

## EQUAL OPPORTUNITIES FOR NETWORKED LEARNERS

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### Abstract

*Research has been conducted on the relationship between gender and dialogue content in computer mediated environments. This paper, however, focuses on establishing possible and plausible links between gender and learning styles in a Networked Learning (NL) environment. The findings of a questionnaire distributed to M.Sc. Networked Information Engineering (NIE) students show some significant differences between male and female respondents. In particular, the results illustrating communication processes highlight interesting and perhaps unusual differences between the genders. These findings may facilitate practitioners to focus on the relationship between gender and the range of modalities available in the NL experience. Furthermore, the potential to promote equal learning opportunities.*

### 1. Introduction

In recent years, there have been rapid developments in technology leading to the formation of the Internet, increased capacity and speed of communications and improvements in the processing power of personal computers. In addition, demographics, economic trends and social climate are ultimately changing the way institutions provide education. These advances have generated the necessity for having new learning paradigms, for example, Networked Learning (NL).

Stamartis et al. (1999), suggest, the success of a NL course depends on efficient functionality of a number of aspects concerned with the learner and the course's reliance on a number of procedures and processes, such as the interaction between the learners and instructors. Howell & Jayaratna (1999) propose the use of Soft Systems Methodology to structure the set of distance learning design activities and express, 'identification of the relevant student population', as one of the main operations in the development of specific applications. This operation includes investigation of gender and how the students want to learn etc. Kirkup & von Prümmer (1997) also recognise that gender may have an impact on new educational forms.

Therefore, in order to exploit NL, more closely match course features to the learner and enable practitioners to support learners, the diversity of the student population will have to be examined. Consequently this paper evaluates characteristics of a sample student population in relation to NL issues that may enhance or constrain learning. More specifically, the significance gender may have on NL initiatives. For instance, this paper will focus on questions such as:

1. Does gender affect the communicative processes associated with NL?
2. Do men and women approach the use of the Internet as an educational tool in different ways?

3. Can any possible differences in how a particular gender may choose to learn, be capitalised upon for recruitment (equal opportunities), retention rates, instructional design and teaching method?

To explore these questions, research was conducted in the school of Computing and Management Sciences, Sheffield Hallam University (SHU) in January 1999.

In the academic year 1998/99 fifty-three students were enrolled at the institution, on a MSc in NIE in on-line distance learning mode, at certificate, diploma and masters level. To assist the distance learning process, all the lecture notes were placed on the university web site and distributed to the students in hard copy format. To facilitate the NL process FirstClass<sup>1</sup> software was used for group discussions and e-mail. In addition, face to face support was provided by residential sessions, of which the two groups (postgraduate certificate and diploma) under investigation, attended in January 1999.

## 2. Research Methods

The author initiated the development and distribution of a two-page questionnaire, which examined the views of MSc NIE students who attended the January residential. The questionnaire comprised two sections: general questions and course specific. General questions were designed to collect information on age, gender and hardware specifications. Course specific questions focused on communication processes, learning method, format, degree of difficulty, educational needs, motivation and satisfaction levels.

The author acknowledges that the sample used for evaluation purposes was relatively small (33) and reflects the responses of one course, which might have affected the precision of the results (Moser & Kalton, 1983). Furthermore, using a readily available sample may also have its limitations (Mertens, 1998).

## 3. Results

Of the thirty-seven students working towards an MSc in NIE at SHU, thirty-three attended a one week residential at the institution and twenty nine of those responded (see table 1).

### 3.1 Characteristics of the student population

The first set of questions aimed to provide a profile of respondents. Of those who responded twenty-five were male and four were female with median age range thirty-six to forty and thirty to thirty-five respectively. All the respondents had access to the internet and the majority had access to an adequate computer specification, which consisted of a 200 megahertz Pentium, with a 16 bit sound card, super VGA 3D capabilities and a 56k modem (see table 1)

|                             | Total    | Male     | Female  |
|-----------------------------|----------|----------|---------|
| <b>N=</b>                   | 37       | 29       | 8       |
| <b>Attended residential</b> | 33       | 29       | 4       |
| <b>No of respondents</b>    | 29       | 25       | 4       |
| <b>Response rate</b>        | 78%      | 86%      | 50%     |
| <b>Median age range</b>     | 36-40    | 36-40    | 30-35   |
| <b>Pentium &gt;= 200</b>    | 52% (15) | 48% (12) | 75% (3) |
| <b>Modem = 56,000</b>       | 48% (14) | 48% (12) | 50% (2) |

