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**Vendor-specific certifications: lessons and experiences from two women's training centres in the UK offering MCSE training within JIVE Partners**

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**Abstract**

This paper will provide details of a qualitative research study undertaken by The Open University in the UK as part of the European Social Funded (ESF) funded JIVE (Joint Interventions) Partners project. It reports important results relating to lessons and experiences of women who have embarked on the process of seeking the vendor-specific certification of Microsoft Certified Systems Engineer (MCSE). The research study is significant because it represents the first known academic study of vendor-specific certifications that focuses on the experiences of women. Given the small percentage of women working in network administration, it is hoped that results from this study will provide valuable insights into the challenges such certification presents to women.

The paper describes the context for the study. It then outlines why the training providers, both established voluntary sector women's training centres, and the women trainees themselves chose this particular vendor-specific certification. It outlines results from qualitative interviews with women studying at two Microsoft Academies, The Women's Workshop in Cardiff (WWiC) and Oxford Women's Training Scheme (OWTS). This section of the paper will focus on:

- Why study for MCSE certification: women's reflections on why they embarked on this path
- Issues associated with offering the MCSE pathway
- Importance of a women-only training environment

**Background to the MCSE and the JIVE project**

The Microsoft Certified Systems Engineer is widely recognised as the industry standard qualification within Windows systems administration. To gain this qualification, candidates must pass a set of seven exams set by Microsoft which are taken online. Before doing the exams, individual candidates have to undertake training courses that must be taught by Microsoft accredited trainers at venues which have been approved by Microsoft. The courses are often expensive (i.e. £1500-1800 or 1800-2200 Euro per course) and this has resulted in unequal access to these

opportunities that is perpetuating women's exclusion from career progression in the IT sector (Greenfield et al. 2002).

The difficulty and expense of gaining the MCSE qualification was identified as a barrier to women's career progression in the IT sector and is being addressed by the JIVE project by offering free training for a total of 40 women during the lifetime of the project. Although employers were asked to agree to give the women time off for attending the courses, they were not liable for any other costs. The training courses took place at two women's training centres that are both approved Microsoft Academies, a status that enables Further Education (FE) providers to offer Microsoft Certified Training, such as the MCSE. Until recently this type of training was primarily offered through private training organisations. This new development has meant that an increasing number of FE and Higher Education (HE) providers are introducing vendor specific certification courses.

The 20 women in this study all took part in a series of 7 training courses over 18 months that prepared them for the MCSE qualification. The women initially targeted to benefit from the MCSE training were those working in technical areas of IT; specifically women working in IT networking software support, user support, IT help desks roles; occupations where women would benefit from MSCE certification.<sup>1</sup> The courses themselves were intensive, each one lasting 3 or 5 full working days (8 hours a day) with only short meal breaks. The format of the training was very rigid and inflexible, quite unlike the approaches developed as good practice in women's training (Coats, 1994, 1996). The MCSE courses were delivered primarily by tutor lecture and practical lab sessions, all using materials provided by Microsoft. Candidates sit the exams whenever they feel ready to do so, but need to revise their material and study intensively prior to doing so.

### **Context for the study**

A number of studies have addressed the problems associated with determining the number of women working in ICT. (Comeau (2003); Millar & Jaggard, (2001); Panteli 1997; 1999; 2001; Vendramin et al. 2002). In this paper we have utilised the UK Standard Occupational Classification (SOC) system, which was updated in 2000, to explore the problems associated with pinpointing the number of women working in ICT. The SOC system now includes a wider range of codes for IT occupations. This change enables us to examine the picture for the broad area of technical IT, as well as a possible progression route into management of ICT. This section of the paper examines 2001 census data which uses the SOC system to build up a picture of gender balance in the associate professional and technical occupations, specifically IT Service Delivery Occupations:  
3131 – IT Operations technicians  
3132 – IT user support technicians

While it is difficult to predict career progression routes, within the heading of 'Corporate Managers' ICT Managers (code 1136) job titles such as "Computer manager", "IT manager" and "Systems Manager" would appear to be possible career progression paths for women working in network software support roles. The general description for code 1136 reads:

"Job holders in this unit group plan, organise, direct and co-ordinate the work necessary to operate and provide information communication technology services, to maintain and develop associated network facilities and to provide software and hardware support." (ONS, 2000a p.45)

Prior to the revision of the SOC codes 102 different job titles fell under a single code 320. With the new coding, the situation is slightly better, but still lacks precision. This is illustrated by the number of different job titles associated with the codes we were interested in. Code 1136 has 67 job titles associated with it, 3131 has 53 and code 3132 has 20 (ONS 2000b):

Table 1 below provides data extracted from the 2001 Census which uses the SOC2000 codes. This shows that whilst the numbers of women working as IT support technicians and user support technicians are better than in other non-traditional occupations such as construction and engineering,<sup>2</sup> the percentages decline as the job roles become more professional or managerial (i.e. code 1136).

