

A MINORITY REPORT: ENGAGING GIRLS IN QUANTITY SURVEYING

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The paper details research and practice within a university unit that specialises in working to widen the participation of girls and women in the built environment. The team have significant experience in developing new and innovative approaches to this complex and longstanding problem. A recent project has worked in close partnership with an employer seeking to address recruitment problems in Quantity Surveying by funding a short course for young women from a group of schools that could provide a direct means of recruitment to the company and sponsorship to study Quantity Surveying. The paper explores the aspects of course design and content and analyses the views and experiences of those girls who took part in the course, many of whom had not even visited a university prior to the course. The impact of one off and sustained interventions are explored. The findings offer a useful and sensitive way forward to course teams who want to make young women aware of opportunities in and aspects of built environment courses and careers by working in partnership with employers.

Keywords: education, equality, gender, quantity surveying.

INTRODUCTION AND CONTEXT

The National picture

The Built Environment sector in the UK is suffering a serious skills shortage, with ConstructionSkills forecasting a need for 87,000 recruits each year until 2010 to meet the industry demand (Mackesy Davies 2007 p19). Women now make up 57% of the total UK working population, however occupational segregation still prevails, and three-quarters of working women are found in 5 occupational groups which the Equal Opportunities Commission refers to as the 5Cs (clerical, catering, cleaning, caring and cashiering). This not only perpetuates gender stereotyping, but also contributes to the gender pay gap, with average hourly earnings for women working full time 17% lower than men (EOC 2006). In spite of recent efforts to redress the gender in-balance within the built environment sector, women still account for less than ten per cent of its total workforce (EOC 2005).

Quantity Surveyor shortages

Across the UK, many companies are finding it difficult to recruit and retain Quantity Surveyors. The RICS commissioned a nationwide survey in January 2007 which identified 6,500 QS vacancies, 49% of which remained unfilled for more than 6 months, and 35% for more than 12 months (Lynch 2007 p7). The study also predicted

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a projected shortfall of 9,000 trained Quantity Surveyors in ten years' time, and highlighted the fact that although QS student numbers are increasing, this will not meet the shortfall in time to tie in with the planned programme of construction in the UK. While the temporary solution may be to recruit from the international market, in the long term the sector needs to raise the profile of Quantity Surveying and the industry as a whole, and target potential recruits from the next and subsequent generations. The image of the QS profession may also be an issue which requires attention. Graham Smith, spokesperson for the RICS, claims "People seem to consider accountancy, law or IT above surveying - often because they don't know what surveying involves. It doesn't help that the image of surveying can be dull" (Hilpern 2006 p11). The initiative described in this paper aimed to challenge perceptions and raise awareness of opportunities provided through training as a Quantity Surveyor.

Built Environment Education

While females formed 56% of the student population for 2004/5 (HESA, 2006), many subjects within the Science, Engineering, Technology and Built Environment disciplines still experience a gender bias. This is exacerbated by the decline in the take-up of science, engineering and technology (SET) subjects at A level which in turn impacts on numbers of young people studying SET degrees. Table 1 shows the percentages of women studying a number of SET and non SET subjects, and highlights the continuing patterns of take-up by gender (Morton 2008).

Table 1: HESA course statistics 2001-2005 (HESA 2006)

Subject Area	% Female entrants-2001/2	% Female entrants-2002/3	% Female entrants-2003/4	% Female entrants- 2004/5
Subjects allied to medicine	83%	84%	84%	84%
Education	73%	73%	74%	75%
Veterinary Science	72%	71%	71%	74%
Biology	62%	63%	64%	64%
Engineering and technology	15%	14%	14%	14%
Computer Science	25%	25%	24%	24%
Mathematics	38%	39%	38%	38%
Physical sciences	39%	40%	40%	41%
Architecture, building and planning	27%	28%	28%	29%

Table 2 shows a detailed breakdown within architecture, building and planning to highlight the area of 'building' which includes Quantity Surveying. The percentages of women students in 'building' remain consistently very low at only 14% in 2004/5, very similar in rates of participation to the engineering subject areas.