Table 1 Respondent characteristics

### 3.2 Communication processes

The next set of questions related to how the students preferred to communicate, and the level of face to face contact they had with lecturers and fellow course members. When the students

<sup>1</sup> Software produced by SoftArc - <http://www.softarc.com/>

were asked which method they used to regularly communicate with fellow course members, 55% communicated via e-mail and 41% of the respondents did not communicate. Females respondents used e-mail more than their male counterparts with percentages of 75% and 52% respectively (see table 2)

|                          | Total |    | Male |    | Female |   |
|--------------------------|-------|----|------|----|--------|---|
| <b>Total</b>             | 100%  | 29 | 100% | 25 | 100%   | 4 |
| <b>No reply</b>          | 3%    | 1  | 4%   | 1  | 0%     | 0 |
| <b>Face to face</b>      | 0%    | 0  | 0%   | 0  | 0%     | 0 |
| <b>Telephone</b>         | 0%    | 0  | 0%   | 0  | 0%     | 0 |
| <b>Letter</b>            | 0%    | 0  | 0%   | 0  | 0%     | 0 |
| <b>Electronic mail</b>   | 55%   | 16 | 52%  | 13 | 75%    | 3 |
| <b>Don't communicate</b> | 41%   | 12 | 44%  | 11 | 25%    | 1 |

**Table 2: How the students regularly communication with fellow course members**

The students were then asked about the level of face to face contact, from the lecturers and fellow course members, throughout the course. In relation to contact with lecturers, 68% of the male respondents and 50% of female respondents indicated that it was not enough. This must be understood in the context of a distance learning course where you might expect that the trade off between ability to study and face to face contact have to be recognized. The students do suggest later that studying by distance learning is the only way they could study with the inevitable consequence that face to face contact would diminish. Also note that the course at SHU does include time where students must attend the university to have this valuable face to face contact with their tutors. The results representing the level of face to face contact with fellow course members produced a more mixed set of opinions between the genders. It is interesting to note that the majority of females thought that the level of face to face contact with fellow students was about right and the majority of males wanted more (see table 3).

|                    | Base |    | Male |    | Female |   |
|--------------------|------|----|------|----|--------|---|
| <b>Base</b>        | 100% | 29 | 100% | 25 | 100%   | 4 |
| <b>No reply</b>    | 3%   | 1  | 4%   | 1  | 0%     | 0 |
| <b>Not enough</b>  | 59%  | 17 | 64%  | 16 | 25%    | 1 |
| <b>About right</b> | 34%  | 10 | 28%  | 7  | 75%    | 3 |
| <b>Too much</b>    | 3%   | 1  | 4%   | 1  | 0%     | 0 |

**Table 3: Face to face contact with fellow course members**

### 3.3 Learning method

The students were then asked which feature of FirstClass they used most frequently during the course, group discussion area, private mail or other. The chat facility in FirstClass had been disabled, therefore this was not an option. The majority of respondents (69%) used the group discussion area, 14% used the private mail and 17% did not respond. Females reported a slightly higher percentage, with 75% more frequently using the discussion area in comparison to 68% of the male respondents (see table 4).

|                               | Total |    | Male |    | Female |   |
|-------------------------------|-------|----|------|----|--------|---|
| <b>Total</b>                  | 100%  | 29 | 100% | 25 | 100%   | 4 |
| <b>No reply</b>               | 17%   | 5  | 20%  | 5  | 0%     | 0 |
| <b>Group discussion areas</b> | 69%   | 20 | 68%  | 17 | 75%    | 3 |
| <b>Private mail</b>           | 14%   | 4  | 12%  | 3  | 25%    | 1 |
| <b>Other</b>                  | 0%    | 0  | 0%   | 0  | 0%     | 0 |