<b>SOC Code</b>	<b>Total - Women</b>	<b>Total - All</b>	<b>%age women of All</b>
<b>1136</b>	37333	179006	20.86%
<b>3131</b>	26395	87356	30.22%
<b>3132</b>	14563	44828	32.49%

**Table 1: Percentage of women working in IT occupations** (Source: Census 2001 (table C0176))

Furthermore, the age breakdown (see Table 2 below) amongst those in the 3131 and 3132 SOC code suggests that a higher proportion of women than men are ‘stuck’ at the technician level, not progressing into the professional or managerial roles. Whilst the changes in SOC coding means that it is not possible to accurately compare figures from the 1991 and 2001 census, this pattern is one which would benefit from further monitoring.

<b>SOC 2000 3131: IT Operations Technicians</b>				<b>SOC 2000 3132: IT User support technicians</b>			
<b>Age</b>	<b>Total - Women</b>	<b>Total - All</b>	<b>%age women of All</b>	<b>Age</b>	<b>Total - Women</b>	<b>Total - All</b>	<b>%age women of All</b>
<b>20-24</b>	2926	12751	22.95%	<b>20-24</b>	2148	8253	26.03%
<b>25-29</b>	4806	17908	26.84%	<b>25-29</b>	3130	10321	30.33%
<b>30-34</b>	4668	16361	28.53%	<b>30-34</b>	2731	8427	32.41%
<b>35-39</b>	4197	12706	33.03%	<b>35-39</b>	2123	5916	35.89%
<b>40-44</b>	3195	9765	32.72%	<b>40-44</b>	1662	4385	37.90%
<b>45-49</b>	2683	7466	35.94%	<b>45-49</b>	1250	3334	37.49%
<b>50-54</b>	2106	5789	36.38%	<b>50-54</b>	961	2569	37.41%
<b>55-59</b>	1303	3184	40.92%	<b>55-59</b>	419	1203	34.83%
<b>60-64</b>	349	1111	31.41%	<b>60-64</b>	105	366	28.69%
<b>65-69</b>	115	234	49.15%	<b>65-69</b>	20	33	60.61%
<b>70-74</b>	47	81	58.02%	<b>70-74</b>	14	21	66.67%

**Table 2: SOC 2000 breakdown by age: codes 3131 & 3132** (Source: Census 2001 (table C0176))

This data suggests that in later life, the percentage of women who are IT Operations Technicians and IT user support technicians rises. For example, table 2 shows that the percentage of women IT Operations technicians (code 3131) increases from 22.95% aged 20-24 to 33.03% aged 35-39. In contrast, data in table 3 below shows that despite starting from a smaller baseline, the number of women ICT managers (1136) drops from 24.72% aged 20-24 to 21.51% aged 35-39.

Age	Total - Women	Total - All	%age women of All
20-24	1494	6043	24.72%
25-29	6257	22631	27.65%
30-34	8150	33941	24.01%
35-39	7646	35552	21.51%
40-44	5623	29932	18.79%
45-49	4180	23552	17.75%
50-54	2685	17572	15.28%
55-59	1038	7433	13.96%
60-64	193	1854	10.41%
65-69	51	367	13.90%
70-74	16	129	12.40%

**Table 3: SOC Code 1136: ICT managers** (Source: Census 2001 (table C0176))

This pattern of lack of progression into professional and managerial positions amongst women working in technical areas of ICT is one of the reasons that JIVE partners decided to focus on providing a widely recognised professional qualification, the Microsoft Certified Systems Engineer (MCSE). Other reasons for selecting this certification are discussed below.

