

Factors Influencing Preservice Teachers' Use Of Laptops For Teaching/Learning Purposes During Practicum.

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Abstract: One hundred and forty five preservice teachers, enrolled in a one-year BEd program in a northern Ontario university were involved in a mobile computing initiative in which they were provided with laptop computers to use during the duration of the BEd program. While the laptop was found to be convenient tool for the preservice teachers because it gave them constant access to the Internet; exclusive access to educational software; and immediate communication with professors, fellow students, and associate teachers, and allowed them to complete program-related assignments with ease while taking coursework at the university, there was minimal use of the laptops by the preservice teachers during their practicum. This study explores the factors that influenced the use of the laptops during the practicum. It was found that the preservice teachers were more likely to use their laptops for teaching/learning activities during the practicum if they perceived a positive welcoming atmosphere in the schools, regardless of how well the schools were equipped.

According to ISTE (2003) “A combination of essential conditions is required for teachers to create learning environments conducive to powerful uses of technology.” Among the conditions that must be in place are: a shared vision, access to current technologies, software, and telecommunications networks, educators who are skilled in the use of technology for learning, access to professional development in support of technology use in teaching and learning, technical assistance for maintaining and using the technology. According to this ISTE model, preservice teachers should teach in schools where technology integration is modeled and supported. A national survey reported that while most K–12 classrooms where student teachers were placed had technology available, most student teachers did not routinely use technology during the experience (Moursund & Bielefeldt, 1999). How about when the student teachers are individually equipped with easy access to technology? Are they more likely to use it in the classrooms during their practice teaching? The findings of this study indicate that while the student teachers in the study relied on the laptops heavily for the a variety of activities related to the completion of the BEd program (such as completion of assignments, typing lessons plans, and communicating with advisors), many of them packed away the laptops when they went to the school compounds and/or classrooms. It was found that the attitudes of the schools administrators and teachers were a major determinant of the level of use of the laptops by the preservice teachers during their practicum.

The Study

The 145 preservice teachers in this study were involved in a one-year consecutive BEd program in a small university in northern Ontario. These preservice teachers were in possession of IBM Think Pads, 20 gigabytes hard drive, 120 MB RAM. The laptops were loaded with a wide selection of the Ontario Ministry of education licensed educational software. The one year consecutive BEd program involves a total of 17 weeks. Of this time, 11 weeks are spent in the university taking courses and 8 weeks are spent practice teaching in K-12 schools throughout Ontario. The students were provided with the laptop before the first week of classes and used the laptops during their course work.

The purpose of this study was to investigate the factors that influenced the use of the laptops during the preservice teachers' practicum period. A questionnaire was administered to the preservice teachers towards the end of the program.

Hypotheses

1. There is no difference between the degree of use of laptop during practicum among preservice teachers who experienced high degrees of acceptance of laptop use in their practicum schools and those who experienced low degrees of acceptance of laptop use.
2. There is no difference between the degree of use of laptop during practicum among preservice teachers who reported high degrees of recognition of the value of IT by teachers and administrators of K-12 schools and those who reported low degrees of recognition.

3. There is no difference between the degree of use of laptop during practicum among preservice teachers who reported high degree of interest among teachers and administrators to increase IT knowledge and those who reported low degrees of interest.
4. There is no difference between the degree of use of laptop during practicum among preservice teachers who reported that the schools were well equipped and those who reported that the schools were poorly equipped
5. There is no difference between the degree of acceptance of laptop use among preservice teachers who reported high level of recognition of the value of IT in the schools and those who reported low degrees recognition
6. There is no difference between the degree of acceptance of laptop use among preservice teachers who reported high degree of interest among teachers and administrators to increase IT knowledge in the schools and those who reported low degrees of interest
7. There is no difference between the degree of acceptance use of laptop use in the schools among preservice teachers who reported that the schools were well equipped and those who reported that the schools were poorly equipped
8. There is no difference between the degree use of laptop to deliver lessons during practicum among preservice teachers who reported higher degree of acceptance of use of laptop by teachers and administrators in the schools and those who reported low degrees of acceptance

Significance of the study

For preservice teachers to learn to integrate technology in their teaching they need to have access to technology, they also need to be involved in teacher preparation programs where technology integration is modeled and they need to be involved in student teaching experiences where technology integration is modeled (Duran, 2001; ISTE, 2003; and Thomas, Larson, Clift, & Levin, 1996). There are currently over 150 universities or colleges in North America having laptops or notebooks initiatives (Brown 2003). A number of these initiatives involve teacher preparation programs. Providing preservice teachers with laptops, addresses one of the conditions outlined in the ISTE model, namely access to current technologies, software and telecommunications networks while they take their coursework. To fully satisfy this condition, and to allow the students to teach in schools that model and support technology integration, is important to further match each of these preservice teachers with associate teachers (or master teachers) with equal access to current technologies, software and telecommunications networks, and high level of skills and interest in the use of IT for teaching and learning purposes.