**Table 4: Features of FirstClass used most frequently**

The following set of questions related to the students' use of the Internet materials. When they were asked if they would prefer the lecture material to be, only available on the Internet, 16% of the male respondents strongly agreed to agreed, 80% disagreed to strongly disagreed and 4% did not respond. All the female respondents disagreed. The students were then asked if they used the Internet notes more than the printed notes, the majority of male respondents (76%) replied, "no", 8% "yes", 12% used the mediums about the same and 4% did not respond. However only 25% of the female respondents replied, "no" and 75% used the Internet material the same as the printed notes. When the students were asked how frequently they accessed the notes on the Internet, the female respondents indicated that they accessed them more than their male counterparts (see table 5)

|                     | Total |    | Male |    | Female |   |
|---------------------|-------|----|------|----|--------|---|
| <b>Total</b>        | 100%  | 29 | 100% | 25 | 100%   | 4 |
| <b>No reply</b>     | 3%    | 1  | 4%   | 1  | 0%     | 0 |
| <b>Never</b>        | 34%   | 10 | 36%  | 9  | 25%    | 1 |
| <b>Occasionally</b> | 52%   | 15 | 48%  | 12 | 75%    | 3 |
| <b>Often</b>        | 10%   | 3  | 12%  | 3  | 0%     | 0 |

**Table 5: Frequency of access to the notes on the Internet**

### 3.4 Format

When the students were asked, "what in your opinion is the primary benefit of learning using this format", fits in with work commitments was seen as the major benefit (41%) and 38% appreciated the flexible study time. The majority of female respondents (50%) thought that flexible study time was the major benefit and 25% indicated that its fits in with work commitments (see table 6).

|  | Total |    | Male |    | Female |   |
|--|-------|----|------|----|--------|---|
| <b>Total</b>                           | 100%  | 29 | 100% | 25 | 100%   | 4 |
| <b>No reply</b>                        | 3%    | 1  | 4%   | 1  | 0%     | 0 |
| <b>Flexible study time</b>             | 38%   | 11 | 36%  | 9  | 50%    | 2 |
| <b>Fits in with family commitments</b> | 3%    | 1  | 4%   | 1  | 0%     | 0 |
| <b>Fits in with work commitments</b>   | 41%   | 12 | 44%  | 11 | 25%    | 1 |
| <b>Prefer to work on your own</b>      | 3%    | 1  | 4%   | 1  | 0%     | 0 |
| <b>No commuting</b>                    | 7%    | 2  | 8%   | 2  | 0%     | 0 |
| <b>Other</b>                           | 3%    | 1  | 0%   | 0  | 25%    | 1 |

**Table 6: Primary benefits of learning in on-line distance learning format**

### 3.5 Educational needs and Motivation

The next set of question examined the students' views on the degree of difficulty, educational need, and interest levels with the course as a whole. In addition, how motivated they were to do well. The majority of respondents (percentages ranging from 90% to 96%) found the course moderately to very challenging, supporting their overall educational needs, fairly to very interesting. With these figures including all the female respondents. Finally, when the students were asked how motivated they were to do well on the course, the majority of the respondents (97%) were motivated to very motivated, with this figure also including all the female respondents. The findings within this set of questions illustrate very close similarities between the genders, however, the female respondents showed slightly higher levels of interest in the course and responses indicate that they were challenged to a greater degree.

### 3.6 Levels of Satisfaction, problems and difficulties

The final set of questions focused on their overall satisfaction with the course, the degree to which FirstClass would add or detract from that satisfaction, problems with their Internet Service Provider (ISP) and level of difficulties encountered when using FirstClass.

On levels of satisfaction with the course, 89% were, moderately to extremely satisfied, which also included all the female respondents. The question which related to the extent of which FirstClass would add or detract from this satisfaction produced a difference of opinion between the genders, with 16% of males indicating that FirstClass detracted considerably, 64% thought it made no difference and 16% that it assisted to assisted considerably. For the female respondents 25% thought that it made no difference and 75% thought it assisted to assisted considerably (see table 7).

|                               | Total |    | Male |    | Female |   |
|-------------------------------|-------|----|------|----|--------|---|
| <b>Total</b>                  | 100%  | 29 | 100% | 25 | 100%   | 4 |
| <b>No reply</b>               | 3%    | 1  | 4%   | 1  | 0%     | 0 |
| <b>Detracted considerably</b> | 14%   | 4  | 16%  | 4  | 0%     | 0 |
| <b>Detracted</b>              | 0%    | 0  | 0%   | 0  | 0%     | 0 |
| <b>Made no difference</b>     | 59%   | 17 | 64%  | 16 | 25%    | 1 |
| <b>Assisted</b>               | 14%   | 4  | 8%   | 2  | 50%    | 2 |
| <b>Assisted considerably</b>  | 10%   | 3  | 8%   | 2  | 25%    | 1 |

**Table 7: To what extent did using FirstClass add/detract from that satisfaction**

The students were then asked if they had any problems connecting to their ISP and if they had any difficulties using FirstClass. The majority of male respondents (76%) and 50% of the female respondents had no problems connecting to their ISP, however 20% of the males and 25% of the females experienced some problems. When the students were asked if they had any difficulties using FirstClass, the majority of female respondents (75%) and 48% of male respondents indicated that they had difficulties.