*Number of women with MCSE certification*

At the outset of the project we sought to establish baseline data on the number of women holding MCSE certification in the UK. It was important to obtain this baseline data to be able to measure the impact of offering MCSE courses at two women’s training centres. After 18 months of trying to obtain data from Microsoft, we were informed by Microsoft’s Diversity Officer in the UK that they do not hold it. The reason given for this position is that Microsoft do not administer the exams process. This is outsourced to two organisations, Pearson Vue and Prometric. Neither currently include any diversity information in their registration process, so there is no way to identify the number of men and women that have passed the different exams. Failing to obtain any data disaggregated by gender we then requested a country breakdown of the different certifications from Microsoft. This at least would have enabled us to put the project into some kind of national context. We were refused access to this data by Microsoft Learning on the grounds that it was personal information and thus covered by the Data Protection Act. A ruling from the Information Commissioner’s Office did not change this position.

“Microsoft Learning would not be in contravention of the Act if they provided you with the general number of certificates held in the UK nor would they be in contravention if they provided you with this data broken down by gender.” (B. Payne, pers. Comm 2005, 30 March)

Consequently, the only data we have relating to Microsoft certified training are worldwide figures for the various certifications:

Microsoft Certified Professional (MCP) 963,606 (lowest level of certification)

Microsoft Certified System Administrator (MCSA) (Windows 2000) 104,703

Microsoft Certified System Engineer (MCSE) (Windows 2000) 244,153

(Microsoft, 2004 source: <http://mcpmag/certbasics/>).

The next section outlines other studies which have looked at Microsoft certifications.

#### *Studies focusing on Vendor specific certification*

There appears to be little academic research focusing on vendor-specific certification. Only one other academic study, not funded by a vendor was identified (Gillard et al. 2005). This PhD study focused on women studying for the Certified Computer Network Administrator (CCNA) qualification.

A number of publications were identified that provide information about certification,<sup>3</sup> as well as magazines which focus on a particular vendor's certificates, for example the *Microsoft Certified Professional Magazine*<sup>4</sup>. This magazine published a salary survey in 2003, which contains useful information, although little of it is disaggregated by gender. From the 44,741 sample, 6,952 responses were received. Of these 10% were women (McCarthy & Schaffhauser 2003, p.9). The sample size is very small considering the overall figures provided by the *Microsoft Certified Professional Magazine* for those holding a MCP<sup>5</sup> (963,606) outlined above, nevertheless it is one of the few surveys identified.

Although the survey draws solely on US data, it does include some information about pay differentials between male and female MCSEs. Not surprisingly on average the survey showed women are earning less than men with an average difference of \$2,600 (McCarthy & Schaffhauser 2003, p. 12). Average salaries without any certification were \$47,000 and with Windows 2000 MCSE this rose to \$59,400. However, the survey also provides information about who pays for certification. Those starting out on the process (which most closely reflects our study group) are most likely to cover the cost themselves (average spending in 2002 was \$2,806). The average number of hours respondents spent preparing for their last exam was 76 for the MCSE. Considering that to gain MCSE certification 7 exams passes are required, the amount of personal time needed to obtain certification is very high. In addition, 32 working days are required to attend the courses themselves.

In a study sponsored by Microsoft, McKillip (2001) examined the value of the MCSE by surveying people holding the MCSE and their employers. 12000 people were surveyed, and of the 1713 who replied only 7% were women. This study includes some qualitative comments about certification and possible improvements. The conclusions of the survey were:

1. MCSEs find the certification process useful for their work.
2. Overwhelmingly, MCSE rated the certification as "very useful" for their professional credibility with employer and customers.
3. Supervisors rated most MCSEs as having advanced competence in all technical areas and job duties, much higher than non-certified System Engineers
4. Supervisors rated MCSEs more competent on the job than non-certified System Engineers on all computer-related job tasks<sup>6</sup> (McKillip 2001, p. 2).

Having examined research studies that suggest that MCSE certification benefits both individuals and employers, we will now outline the methods used for the research project.

## **Methods**

The research study adopted a longitudinal approach, using mainly qualitative data collection. The results presented in this paper relate mainly to the trainee interviews, but brief details of our methods are provided here to provide an overall picture of the research.

### *Data collection: trainee interviews*

Women were interviewed twice over a period of fourteen months. The first interview took place prior to the start of the training, and provided background information about participants; their life history, their job role and where they saw themselves in the future. The second interview explored their experience of undertaking the MCSE course, the women-only learning environment and revisited questions about plans for the future, to explore whether their perceptions have altered as a result of undertaking the MCSE course.<sup>7</sup> Women taking part in the study were also asked to draw their career path. This was done to supplement the information gathered during the first interview, where they may not have recalled finer details of their careers.

