Trends in Students' Knowledge, Opinions, and Behaviors Concerning Dental Informatics and Computer Applications

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INTRODUCTION

No long term evaluations of dental students' knowledge, opinions, and behaviors regarding dental informatics and computer applications have been completed. A 1988 survey found junior dental students to be most knowledgeable about generic applications like word processing and least knowledgeable about dental applications [1]. A 1990 survey of first and fourth year dental students found both groups had little knowledge and experience with computers and informatics applications, but held favorable opinions about these issues [2]. Given the paucity of previous research, the goal of this investigation was to evaluate changes over time in knowledge, opinions, and behaviors of dental students concerning dental informatics and computers.

METHODS

A 74-item questionnaire was constructed to assess students' knowledge, opinions, and behaviors. Eighteen items having a three point scale (Agree, Undecided, Disagree; collapsed range: 0-18) were used to measure knowledge. Opinions were measured using 13 questions (Cronbach's alpha = 0.81) with a five-point Likert scale (Strongly Agree to Strongly Disagree; range: 13-65). Behaviors were assessed with 28 questions that measured the extent of experience with computers and informatics applications. A five point scale ranging from no experience to extensive experience was used (Range: 28-140). Demographic information was collected including age, gender, personal and parental ownership of computers, and numbers of formal computer courses completed. First (N=95) and fourth year (N = 91) students completed the survey in 1990. First (N=97) and fourth year (N=91) students completed the survey in 1993. The 1990 first year and 1993 fourth year students were the same group. Response rates ranged from 99 to 100%.

RESULTS

First Year Students (D1s). In 1993, 43.8% of D1s owned computers compared to 17.9% in 1990. No difference was observed in the numbers of computer courses completed. Knowledge scores were not different between groups, but 1993 D1s had a significantly lower opinion score about these issues than 1990 D1s (44.8 versus 52.2, $p<0.001$). The 1993 D1s reported more experience with computers than the 1990 D1s. Total experience scores were 47.4 versus 41.9 ($p<0.001$).

Fourth Year Students (D4s). There was no difference in computer ownership between groups. The 1993 D4s had completed more computer courses than the 1990 D4s (2.3 versus 0.9; $p<0.001$). There were significant differences in knowledge scores between groups with 1993 D4s answering about twice as many questions correctly ($P<0.001$). There were no differences in opinion scores. The 1993 D4s reported more experience with computers than the 1990 D4s. Total experience scores were 55.9 versus 41.3 ($p<0.001$).

First Year, now Fourth Year Students. There was no statistically significant increase in computer ownership during dental school. Students reported an average increase of one course. Mean knowledge scores of these students increased between 1990 and 1993 (8.0 to 14.1; $p<0.001$). Opinion scores did not change significantly. The group's mean experience score increased from 41.7 to 55.8 ($p<0.0001$).

Gender Differences. In 1990, 58.6% of D1 females reported completing ≥ 1 computer courses compared to 76.8% of males ($p<0.01$). Mean knowledge scores were significantly different with females having a mean score of 5.0 compared to 9.5 for males ($p<0.001$). There were no statistically significant differences in opinion scores or total computing experiences. In 1993, a difference in completed computer courses remained between the genders. Knowledge and experience scores had increased for both groups and were about equal. Opinion scores had not changed.

DISCUSSION

Students currently entering dental education are more likely to own a computer and to have experience with computers and computer applications. Interestingly, opinions of current new students were lower suggesting less enthusiasm for computing or more understanding of its limitations. D4s in 1993 displayed more knowledge and experience than 1990 D4s, and these increases may reflect the introduction of a required information management course in the fourth year. The 1990 D4s received little education on informatics or computing. Knowledge and experience increases are evidenced in the comparison of 1990 D1 scores with their own 1993 scores as D4s. Results suggest that at least knowledge differences between genders are addressed in dental school. In summary, students come more prepared and their computing and informatics knowledge and experiences are increased during their dental education.

REFERENCES

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