Table 2: HESA course statistics 2001-2005 (HESA 2006)

Subject area	% Females 2001/2	% Females 2002/3	% Females 2003/4	% Females 2004/5
Architecture	30%	31%	37%	33%
Building	14%	13%	14%	14%
Planning	47%	47%	45%	45%

Activities within schools, colleges and universities to encourage girls and women into learning and work which is non-traditional for their gender are taking place across the UK (Brodie 2008). The Women in SET team at Sheffield Hallam University where the researchers are based regularly run events and courses for women and girls to raise awareness of career opportunities within SET, and they also support employers and learning providers to increase take-up of opportunities by females. Other initiatives include Headstart which aims to encourage greater take-up of SET subjects in Higher

Education with a specific initiative aimed at girls. However increased efforts are required to address this imbalance and to assist the Built Environment sector to meet its human resources needs now and in the future.

Careers information, advice and guidance and work experience

Work experience, subject and career choices are still gender stereotyped with the majority of girls seeking traditional placements in health and social care and business administration (Brodie 2007 p4). Careers information and advice available can unintentionally reinforce gender stereotypes by failing to represent the full range of employment options open to men and women (Women and Work Commission 2006). In particular, young people lack information about the gender pay gap and the financial advantages of careers in SET-related subjects (Collins 2007). In a study completed by the Connexions Service in Cheshire and Warrington a high correlation was found between those in stereotypical placements going on to stereotypical jobs and training, and indeed that in some cases the work experience placements were acting as a 'placing agent', that is to say resulting in actual jobs. The study recommended that work experience placements should incorporate a 'broadening, to allow pupils to choose occupations of which they are unfamiliar' (Connexions Cheshire and Warrington 2003 p81).

Women in SET Sheffield Hallam University

The Women in SET team have significant experience of developing new and innovative approaches to tackling occupational segregation and skills shortages in SET and Built Environment. 'Moving back the walls', a 10 credit level 4 module, has been the focus of a range of women-only courses delivered by the team to build confidence and raise awareness of opportunities within the Built Environment sector. This module was adapted for use with schoolgirls in the initiative described below.

THE INTERVENTION

Employer initiative

One company local to the research team decided to address the issue of the shortage of Quantity Surveyors for themselves. Staff based at Frank Haslam Milan in Doncaster were aware of the work of the Women in SET team based at Sheffield Hallam University, and in particular its outreach with schools and communities to encourage girls and women to take up careers in the Built Environment. Frank Haslam Milan had received an Edge Award in 2006 to further its work with young people, and following preliminary discussions with the Women in SET team, it was agreed that the company would use some of their Award funding to sponsor a course within the locality of their headquarter offices for twenty girls from Doncaster secondary schools. The course would not only help to raise the profile of the Built Environment sector within the local community, but would also lead to one girl being selected and recruited as a trainee Quantity Surveyor with the company.

Agreeing the approach

It was agreed that the Women in SET team would undertake the marketing, outreach, delivery and assessment of the course, and that the company would make the final selections of girls to attend the course and the selection of the actual trainee Quantity Surveyor. The Women in SET team worked in partnership with the Training and HR professionals within the company, the Quantity Surveying HE course team within Sheffield Hallam University, and with the Local Education Authority (LEA) and local

schools to design an appropriate course and agree a suitable approach. A briefing session for schools was held in LEA premises and teachers from all relevant schools were invited. A number of practical issues were discussed and resolved at this session which subsequently helped to avoid potential problems (e.g. timing clashing with other activities, which year groups would be most interested/ amenable). It was agreed to offer the opportunity to girls from Years 10, 11 and 12, and that all schools and colleges in Doncaster should be made aware of the initiative. Timing was agreed as the October half-term break which would not clash with exams and coursework commitments.

Selecting the students

An application process was agreed and all schools in the area were asked to distribute information about the opportunity and application forms. Taster sessions were offered in schools and this was taken up by four schools in the area. The taster session involved a mixture of information sharing and practical exercises to give a flavour of the type of activity on offer. The girls were made aware of all the advantages of attending e.g. experience of University life at first hand, accreditation of their learning, and a deeper understanding of the built environment sector which could lead to a potential job. In some schools girls studying particular subjects including Construction GCSE were targeted, while in other schools it was left to self-selection.