### *Data collection: learning environment*

In addition to the two interviews with women participants, data was also collected about the two training environments where the MCSE training took place. Firstly staff involved in recruitment and support of trainees were interviewed and observation of the learning environment was undertaken. Resource limitations mean that the observation period was limited to one day at each location, but nevertheless this enabled the researchers to observe the classroom and wider learning environment

The researchers also spent a day observing at two other Microsoft Academies offering MCSE training in order to compare the women-only training environment with mainstream provision. Once again, time and resource constraints meant that it was not possible to undertake wide scale observation across a large number of Microsoft Academies. Rather the researchers sought to provide a small comparison between women-only and mainstream provision.

### *Data collection: employers*

A brief questionnaire was sent to employers (18 different organisations). Topics that the questionnaire explored included working conditions, working time, family friendly policies, work life balance; access to training (internal/external) etc. This aspect of the study is not reported here. For results of the employers questionnaire see Ellen and Herman (2005).

### *Data analysis*

Atlas/ti, a computer assisted qualitative data analysis software (CAQDAS) program was used to explore the data. A coding scheme was developed from the data, which was used to identify themes. Atlas/ti assigns each interview with a number, and these are referred to in this (e.g. P12) when any respondent is quoted. As respondents were interviewed twice, each has two P numbers associated with their interview.

The next section presents results from the study beginning with an examination of the rationale for choosing the MCSE firstly from the training provider perspective and secondly from the viewpoint of the women in our study group.

## Results

### *Why choose the MCSE? The training provider perspective*

At the outset of the JIVE project, two different vendor specific qualifications (VSQs) were considered, the MCSE and the CISCO Certified Computer Network Administrator (CCNA). The two women's training centres chose the MCSE certification for a range of reasons. These are discussed in detail in the final report of the research study (Ellen & Herman, 2005). Amongst these reasons were capacity issues within the organisations, transferability of equipment and software to other courses following the end of the JIVE project, perception of higher demand for the MCSE (compared to other VSQs) and work life balance issues associated with employment following other technical IT certifications. On this last point the trainer appointed suggested that the MCSE offered a wider range of employment opportunities than the CCNA and expressed concerns about the long hours usually expected of CISCO technicians and how this would fit with women's lives

### *Staff reflections on offering the MCSE*

Staff from both training centres were asked to reflect on their experiences of providing MCSE training. Given the lack of research which focuses on vendor-specific certifications, particularly women's experience of accessing this type of training, it is important to offer these reflections for future research.

Staff at the two centres found the MCSE a very intensive course that did not fit easily into the overall ethos of women's training. For example, there was no time for assimilation within the training day (one 5 day course can include 16 modules) and provision of support measures such as pastoral tutorials could not be included during course attendance days. Because the majority of women were working full time, including such support was problematic within the working day.

The amount of additional study time required to prepare for exams created difficulties for some beneficiaries, particularly women with younger children. One of the training centres adopted a strategy of limiting access to further training to those who had already passed some exams as a way of motivating women. This idea is quite controversial, as in many ways it is counter-intuitive to the principles of women-only training centres. However, all the women who achieved the MCSE within the JIVE project came from OWTS, where this incentive was put in place.<sup>8</sup> For some participants passing exams was not a priority, rather they used the training to increase their knowledge, but not to become certified.

Another issue for the training centres, which is especially important for other training centres considering putting on these courses is that they are expensive to deliver. Neither organisation had a Microsoft certified trainer in-house, so an external trainer had to be employed. Furthermore with a limited number of women with Microsoft Certified Trainer (MCT) status, finding women trainers was problematic.

This training programme was a new departure for the two training centres and their experience of offering the courses has led to discussions about the level of experience required to successfully complete MCSE certification. In contrast to other

providers of MCSE training, where participants attend courses with different people at each course; the JIVE partners project offered women the opportunity of taking all the courses with the same group. Women appreciated this continuity; stating that this was one of the enjoyable aspects of their experience. However, one issue associated with this approach is that whilst some of the courses are suitable for those without relevant Windows administration experience, others do require a higher level of knowledge and experience. Results from this study indicate that those not working with the appropriate software have had difficulties familiarising themselves sufficiently with material to enable them to sit their first exam. This is discussed further below.

