

Aspects of Computer Use by Chemistry Students in Their Final Year at School

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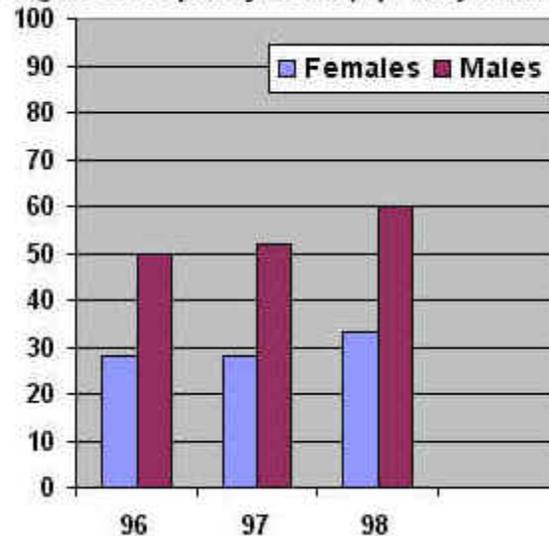
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This report is an analysis of responses to a questionnaire given to freshers arriving at the Chemistry Department of Liverpool University to determine their previous use of computers, their perceptions of their competence, confidence and ability to benefit from computers and the importance they attach to possessing a computer and being trained in the use of computers. The questionnaire has been used between 1990 and 1998; the results presented herein include results from the surveys between 1996 and 1998. The 1990 data have been previously presented in *Software Reviews* Volume 3, issued February 1991; the 1992 data can be found in Volume 7, dated January 1993; the 1993 data are in Volume 9, dated March 1994; the 1994 data in Volume 11, dated May 1995; and the 1995 data in Volume 12, dated October 1995. The data for 1996 and 1997 have been reported, in part, in a comparison of results for a cohort of students who were freshers in 1996 and who returned to university in 1997. This report has been published on our web site at <http://www.liv.ac.uk/ctichem/surv9697.html>. The survey form asks students about their use of computers in their last year at school, their perceptions of their computing skills, confidence, expectations of ability and interest in using computers, whether or not they own or have access to a computer and their attitudes to buying or hiring a computer and to training (even if that were given out of hours). The form also allows for comments. The 1996 survey data is based upon returns from 60 males and 32 females, the 1997 data on 52 males and 34 females, the 1998 data on 53 males and 27 females.

Computer usage

Students were considered to be frequent users of computers if they had used them on a daily or weekly basis. Figure 1 shows small increases in frequent users across the survey period with males making more frequent use than females. In most cases the principal use made of computers by both males and females was word processing. The only exception to this was for the 1997 data for females where use of computers for coursework was dominant.

Figure 1: Frequency of use (%) - daily/weekly



Computing skills

Data were collected for perceptions of skills relating to word processing, use of drawing/painting programs, database searching/creation, use of spreadsheets and using email/web. In all cases, the results show a perception of better skills for word processing and worse skills for Internet activities. The results for general skills are shown in Figures 2 and 3. For Figure 2 the scores for those considering themselves to be expert or good are combined and in Figure 3 the results are a combination of the scores for perceptions of poor/no skills. There has been again a slow increase in those considering themselves expert or good with computers and in all cases the results for males are higher than those for females. Encouragingly, the trend for those considering themselves to be weak in the use of computers, is downwards and approaching the 10% level for both males and females.

Figure 2: General skills (%) - good/expert

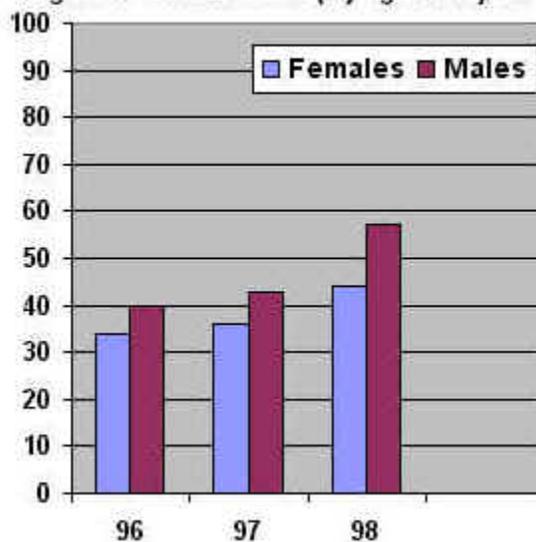
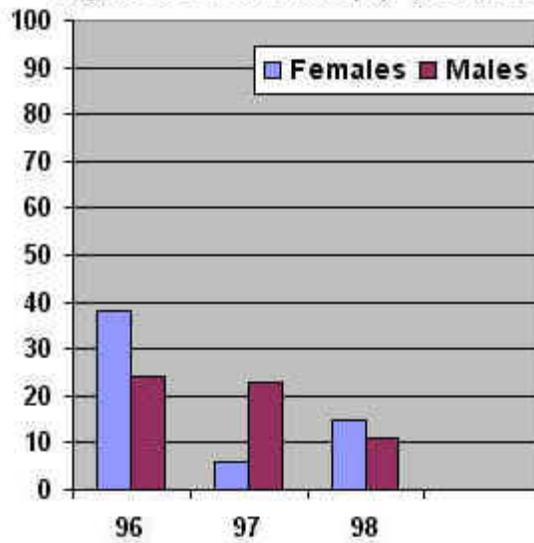


Figure 3: General skills (%) - poor/none



Computer ownership

The trend in computer ownership is upward and approaching 50% (see Figure 4). In comparison, a reasonably steady 40% of students would positively consider buying a computer (see Figure 5) and about half that number would positively consider hiring a computer (see Figure 6).

