflection/s. I would like the group to contribute and participate in the research and not just be 'subjects' so I need you to feed in any views on how the research is going from time to time, and will invite you all together to discuss how things are progressing etc. before the end of December 2005 and then again in March 2006.

The first diary section

I would like you to write two pieces to start the ball rolling.

1. Think back to when you first decided that a career in the built environment was what you wanted to do. Write about this decision – how you made it, why you made it, the reaction of those around you, and what your next steps were to put it into practice. Were you excited or nervous?

Allow 6 minutes from when you start writing. Do not worry about spelling or punctuation.

2. Try and think back to your first day of lectures at university and write about what it was like – for some of you it might be this month but for others it could be a few years ago. Try and put yourself back to that day and describe entering the university, entering the classrooms, where you sat, who you spoke to, what the tutor was like – your first impressions, how you felt. Were there other women in the class and did you notice them?

Allow 4 minutes from when you start writing. Do not worry about spelling or punctuation.

Appendix Five

Interview questions (lecturers)

The lecturer perspective:

I have been receiving 'Reflective Journals' from students for a short time. The reflections are very much at the early stages, but I want to explore the learning environment also from the lecturer point of view. I want to understand how it is seen by different lecturers, teaching different groups of students and different subjects. I want to understand how the Department staff view the situations that the students are seeing from 'the other side'.

General situation

1. Can you give a summary of student groups and subjects and levels taught?
2. What differences do you see in the student cohorts you teach? Can you describe how they differ?
3. What characteristics would you say contribute to a good lecture or tutorial?
4. What are the current pressures on lecturers in the Department and the University?
5. How do they impact on your teaching?
6. How do they impact on student learning?
7. Are they different from 10 years ago? (B, E, G)
8. What is your perception of the students you teach?
 - a. How equipped are they when they arrive?
 - b. How motivated are they to learn?
 - c. Do you notice any differences in the general characteristics of 'non-traditional' students e.g. mature, women, disabled or ethnic minority students when compared to young, white able bodied male students?
9. If you were writing a guide called 'The Unwritten Rules of University Teaching' – what would you put in it?

The students

1. Open Days and Induction are seen as very important to women students – these events indicate whether they (the women) will be welcome or not. Why do you think our Department Induction days are viewed as a positive experience?
2. The initial experience at university can be very intimidating – lack of confidence in one's own ability appears to be a common concern. How can lecturers address this?
3. The approachability of staff seems to be very important – how can this be ensured in an environment where time is so short?
4. Some students find it hard to form the social networks that make life at university easier to survive – this can be to do with age as well as being female – how can the university assist?

5. Why are there fewer women on course generally than on others? Is there anything more you would like to do to encourage more women?
6. What support measures do the team put in place for students?
7. (Architecture Specific)How do you perceive the relationship between the AT and Architecture students?
8. What are retention rates like? Are there any aspects of student retention that could be approached differently?
9. Is there anything you would like to change about your course or modules?

Appendix Six

Student interviews

1. Can you set the scene a little as to where you are now in your career and the journey to here - including any previous college or university experience?
2. Think back to when you first decided that a career in the built environment was what you wanted to do. Think about this decision – how you made it, why you made it, the reaction of those around you, and what your next steps were to put it into practice. Were you excited or nervous?
3. Try and think back to your first day of lectures at university and describe what it was like. Try and put yourself back to that day and describe entering the university, entering the classrooms, where you sat, who you spoke to, what the tutor was like – your first impressions, how you felt. Were there other women in the class and did you notice them?
4. Do you have any favourite subjects? If so which are they and which are your least favourite subjects and why?
5. Do you have a favourite lecturer and a least favourite and why?
6. Are there any lecturers who treat you differently as a female student? If so in what way? If not - did you prefer it this way?
7. What is it like being a part time student?
8. Please try and describe what the most successful student on your course would be like.
9. Once you had settled into the course where did you sit when you entered lecture rooms / tutorial rooms and why? Who did you sit with?
10. Can you describe your ideal learning environment?
11. If you have a problem with an assignment who do you go to for help?
12. If you had a personal crisis that affected your studies - who would you go to?
13. Can you list the things that you believed were good about the course or the university?
14. Can you list anything that should be improved or changed about the course or the university?