*Why study for MCSE certification? Women's views on why they embarked on this path.*

The JIVE Partners project set out to develop the skills of women working in technical areas of IT, and in choosing the MCSE certification we wanted to see to what extent access to this training would enable women to progress into better paid job roles within this area of IT. Analysis of interview data that focused on why the women themselves embarked on the MCSE pathway identified the following themes.

*Obtaining a recognised IT qualification.* The career paths of women in our study group are extremely varied, and for many it has taken years for them to find their career in IT.<sup>9</sup> One result of these varied career paths is that the majority of these women lack formal IT qualifications. Some have done other technical training courses at the women's training centres, but the courses have not led to qualifications that are as marketable as the MCSE is seen to be. Consequently, the profile that the MCSE has in the IT industry was given as a reason for embarking on this path, with ten women specifically mentioning that they wanted to obtain a formal IT qualification that was widely recognised.

"Well, I've wanted to do it for quite a while. I don't have a degree behind me, or anything like that... I've got a Diploma in business but nothing to cover me technically. I mean it's all well and good to go into an interview and say: 'oh, yeah, I know this that and the other', but if you don't have any qualifications, you know, sometimes they won't even look at your CV. So it's quite good to have experience and qualifications. The MCSE... everybody knows what it is" P37, 26 year old woman working for an IT company.

Of the ten women that mentioned wanting to obtain certification, eight went on to pass at least one exam (which leads to Microsoft Certified Professional (MCP) status). Of this group four women continued with exams to achieve MCSE status and one achieved MCSA status.

*The value of free training.* The fact that the MCSE training was being offered free was another significant factor for the women we interviewed, specifically mentioned by eight women. MCSE certification is costly, mainly provided through private training companies. The cost of courses is £1500-1800 (1800-2200 Euro) per course and with 8 courses required to cover the material to sit the seven MCSE exams it is clear that free courses would be very attractive. For many of the women, working in voluntary or public sector organisations with limited training budgets the opportunity of free training was too good to miss.

*Enhancing knowledge.* For some of the women interviewed the course was seen as an opportunity to enhance their skills base, even though at present some did not work with Windows 2000, the software being taught on the courses. They saw the course as an opportunity to develop new skills (three already had Novell network

skills) and recognised the value that MCSE certification would have in the future. This group struggled to take exams. Whilst we do not wish to suggest that exam passes is the most important measure of success it has become clear that it is much more difficult for women not currently working with the relevant software to progress to taking exams. This is an important factor that needs careful consideration when recruiting for MCSE courses.

*Individual career progression.* Four women talked about the possibility of applying for a better job as a result of doing the course, or earning more money. However, for others career progression was not a key motivation for participation:

“moving .. up the [career] ladder .. that’s not my aim. My aim is to sort of get confidence in what I am doing you know and feel more sort of comfortable with myself amongst the team, yes.” P26, 46 year old working in the public sector.

This woman achieved MCP status (passing one exam), but did not take any more exams. Given her comment above it may be that she achieved her initial objective, so the impetus to prepare for more exams disappeared. We would hope to explore these issues in a follow up study.

*Women’s reflections on the benefits of studying for MCSE certification.*

This section provides some of the key themes that emerged from our analysis women’s comments about the positive aspects of studying for MCSE certification.

*Individual skills, knowledge and confidence* As well as the obvious importance of obtaining a recognised IT qualification, for many women attendance on the courses resulted in an improvement in skills and knowledge (mentioned by four women) as well as increased confidence and improved peer recognition by male colleagues.

“I have noticed the change in his attitude [the Managing Director], he’s always asking me how to do this, that or the other because now I am more confident and I point out his mistakes to him so because I’ve started doing that, he’s taking a different attitude, because I’m sure he doesn’t want me to point out his mistakes to him so he’s asking my opinion now whereas he didn’t do that before.. Doesn’t it make you feel great if you know somebody who used to before just tell you it’s got to be this way or else, now they come to ask your opinion. Such a difference.”

P27, 46 year old who has since changed jobs (partly due to the MCSE course)

For other respondents where as before, tasks had been undertaken based on being shown how to carry out a specific operation (such as adding a user to a group profile) the course has given new insights into how Windows works, which has improved confidence:

“Whereas before, people used to train me in, like, this is how you do this and they’d go; do this, do that and the other and I found that I was just doing it because I was told to do it. I didn’t really understand why I was doing it or what was the reasoning behind it and so on. The course helped me an awful lot that way, hugely.”