Figure 4: Own a computer (%)

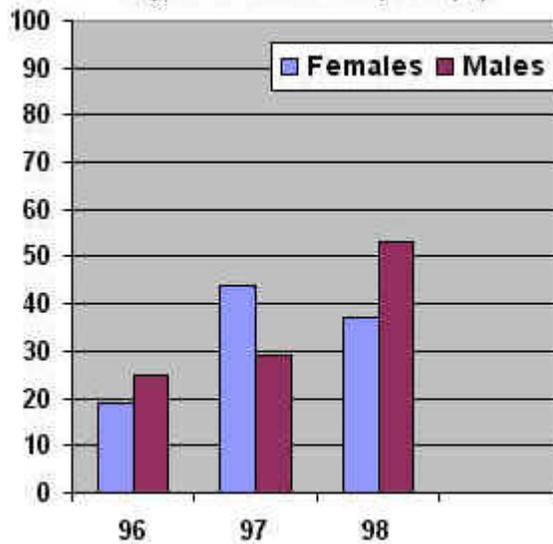


Figure 5: Buy a computer (%) - yes/probably

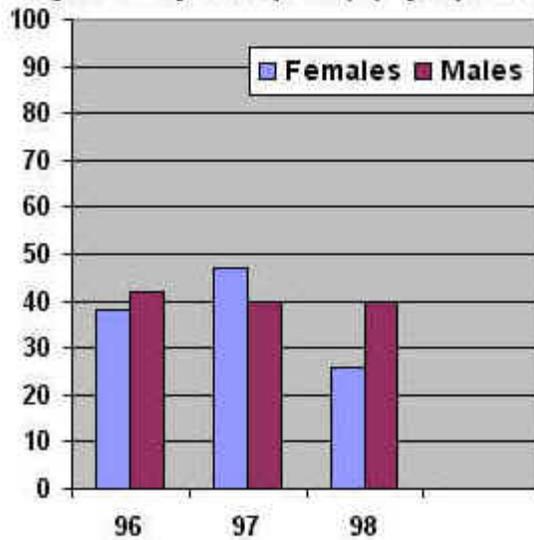
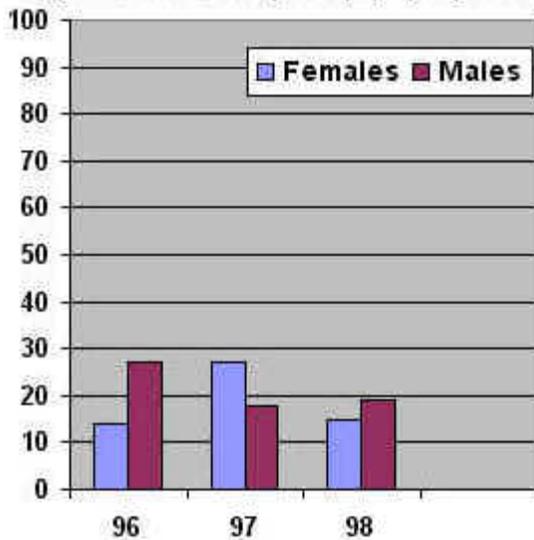


Figure 6: Hire a computer (%) - yes/probably



Computer training

Figure 7 shows the percentages of students who think that they might benefit from computer training. The results show that most students recognise the advantage of such training. However, whilst the results for females are reasonably steady at about 80%, those for males are reducing quite rapidly. In Figure 8 the results show that even were such training to be given outside of normal course times then about 40% of students would still be interested.