Twenty six applications were received and the Training and HR professionals within the company made their selection for the course based on pre-agreed criteria. A total of twenty places were offered and in the final event 17 girls attended the actual course. It was noted that by far the highest number of applications for the course came from a school where the teacher had recently completed a work placement herself within the Built Environment sector. Her well-developed understanding of the different roles and skills required to work within construction may have played an important part in encouraging girls from her school to apply for this unique opportunity.

Building for Success in Quantity Surveying

Seventeen girls from three Doncaster schools arrived at Sheffield Hallam University for the first day of their course during their October half-term break. The 'Building for Success in Quantity Surveying' course was developed as a tailored version of an existing Women in SET course with a range of complimentary objectives: these included, challenging the girls' perceptions of career choices and the gender pay-gap; raising the girls' awareness of the built environment sector as a whole and particularly the role of a Quantity Surveyor; providing hands-on activities to build confidence and identify skills required; and to offer an opportunity to gain employment and sponsorship as a trainee QS.

Attendance at the course was exemplary, and all the girls completed a detailed workbook demonstrating their learning and development. Their work was assessed at level 4 (first year undergraduate level) and all the girls achieved at least 50% with the highest mark being 83%. Girls were asked to research skills and aptitudes required to be a Quantity Surveyor and consider ways in which they could provide evidence of those skills from their own experience. On the final day of the course, a competitive interview was held with three staff from the company, and as a result of this one girl was appointed to a trainee QS role within the company.

Positive outcomes

The team has now developed long-term relationships with the three schools involved, and with the girls who attended the course. During National Science and Engineering Week, the team visited all three schools to present transcripts of the girls' results and to congratulate them on their achievements. As a result of being involved in this project, six of the 17 girls have requested and arranged additional work experience in the Built Environment, and one has commenced her training on a part-time basis with Frank Haslam Milan as a trainee Quantity Surveyor.

RATIONALE AND APPROACH

Role models and girls only activities

The Women in SET team applies a particular approach to all its work with women and girls. This includes a recognition of the vital part played by visible and credible role models. The principal lecturer delivering the course is a Chartered Building Surveyor and was able to talk with authority about her own career and work experience, and this was complimented by female QS undergraduates who provided an insight into their experience of Higher Education and their career aspirations. The team also believes that it is essential to offer girls-only activities to ensure that girls feel confident to ask questions and potentially 'make mistakes' in an environment that could be considered to be male-dominated.

Practical activities and site visits

Construction site visits were arranged to ensure that the activity was rooted in practice, and all three companies involved were briefed about the nature of the course and the importance of encouraging the girls to feel that careers in the Built Environment were appropriate for them. Staff from these companies went to great lengths to provide a welcoming environment and to answer the girls' questions and concerns with sensitivity. Although the four-day course inevitably involved an element of theoretical input, the majority of activities were as practical as possible to allow the girls to develop their understanding through experiential learning.

Developing a sustained approach

Over a number of years the team has been involved in a range of initiatives with local schools, colleges and employers, and our experience shows that a sustained approach, rather than single one-off interventions, is more likely to result in having long-term impact on subject and career choices (ACBEE 2006). A report of girls-only experiences (EMTA 2002, p iii) found that schools needed to rationalise their involvement in initiatives to maximise potential including developing linkages with business and supporting follow-up work with teachers. Their survey suggested there were too many one-off experiences which were ad-hoc. The team were delighted to have the opportunity provided by Frank Haslam Milan to work in one area and with a small group of schools and girls to develop long term relationships which have resulted in real and positive outcomes.

METHODOLOGY

In order to evaluate the project we carried out a mini research study of the girls' opinions. Research on the immediate impact of the intervention was carried out in the form of a brief questionnaire contained within a workbook (Eaton 2007) which the girls completed on the final day of their course to achieve their full accreditation. Among other questions the girls were asked to self-assess their levels of confidence

and knowledge against the module learning outcomes. Results were analysed and compared with results from a second survey. This was carried out four months later when the researcher visited the three schools involved. A 100% response rate for the second survey was achieved which is in excess of the 40-60% recommended (Naoum 2002).