P37, 26 year old working at an IT software company.

*Career progression* Whilst it will take time to establish whether the training, and subsequent certification has impacted on women's careers, there was evidence of the difference the training has had on women's lives. One woman reported having changed job as a result of the course, with an improvement in benefits but working less hours. She also mentioned that her

new employer had stated her preference for working with a woman to update the network in the organisation.

"I wouldn't be able to do what I'm doing now without it. .. where I'm working for three days now I'm making the same salary I was making plus extra benefits [to] what I was doing for five days. So it's got its very good side to it and I haven't even finished the course yet.

P27, 46 year old, now working in the voluntary sector

Another woman was able to widen her job search as a result of attending the courses:

"I change my mind in the way I looking for a job because all the time I was looking just for IT teacher but now I say, ok, I going to change my mind and I started looking for a job in IT support, IT technician... I just change. I was looking for a job 5 months, 6 months... I just only have one part-time job. When I came back from Oxford I decided to change my mind. Ok, I'm going to be more confident about network and I need to practice and I started looking for that."

P45, unemployed at the time of this interview.

This section of the paper has examined women's' thoughts on the benefits of studying for MCSE certification. The next section will present results relating to issues associated with offering the MCSE pathway to women.

*Lessons learnt from offering the MCSE pathway to women* This project was innovative in offering a vendor-specific certification pathway to women. One of the benefits of having a research project working with the two training organisations delivering the MCSE courses was the added capacity to gather detailed information about women's experience of studying for the MCSE. Our analysis of interviews revealed a number of recurring themes, which are presented here.

*Taking examinations: fear of failure* A key theme amongst the older women studying the MCSE was that the process of sitting an exam was unfamiliar. Confidence needed to be high for them to feel able to embark on the first exam. One woman stated that she had to feel completely confident that she would pass the first exam, or she would not feel able to continue to study for subsequent exams.

"I know that I will probably be one of the last to take the test but I can't afford to fail the first one, sort of mentally. Because if I fail the first one I won't have the guts to go on to the next one so I'm preparing myself totally so when go and pass the first one then I will be prepared to go on and take the second and third." P27, 46 year old working in the voluntary sector.

These views were supported by the trainer employed by both training centres in our study, who felt that women in our study group were atypical amongst people working towards MCSE certification. The length of time between embarking on their first MSCE course and sitting their first exam was much longer than with groups she

trained elsewhere. She highlighted a lack of confidence as a key barrier to women in our study group sitting their first exam.<sup>10</sup>

As this paper was being written (May 2005), 10 of the women in our study had taken and passed their first exam, seven of these women had taken a second exam, four women had achieved MCSE status and one had achieved MCSA status. One woman describes her preparation for the exam:

“I booked it for about four weeks in advance I think and then started studying a couple of hours probably every night, taking notes, reading through and then - for the two days before I took the day off work before and I had all day just didn't do anything else all day other than read through, do the practice test, read through, do the practice tests”. P23, 34 year old woman working in the public sector.

The volume of material to be studied in preparation for the first exam was described as daunting. The pass mark for MCSE exams is 80%. The exams are taken online and students work through a series of scenarios which are answered by a series of multiple choice questions. Some of these questions are extremely complex, and if one element of the answer is incorrect, no marks are given for the elements that were correct. For example, if a complex network diagram that contains 20 elements has one error this can be the difference between passing and failing the whole exam.

*Utilising knowledge* Another factor which seemed to have created a barrier for some women was that their current job roles did not include enough relevant day to day tasks to help them gain sufficient familiarity with the material they need to learn to sit their exams. This was particularly problematic for women who were either not working, or who worked for smaller organisations. For example, the amount of Windows 2000 administrative work, such as assigning permissions, setting up user groups required in a small voluntary sector organisation is so small that practical use of course material is difficult. In terms of providing opportunities for women working in technical areas of IT, this issue presents a vicious circle. There are limited numbers of women to select from, which leads to a mix of experience where some women will lack the opportunities in their current day to day work to utilise knowledge gained on the courses. Nevertheless the conclusion drawn from the study was that there is little benefit in offering these course to women who are not able to utilise their knowledge on a day to day basis.