15. Why do you think so few girls and women go into built environment careers?

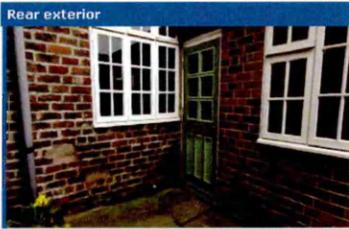
	2005		2006		2007		2008		autumn	winter
Reflective Diaries Students										
Interviews and discussions with students										
Interviews with lecturers										
Group discussions with lecturers										

Appendix Eight

Cultural attributes

- The drawing board and computers or CAD...
- The hard hat, the theodolite and the level for construction...
- The damp meter and clip board...for the surveyors
- The laboratories and the drawing studios and the IT rooms...
- The resources room...where all students hand work in and can access plan printers and core texts and meet up...
- The reception area and waiting area for students is welcoming with a member of staff available during normal working hours and soft comfy chairs...but access to lecturers is only via the reception...there is no direct access to lecturer offices.
- The prospectus and images on course materials...marketing has been centralized to a large extent...but the latest built environment course literature sported a white male on the front cover.
- Buildings and land...rather than people
- Being out in bad weather, cold and damp...
- Technical drawings and bills of quantities, specifications...testing equipment, laboratories...concrete and bricks...wood and metals...electrics and mechanics...drainage and waste...
- Design and creativity...colour and shape...model making...technologies...the law.
- Field trips to Scarborough for construction and Barcelona for architecture.
- Employer involvement...work placements...close links to context and real world

Buildings, laboratories and the studio



Field trips and graduation



Campus and architecture



Appendix Nine

Women short courses curriculum

Content: Design session - create a café bar / crèche / student flat....

Outline:

Tutor notes

timings	Teaching activities	Learning activities	Resources
10 mins	Tutor led welcome Overview of session Rationale and briefing for today's session	Students become more familiar with today's learning outcomes	Learning outcomes for today on white board Briefing document (which students have had for a few weeks)
30 / 40 mins	Tutors to explain relevant legislation and regulations	Students begin to develop knowledge of relevant legislation and know how to access more information	PowerPoint and handouts
30/40 mins	Tutor to lead visit to site and encourage questions	Students see a redesign for themselves and talk to tutors about relevant legislation, use of materials, design issues	Additional photos of site Design photos
2 hours	Tutor to start groups working together to agree their designs	Students can discuss design ideas in groups but check these out with tutors to ensure they are complying with regulations	Design resources Large scale designs Cut-outs of items

	Tutors available throughout session to advise	etc	Pens, paper, glue, scissors, etc
Break			
60 mins	Complete designs	Students continue to check out design ideas	
30 mins	Tutor co-ordinates each group in presenting their designs to one another	All students will see the work produced by others and hear the tutor feedback on rationale used / whether designs comply with regulations etc	
15 mins	Tutors to give full Assignment and workshop briefing	Students find out what is required of them to complete assignment, see assignments completed by previous students, ask questions etc. They are informed there is more support offered through a follow up workshop	
10 mins	Tutors seek feedback	Students have a chance to feed back what has worked/ what should be changed etc	

Support with assignment

Arrange a half-day workshop for students to bring uncompleted assignments for informal feedback prior to hand-in date
Choosing an appropriate site

Choose a building which is nearby, accessible and simple, preferably a terraced house.

Women's Design Day Review - what has worked well in the past?

The session has:

- Encouraged participants to get involved and develop a greater understanding of the design process in particular and the built environment in general;
- Enabled participants to use their own experience;
- Provided a forum to work collaboratively in groups;
- Provided an opportunity for women and girls to be creative - a range of resources are required to make this possible;
- Developed participants' confidence in dealing with plans, measurements, use of shape, texture and colour.

What type of issues might be encountered?

- Participants struggle to develop sufficient understanding of the relevant regulations / legislation in the time allowed;
- Presenting the finished 'drawings' during the session has proved difficult. Time can be an issue here, or groups can feel under-confident;
- Working in groups can present problems if individuals have very different views or differing levels of experience and confidence;
- Using the crèche brief has caused problems in the past as a number of additional regulations come into play (e.g. Ofsted);
- Also the crèche brief can alienate some participants i.e. those who do not have children may have a limited understanding of what is required;
- Some participants find working with measurements difficult;

- When completing work in their own time for the assignment, some participants have found it difficult to explain the rationale for their design, especially when the design was a group choice (the Learner Handbook now provides a handout for students to complete which helps them document their decision-making).