It was also decided to explore the girls' perceptions of quantity surveying in particular and of the built environment sector as a whole. This was achieved through questions designed to draw out their understanding of the Quantity Surveyor's role based on a range of core skills identified by the Royal Institution of Chartered Surveyors (RICS 2002) as well as their interest in the built environment.

FINDINGS

At the outset of the course the girls were asked to self-assess against a number of learning outcomes on a scale of 1-5, with 5 being the most confident. They were asked to repeat this process four months later to enable the researcher to measure the 'distance travelled'. Results of these comparisons are given in table 3. A surprising number of girls (5) identified that their ability to 'Produce a redesign for a building' had not improved as a result of attending this course. This may be due to the fact that a number of the girls had been involved in a similar activity at school. However, the majority of the girls felt that they had 'Found out what Quantity Surveyors do' and 'Identified career opportunities in the built environment'. (14 and 12 respectively). It was also noted that the majority of girls had travelled some distance on all aspects.

Table 3: 'Distance travelled' measured four months after the course through self-assessment

Learning outcome	No change	+1	+2
Find out about what Quantity Surveyors do	3 (18%)	10 (59%)	4 (23%)
Identify careers opportunities in the built environment	3 (18%)	12 (70%)	2 (12%)
Go on site visits and find out about construction of buildings	3 (18%)	10 (59%)	4 (23%)
Inspect buildings and identify defects/ propose repairs	1 (6%)	14 (82%)	2 (12%)
Produce a redesign for a building	5 (29%)	9 (53%)	3 (18%)
Cost a redesign for a building	3 (18%)	12 (70%)	2 (12%)

The second survey (Table 4) explored the girls' activities since the course and a pleasing number had organised a work experience placement in the built environment. In some cases this had been achieved with the support of the project team working in collaboration with the school, but in two cases the girls had arranged the placements themselves. While the numbers of girls deciding 'definitely' that they would like to take up a career in the built environment is small (3), this still represents 18% of the total and is not insignificant. It is interesting to note that one girl added the category 'Maybe' to the questionnaire, leaving the option open. Eleven of the girls claimed that the project had resulted in them 'Changing their mind about future career plans', and although this may not translate into them accessing the Built Environment sector, it is to be hoped that their awareness has been raised of a range of different career options and the potential for women and girls to be victims of the gender pay gap (EOC 2006). Perhaps the most significant statistic is the overwhelming number of girls who had talked to family and friends about built environment jobs (88%); this in itself helps to raise the profile of the sector locally.

Table 4: Responses to questionnaire distributed

Questions: Since coming on the course I have:	Yes	No	Maybe* (added by student)
Organised a work experience placement in built environment	6 (35%)	11 (65%)	
Found out more about careers in built environment	14 (82%)	3 (18%)	
Talked to family and friends about built environment jobs	15 (88%)	2 (12%)	
Changed my mind about my future career plans	11 (65%)	6 (35%)	
Decided that I definitely want a career in built environment	3 (18%)	13 (76%)	1 (6%)

The evaluation questionnaire also included a section which enabled the girls to give their views of which aspects they enjoyed most and least. The visits to construction sites and the practical design exercises were identified as most popular. Sixteen of the seventeen girls mentioned the design activity as something they enjoyed, and eleven identified the construction site visits. One girl commented, 'I enjoyed the practical parts of the course, like the construction site visits, assessing buildings and most of all the redesigning of Howard Street³* as it allowed me to express my creative side'. The survey also featured as a positive element (4 out of 17) and two girls explicitly mentioned 'learning about new careers'...and 'hearing from people who did this as a job'. Responses to what the girls enjoyed least ranged from a concern that the course was centred round one role only, i.e. Quantity Surveying, potentially at the expense of other roles within the sector, and that some of the course involved lectures rather than all hands-on practical activities. One student identified the interview as the worst aspect of the course (and one further student chose not to attend her interview).