*Job role issues* Some of the women's job roles were not tightly linked to Windows 2000 administration, which was what this version of the MCSE qualified them for. Many of the women in our study group were working in more general user support roles, so did not have an opportunity to apply their knowledge in their workplace. Whilst it may seem curious that women were selected who were not an ideal 'fit' in terms of their current job role, it is important to see this project in the context of the number of women working in any job role which could loosely be described as 'technical IT'. As mentioned earlier, it is not easy to point to a set of statistics that provide data on the number of women working in 'technical IT' because the definitions for ICT occupations are so varied. A lesson from recruitment for this training programme is that it can be challenging to recruit for this type of qualification, and that a long lead-in period may be beneficial.

*English as a second language* Another important issue that emerged from our interviews was the added difficulty experienced by a learner with English as a second

language (ESOL). It is mentioned here to highlight an added barrier for women from BME groups who wish to study for the MCSE. Of our study group, there were nine women for whom English is their second (or third) language. Of these, six did not sit any exams during the life of the project. One of these women commented on the problems she faced:

“I’m gonna talk about people who have got English as second language, because when you read something you’ve got to understand it as well twice because computer is not in your language, it’s in English everything is in English the way you understand the concept of the question might be different than the examiners, unless you practice it enough to understand what they really want and you would be able to answer it and I think I haven’t practised any past papers yet. Before sitting an exam I’d like to do more practice exams I would like to see the deadline, be able to make it in the limited time or not.”  
P22, 40 year old working for community organisation.

One of the training centres in the study contacted exam providers about the issue of ESOL and discovered that an extra half hour per exam paper can be allowed where the exam taker is using English as a second language. One of the women who achieved MCSE status during the study utilised this provision. Another provision available, which would not have been helpful in this situation (where the course was taught in English), was that course material could be obtained in other languages.

## **Discussion and conclusions**

This paper has provided results of a research study undertaken by the Open University in the UK as part of the ESF funded JIVE Partners project. Reflecting back to the context for the study, which showed the low numbers of women working in this area of IT, this study shows that despite accessing the MCSE courses within the supportive environment of two women’s training centres, it has been difficult for some women to progress from course attendance to exam success. We showed that from a group of 20 women, ten have passed one MCSE exam, which is a success rate of 50%. Four women from the study group achieved MCSE status within the project’s lifetime, 20 per cent of those who embarked on the course. The lack of UK-wide data from Microsoft Learning means that we are unable to contextualise this result, as we have no information about the number of men and women in the UK holding the MCSE. However, data from another ESF project operating in a mainstream FE college was able to offer some data to compare this study with. In a similar time frame (2 years) 138 students attended MCSE courses, and of these 10% took and passed an exam.<sup>11</sup> From these figures, the women’s training centres should be encouraged by their 50% success rate.

Focusing on lessons from the project highlighted by the research study we can break down the problems women faced in achieving MCSE certification into general problems and problems specific to the MCSE certification.

Firstly, within general problems the issue of confidence amongst women who had not sat a formal exam for many years was significant. It is clear is that a high level of support is needed when offering this type of training. Future programmes will need to consider how such support can be provided when women are working full time and courses take up the entire day. One option would be to build in a requirement for additional study leave when negotiating time off for the course with employers. It is important to underline the high success rate amongst women that did take exams.

To our knowledge, 48 exams have been taken and only two of these have resulted in a failure, with one woman re-sitting and passing.

Recruitment and selection of future cohorts must strongly emphasise the amount of additional study required to achieve certification. Furthermore, it is essential for employers to understand the level of commitment required by those embarking on this qualification. It is not sufficient to provide time off to attend courses. While this is a positive first step, and a significant commitment by employers, for women to be able to study effectively for the MCSE periods of study leave may need to be given. This is particularly important for women with childcare responsibilities, as the amount of 'spare' time available to them after all their home-based work is finished may be negligible.

Turning to problems specific to the MCSE the key issues identified by this study were the need for women's job roles to involve a high degree of knowledge utilisation from the courses. While the reasons for not taking exams are complex and multi-faceted there is a definite link between a lack of day to day utilisation of knowledge from the courses and a lack of progression to taking exams. Furthermore, women working in smaller organisations, where the amount of day to day work required to manage the computer network are also likely to find it difficult to gain sufficient familiarity with operations so that they feel able confident enough to sit the exams.