However from a practical standpoint this kind of matching is rarely possible. Most student teachers are eventually placed in a variety of schools some of which were very well equipped and matched this desired level of access while others were on the other end of the continuum with minimal technology equipment. In addition the student teachers find themselves paired with a wide variety of associate teachers. Some associate teachers had high level of IT knowledge,

high level of interest in advancing this knowledge and integrating technology in teaching learning activities, while other associate teachers are on the other end of the continuum in the same respects.

What is going on in the schools, when preservice teachers who are well equipped or who have access to technology during their coursework at the teacher preparation programs go out to these schools and are paired with these teachers? What are the factors that exist in the schools in Ontario and how do these factors influence the use of technology, by the preservice teachers, during the practicum? While a lot of progress has been made towards removing the access barrier, and while research efforts are addressing the need to provide technology-rich placements for preservice students (Wetzel, Zambo, Buss, & Padgett, 2001), it appears that no matter how well the preservice teachers are equipped and prepared for integration of technology the conditions that exist in the schools will still remain a bottleneck when it comes to the preservice teachers ability to attempt to integrate technology. This study highlights these factors and makes corresponding suggestions and recommendations.

Results:

The following table presents the null hypotheses tested, the tests conducted, level of rejection and the research hypotheses accepted.

| Null hypothesis | Test & results | Research hypothesis accepted |
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| <p>1. There is no difference between the degree of use of laptop during practicum among Junior intermediate preservice teachers who experienced high degrees of acceptance of laptop use in their practicum schools and than those who experienced low degrees of acceptance of laptop use.</p> | <p>There were significant differences in using of laptop during practicum, $F(2,140)=5.476, p<.005$. The medium group had a significantly higher mean than the low group and the high group had a significantly higher mean than both the medium and low groups, ($p<.05$) using the Scheffe post hoc multiple comparison.</p> | <p>Junior intermediate preservice teachers who reported high degrees of acceptance of laptop use in their practicum schools used their laptops more often during their practicum than those who reported low degrees of acceptance of laptop use.</p> |
| <p>2. There is no difference between the degree of use of laptop during practicum among Junior intermediate preservice teachers who reported high degrees of recognition of the value of IT by teachers</p> | <p>There were significant differences in using of laptop during practicum, $F(2,140)=5.476, p<.005$. The medium group had a significantly higher mean than the low group and</p> | <p>Junior intermediate preservice teachers who reported high degree of recognition of the value of IT by teachers and administrators in their practicum schools used their laptops</p> |

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| <p>and administrators of K-12 schools and those who reported low degrees of recognition</p> | <p>the high group had a significantly higher mean than both the medium and low groups, ($p < .05$) using the Scheffe post hoc multiple comparison</p> | <p>more often during their practicum than those who reported low degree of recognition of the need of IT.</p> |
| <p>3. There is no difference between the degree of use of laptop during practicum among Junior intermediate preservice teachers who reported high degree of interest among teachers and administrators to increase IT Knowledge and those who reported low degrees of interest</p> | <p>There were significant differences in using of laptop during practicum, $F(2,139)=4.525$, $p < .012$. The high group had a significantly higher mean than the low group ($p < .05$) using the Scheffe post hoc multiple comparison</p> | <p>Junior intermediate preservice teachers who reported high degree of interest among teachers and administrators to increase IT Knowledge used their laptops more often during their practicum than those who reported low level of interest among teachers and administrators to increase IT knowledge.</p> |
| <p>4. There is no difference between the degree of use of laptop during practicum among Junior intermediate preservice</p> | <p>No significance</p> | <p>There is no difference between the degree of use of laptop during practicum among Junior intermediate</p> |