The workbook asked the girls to outline their view of the role of a Quantity Surveyor. They completed their workbooks throughout the duration of the course and their responses included the following:

- *'I think a QS controls and manages time and financial aspects of a construction. Making sure builders and others get paid and bringing in sub-contractors (e.g. plumbers, electricians).'* (JB)
- *'He (sic) estimates how much he thinks it'll cost and adds a few pounds in case the variables change. He also deals with the client and tries to keep the client happy'* (PM)
- *'...Making sure that the right amount of money is coming in from the client and is going out to people like plasterers, plumbers etc.'* (TE)
- *'...They can work on behalf of an organisation or as a representative. They deal with the client and make sure the project doesn't lose time or money and if so they find the cause and decide what to do.'* (CH)
- *'A Quantity Surveyor deals with managing the cost and contractual side of building ...They are usually involved right from the start of the project. Quantity Surveyors should be good at communicating clearly in speech and in writing and have strong negotiating skills and should be interested in business, finance and construction'*. (LT)
- *'....They see the construction through to the end and make sure they are sticking to time and take into account other expenses. Their role changes as the construction gets further'* (FS)

³ Howard Street is Sheffield Hallam University's survey house on campus. A virtual version of the property is available on <http://extra.shu.ac.uk/perc/>

- *'...They work on site and in an office and QSs at smaller companies can undertake more than one job at a time'. (CW)*
- *'The traditional skill of a Quantity Surveyor is the accurate measurement of building quantities, that is the amount of each element required to complete a project. However, things are changing for today's QS. Quantity Surveyors are now the financial managers of the construction team who add value by managing the functions cost, time and quality'. (DS)*

The team also asked for their responses to the following statement / question: 'The course you attended was designed to encourage girls to think about careers in the built environment sector. Can you think of any other ideas for activities to achieve this?'

Some of the girls' suggestions and responses are given below:

- *'Offer a wider range of courses looking at different jobs in the built environment'*
- *'Show a wider range of jobs that are available to women in the built environment and not just focus on one aspect such as quantity surveying'*
- *'Also have an open day where there is an opportunity to do as a real QS would'*
- *'Go to more schools and let girls take part in more practical activities to do with construction'*

CONCLUSIONS

This unique opportunity has enabled the research team to develop strong relationships with a number of important influencers. Not only have links with schools and the LEA strengthened, but also local employers have seen at first hand the value of sustained projects to raise awareness and build interest in the sector (ACBEE 2006). The project has demonstrated one method of tackling the shortage of girls and women in the QS profession through raising awareness and understanding of the profession and the sector as a whole. The research has evidenced the need to provide a range of hands-on experiences and sustained support to the girls and schools to build confidence and maintain interest. It has also confirmed the need to ensure that initiatives such as these include the active involvement of visible and credible female role models, especially those nearer in age to the girls themselves. The fact that six of the seventeen girls have arranged work experience placements in Built Environment organisations demonstrates that it is possible to widen girls' perceptions of potential careers.

Whilst it could be claimed that a competitive interview process runs counter to the notion of providing an 'equitable experience' for all the girls, in the opinion of the authors the selection process incorporated within the course led to exemplary attendance and fostered an atmosphere of hard work and enthusiasm for the subject matter. Staff at Frank Haslam Milan had already tested this approach in a similar project designed to recruit craft apprentices. The results of their previous initiative were very encouraging in terms of the calibre of the applicants, although no females were recruited. It was partly with the intention of balancing this gender divide that the company contacted the women in SET team to develop the approach described here.

The self assessments at the start and after the end of the course are useful tools to establish the impact of interventions such as these. The women in SET team intend to survey the girls again one year after their course to assess the longer-term impact of the intervention. It would also be useful to understand what encourages male and female students to choose Quantity Surveying as a career. The findings of any such

research may lead to a greater understanding of any gender differences, and in turn to tailored and targeted promotion of the QS role to women and girls.

Universities across the UK are well-placed to engage directly with employers to support similar efforts to tackle skills shortages in the sector, and are encouraged to draw on the researchers' experience based on this innovative and practical project.

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