Once again recruitment and selection will be critical for any future programmes offering the MCSE specifically targeted at women, as this study suggests that if training centres offer the course in this way, with women progressing through the material with the same classmates, is important to ensure that all participants have a similar level of experience. Mixing those without experience of the relevant software environment, women presently unemployed (even if previously working in a technical IT role) and women working on a day to day basis with the software being taught will not necessarily work for those with less opportunity to utilise their knowledge. This presents another problem; the cost of offering these courses is high, and the number of women working in the relevant areas of IT are small. This means that it will be a significant challenge for women's training centres to continue to offer this type of training and break even.

One of the key lessons of the study for training providers is the relative success achieved at Oxford Women's Training Scheme with MCSE certification. All the women that achieved MCSE status did so at OWTS, and the key difference between the two centres was the introduction of the incentive. By stating that future courses would be offered only to those who had passed a certain number of exams, OWTS appear to have created an added impetus which did make a difference. While this policy appears counter intuitive to the ethos of women-only training, amongst working women in our study the policy seems to have worked.

Our failure to obtain any data on women and men holding MCSEs in the UK is a subject that needs to be addressed by education policy makers, as clearly it is not helpful that no UK-wide statistics are available for a certification that is associated with the most commonly used computer network operating system. Privatisation of certification in the IT industry is increasing, and the experience researchers found with the MCSE will certainly be the same with any other Microsoft certification. A research study to explore the extent to which similar problems exist with other vendor-specific certification would be welcome.

The Open University plans to undertake a follow up study to explore the impact of MCSE certification amongst those women who gained the qualification and also investigate the impact the training has had on those women that took few or no exams.

### **Acknowledgements**

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### **Notes**

1. JIVE stands for **J**oint **I**nterventions, emphasizing the partnership's commitment to a holistic model of intervention.
2. As the project evolved women IT trainers who expressed an interest in teaching the MCSE were also targeted, as we discovered that there was a shortage of women holding Microsoft Certified trainer status. Additionally in Oxford the course was offered to women who were unemployed, but who had been working in a relevant area.
3. For example within construction SOC code 5314 (plumbers) women represent only 6.02% and in civil and mechanical engineering the figures are 2121 4/4% and 2122 5.2% respectively.
4. For example [www.certmag.com](http://www.certmag.com)
5. see <http://www.mcpmag.com/> In October 2004 Microsoft Certified Professional Magazine will become Redmond Magazine, and the URL will change to <http://www.redmondmag.com/>
6. The MCP or Microsoft Certified Professional certification is the first level available; with one exam passed. Certification data from MCP Magazine <http://mcpmag.com/certbasics/> accessed on 29/04/05.
7. 48 supervisors responded (a response rate of 28%). The author does state that evidence on this issue was clouded by general supervisor enthusiasm and by the relatively small number of supervisors participating.
8. Originally we intended to undertake a third final interview exploring their role in their organisation, issues of gender within the organisational culture and the extent to which achieving the MCSE was affecting their career progression. The length of time taken by women to achieve MCSE status meant that we decided not to undertake the final interview within the scope of this research project. We hope to carry out a follow up study in 2006.
9. For further discussion of this issue and other factors relating to exam success please see Ellen & Herman (2005).
10. For more details on this aspect of the study please see Herman and Ellen (2004).
11. Whilst we are not able to determine how long it usually takes to attend the courses required in preparation for sitting the first exam and then how much study time a student should expect to allow for in preparation for an exam, within our small group the shortest period of time between starting the first course and sitting an exam was seven months.
12. Personal communication with Frances Kennedy, Manchester Enterprises, 11 April 2004.

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<sup>2</sup> For example within construction SOC code 5314 (plumbers) women represent only 6.02% and in civil and mechanical engineering the figures are 2121 4/4% and 2122 5.2% respectively.

<sup>3</sup> For example [www.certmag.com](http://www.certmag.com).

<sup>4</sup> (see <http://www.mcpmag.com/>) From October 2004 Microsoft Certified Professional Magazine will become Redmond Magazine, and the URL will become <http://www.redmondmag.com/>

<sup>5</sup> The MCP or Microsoft Certified Professional certification is the first level available; with one exam passed. Certification data from MCP Magazine <http://mcpmag.com/certbasics/> accessed on 29/04/05.

<sup>6</sup> 48 supervisors responded (a response rate of 28%). The author does state that evidence on this issue was clouded by general supervisor enthusiasm and by the relatively small number of supervisors participating.

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<sup>8</sup> For further discussion of this issue and other factors relating to exam success please see Ellen & Herman (2005).

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<sup>11</sup> Personal communication with Frances Kennedy, Manchester Enterprises, 11 April 2004.