Figure 7: Computer training (%) -yes/probably

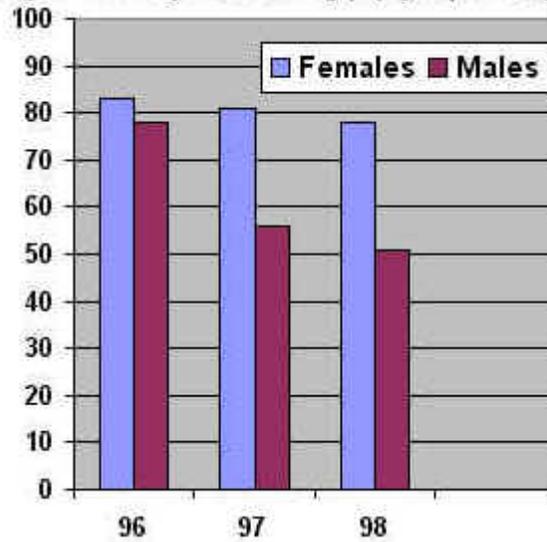
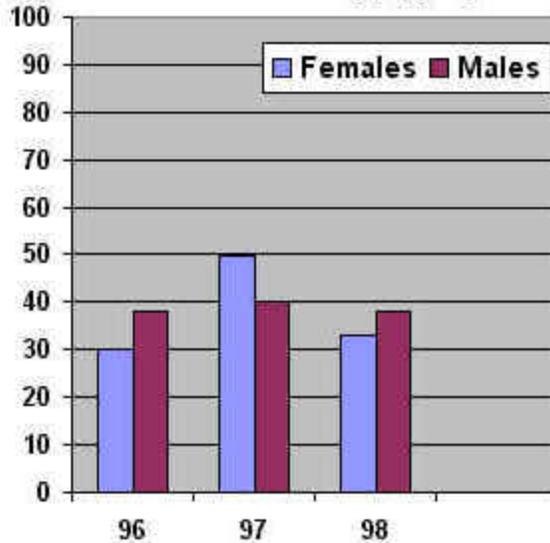


Figure 8: Out of hours training (%) yes/probably



Confidence, expectations of ability and interest

Males are generally more confident with computers than females (see Figure 9) and have higher expectations of their ability to benefit from using computers (see Figure 10). However, Figure 11 shows that the interest that males show in using computers is similar to that of the females.

Figure 9: Confidence (%) - score 4/5

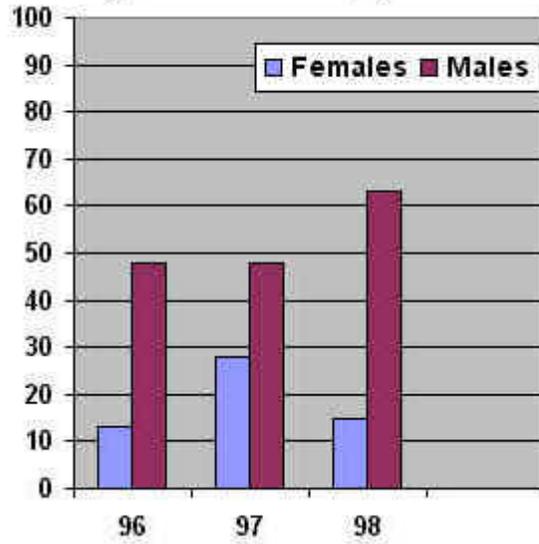


Figure 10: Expectations of ability (%) score 4/5

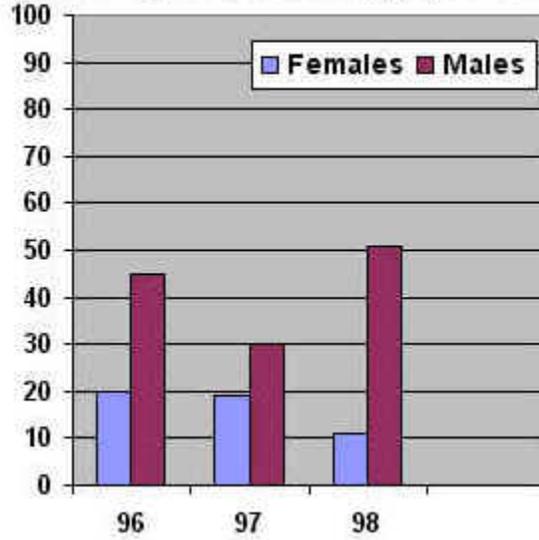
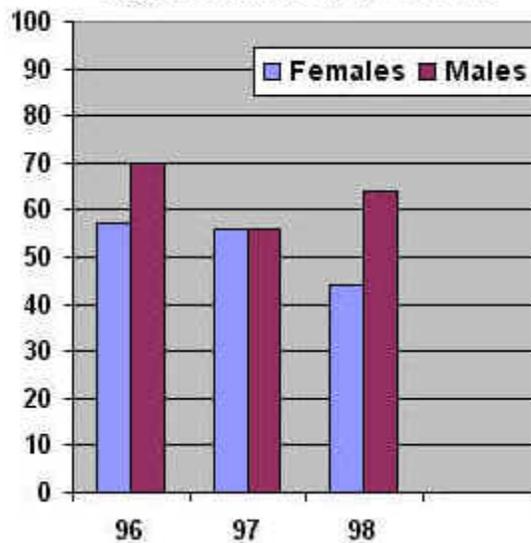


Figure 11: Interest (%) -score 4/5



Open comments

Increased computer literacy (greater than 50% of responses for all three survey sets), helping with coursework and improved job prospects were the main drivers for wanting to use computers.

Conclusions

Regular use of computers prior to university entry is on the increase and is particularly prevalent in males. Computer ownership is also increasing. This may explain why, those students considering their computing skills to be poor are reducing and those who consider themselves to be expert or good with computers is increasing to about the 50% mark. However, most students still see advantages in further computer training.

Males make more frequent use of computers than females and perhaps this is why they are more confident in their use and have greater expectations of their ability when compared with the females in each cohort.

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