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| <p>teachers who reported that the schools were well equipped and those who reported that the schools were poorly equipped</p> | | <p>preservice teachers who reported that the schools were well equipped and those who reported that the schools were poorly equipped</p> |
| <p>5. There is no difference between the degree of acceptance of laptop use among Junior intermediate preservice teachers who reported high level of recognition of the value of IT in the schools and those who reported low degrees recognition</p> | <p>There were significant differences in level of recognition of the value of IT in the schools, $F(2,137)=7.717$, $p<.001$. The high group had a significantly higher mean than the low group ($p<.05$) using the Scheffe post hoc multiple comparison</p> | <p>Junior intermediate preservice teachers who reported high level of recognition of the value of IT by teachers and administrators in the schools reported higher degree of acceptance of use of laptop than those who reported low level of recognition.</p> |
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| <p>6. There is no difference between the degree of acceptance of laptop use among Junior intermediate preservice</p> | <p>There were significant differences in level of interest among teachers and administrators to increase IT</p> | <p>Junior intermediate preservice teachers who reported high degree of interest among teachers and</p> |

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| <p>teachers who reported high degree of interest among teachers and administrators to increase IT knowledge in the schools and those who reported low degrees of interest</p> | <p>knowledge, $F(2,137)=5.106, p<.007$. The high group had a significantly higher mean than the medium and low groups ($p<.05$) using the Scheffe post hoc multiple comparison</p> | <p>administrators to increase IT knowledge in the schools reported higher degree of acceptance of use of laptop by teachers and administrators than those who reported low degree of interest.</p> |
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| <p>7. There is no difference between the degree of acceptance use of laptop use in the schools among preservice teachers who reported that the schools were well equipped and those who reported that the schools were poorly equipped</p> | <p>No significance</p> | <p>7 There is no difference between the degree of acceptance use of laptop use in the schools among preservice teachers who reported that the schools were well equipped and those who reported that the schools were poorly equipped</p> |

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| <p>8. There is no difference between the degree use of laptop to deliver lessons during practicum among Junior intermediate preservice teachers who reported higher degree of acceptance of use of laptop by teachers and administrators in the schools and those who reported low degrees of acceptance</p> | <p>There were significant differences in use of laptop to deliver lessons, $F(2,135)=4.964$ $p<.008$. The high group had a significantly higher mean than the low group. ($p<.05$) using the Scheffe post hoc multiple comparison</p> | <p>Junior intermediate preservice teachers who reported higher degree of acceptance of use of laptop by teachers and administrators had significantly higher mean on use of laptop to deliver lessons during their practicum than those who reported low degree of acceptance</p> |
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Summary of conclusions

1. Increased level of acceptance of laptop use in the schools is directly related to increased use of laptops during practicum
2. Increased degree of recognition of the value of IT by teachers and administrators in the schools is directly related to increased use of laptops during practicum.
3. Increased degree of interest among teachers and administrators to increase IT Knowledge is directly related to increased use of laptops during practicum

4. Increased level of recognition of the value of IT by teachers and administrators is directly related to increased level of acceptance of use of laptop in the schools
5. Increased level of interest among teachers and administrators to increase IT knowledge is directly related to increased level of acceptance of use of laptop in the schools
6. Increased degree of acceptance of use of laptop by teachers and administrators is directly related to increased level of use of laptop to deliver lessons

Discussions and Recommendations

The findings of this study indicate that if preservice teacher perceive a positive atmosphere towards the use of technology by teachers and administrators, then the preservice teachers are more likely to attempt integrating technology in their teaching activities. In other words the preservice teachers attempted to use their laptops for teaching activities when they perceived that the use was accepted, that the teachers were interested in and recognized the value of IT in teaching learning activities. Interestingly, the level of equipment in the schools was not a factor in the level of use. There was no difference in the level of use of the laptops between those who reported that the schools were well equipped and those who reported that the schools were poorly equipped. Similarly there was no difference in the perceived level of acceptance of laptop use between those who reported that the schools were well equipped and those who reported that the schools were poorly equipped. This implies that whether the school was well or poorly equipped did not influence the

preservice teacher's level of use of laptop or the perceived level of acceptance.

The findings suggest that the greatest determinants of whether or not a preservice teacher attempts to integrate technology during student teaching placement is the attitudes of school communities that the students teachers find themselves in. If the students find a positive, welcoming attitude in the schools they may attempt to use technology regardless of the level of equipment available in the schools. The findings of this study suggest that any successful teacher preparation program will indeed have to start a process of developing a shared vision with cooperating teachers in order to encourage integration of technology by the student teachers.

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