Finally, it is very pleasing to note that 83% of the respondent would recommend the course to a colleague or friend, with this figure including all the female respondents. In addition, 84% of the respondents thought that the course would enhance their career, with this percentage including all the female respondents.

#### **4. Discussion**

Characteristic data revealed that the respondents were roughly the same age. Furthermore, they utilised very similar hardware configurations. Despite these factors, there was a notable difference in the form of communication and Internet usage by gender.

Some of the respondents experienced ISP problems and e-mail difficulties. At this point the author would like to note that as a result FirstClass now has a browser interface and SHU are not experiencing the problems they had. However at the time, these difficulties may have had an impact on how regularly they communicated with fellow course members and the how frequently they used some of the features of FirstClass. It is widely recognised that men have a more positive attitude towards using the medium (Lally and Barrett 1998; Stewart 1999). In contrast to these studies the female respondents communicated with course members via e-mail more readily even though they had more difficulties with the medium than their male counterparts. These finding could indicate that females are less likely to allow technical difficulties to impede their preferred mode of communications (Pickett 1999). Additional rationale could include an appreciation by the female gender of the medium's ability to liberate discourse or that it facilitates the engagement of socio-emotional patterns of communication (Ferris 1996).

In relation to face to face contact with lecturers, differences between the genders were negligible. However, the majority of female respondents indicated that the face to face contact with fellow course members was about right. In contrast, the majority of males would have liked more. Therefore the findings could suggest that some of the male respondents prefer the immediacy of face to face interaction (Shaw and Polovina 1999). They may have

had a greater need for physical presence (Keegan 1994; Furnell 1999), or the need to establish a sense of community (McConnell 1998) more commonly associated with traditional university based teaching and learning.

In relation to how the respondents approached the use of the Internet as an educational tool, a few of the male respondents would prefer the course notes to be only available on the Internet. Whilst all the female respondents disagreed with this assertion. Furthermore, in relation to using the Internet material, the majority of females used both printed notes and Internet notes about the same, however, the males used the printed notes more readily. In addition, more males than females never accessed the notes on the Internet. This could pose questions on the degree of difficulty a particular gender may have with reading, digesting and assimilating on screen information. Other issues could include a particular genders desire to annotate the notes in pen, or the inherent need of students within the age group (36-40) of the study for paper based information. However, providing two methods for the dissemination of lecture notes will facilitate learner choices induced by the diverse learning styles of the genders. Mazoue (1999) confirms the need to focus pedagogical direction for different populations of learner.

Finally, the majority of respondents found the course challenging, meeting educational needs, satisfactory overall and they were motivated to do well. However some of the male respondents found that FirstClass detracted from their satisfaction. This factor can be directly correlated to the males who had difficulties with FirstClass. Conversely, levels of dissatisfaction for the female respondents could not be attributed to the difficulties they had with FirstClass. Hence the argument that the female gender has a greater ability to deal with technical difficulties is further supported.

## 5. Conclusions

The purpose of this research exercise was to establish possible and plausible links between gender and learning styles in a NL environment. Although the sample used for evaluation purposes only reflect the responses from one course, the findings show some notable differences between male and female respondents. For example, the female respondents found the NL format more agreeable, in particular the aspects pertaining to electronic communications. They also adopted a different approach to using Web based materials. These observations may facilitate practitioners to focus on the relationship between gender and the range of modalities available in the NL experience.

## 6. Future Research

Whilst nothing conclusive can be derived the set of results, the findings point to the need for further research to be conducted in order to explore the gender related differences relative to the usage of web based materials. Furthermore, to provide corroborative evidence in the form of qualitative as well as quantitative analysis to express clear justification to the notion that females within the profile of this study, exhibit less reliance on face to face interaction than their male counterparts.

## 7. Acknowledgement

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## References

Furnell, S. M. et al. (1999) Online Distance Learning: Expectations, Requirements and Barriers. *Virtual University Journal*. Vol. 2, No. 2, pp. 34-43(10).