Ways to overcome any issues:

- Deliver the Design Session over a full day to allow more time to explain relevant legislation, develop a greater understanding of what is required in the rationale, and to do more work on the designs in class time.
- Some participants have expressed anxiety about the design process and said they felt unable to contribute - ensure that we provide a proper briefing before the day so that people can begin to think about design and realise that they do have something to bring to the session.
- Consider not using the crèche brief or offer a range of choices so people can build on their own experience.
- Build in a group tutorial after the day to help those submitting assignments.
- Consider giving out briefing packs before the sessions so that girls / women can begin to think about the design issues involved (to include some of the information from the learner handbook)

Appendix Ten

Programmes

Built Environment programme 2006

Year	Module	Property Appraisal and Valuation (BS)	Measurement 1 (CM, QS, CCM)	Inter-disciplinary project	Construction maths and computing	Materials and building science	Building law	Construction economics	Landlord and Tenant Law (BS)	Health and Safety Management
1	Building Studies	Property Appraisal and Valuation (BS)	Measurement 1 (CM, QS, CCM)	Inter-disciplinary project	Construction maths and computing	Materials and building science	Building law	Construction economics	Landlord and Tenant Law (BS)	Health and Safety Management
2	Building technology	Building Conservation (BS option)	Advanced CAD (BS option)	Building Pathology (BS)	Construction Practice	Structural appraisal of existing Buildings (BS)	Performance of Materials	Building Services and Environmental Issues	Landlord and Tenant Law (BS)	Health and Safety Management
	CCM project (CCM)	Measurement 2 (QS, CCM)	Construction Legal Studies (CM, QS, CCM)	Measurement 3 (QS)	Land Surveying (CM)	Production, Organisation & Information Systems (CM, CCM)	Corporate Business Studies (QS)	Contract Administration (QS, CCM)		
3	Industrial / Professional Placement									
4	Reflection on Professional Experience	Building Surveying Professional studies (BS)	Dissertation	Management Studies	Fire Safety Studies	Refurbishment project (BS, CCM)	Integrated project	Advanced Building control Surveying (BS option)	Project management (BS option) (CM, CCM, QS)	Construction Commercial Studies (CM, CCM)
	Human Resource Management (CM, QS)	CCM Professional Practice (CCM)	QS professional Practice (QS)	Cost studies (QS)						

Key:

- BS Building Surveying
- CCM Construction Cost Management
- CM Construction Management
- QS Quantity Surveying

Architecture Programme 2008

Year	Module					
1	Cultural Context 1: Theory	Environment and Technology 1	Communication	Design Studio 1		
2	Cultural context 2: History	Environment and Technology 2	Construction	CAD2		Design Studio 2
3	Professional Placement					
4	Cultural Context 3: History and Theory	Environment and Technology 3	Urban Design and Landscape	Practice Law and Legislation		Design studio 3

Appendix Eleven

Towards a conducive learning environment

- Systems and tutors that will support students in developing autonomy and confidence in BE subjects, as evidenced in my research by women students' initial lack of confidence, the positive approaches taken by lecturers to address this, and lecturer concern about systems that inhibited student support.
- A commitment to effective delivery of teaching content with gender, race and class awareness, a range of teaching styles and the ability to enthuse and support students as evidenced in my research by the concern of different women with different needs to feel they belonged, women students' positive experience of the range of teaching styles, and lecturers' ability to enthuse and support.
- Commitment to ensuring all women can be part of the BE education community whatever their age, ethnicity and class as evidenced by women students positive views about how the lecturers at UNI treated them, and the issues identified within UNI that hindered full participation.
- Staff attitudes that minimize social and academic difference between themselves and students as evidenced by students' views of how important this was to them particularly at entry and also in teaching.
- Diversity of social spaces and support networks within the university to reach students from all backgrounds as evidenced in the change of environment from Greed's research (1991) to the environment at UNI in 2009 and the views of students and staff about the need for support networks for non-traditional students.
- University, faculty and department commitment to policies and practice that support a diverse community of students and facilitate success as evidenced in my findings about the culture of UNI that supports the work of the team in the Research Institute, in widening participation and diversity, while missing elements have also been identified at departmental level.

- Commitment to support the employment transition for all in BE with an understanding of the issues facing women of all backgrounds as evidenced in the experiences of a number of the women students at different transition points in different ways.