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Graduate Education Student Beliefs

Related to Internet Usage

by

Mark D. Whelan

A Thesis
Submitted to the Faculty of Graduate Studies
and Research through the Faculty of Education in
Partial Fulfillment of the Requirements for the
Degree of Master Of Education at the
University of Windsor

Windsor, Ontario, Canada
1998

Your file Votre reference

Our file Notre reference

0-612-52674-7

Canadä

dedicated to my grandmother,

Francis Irene Kelly Whelan,

by example, she showed all of us the value of integrity

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Graduate Education Student Beliefs

Related to Internet Usage

by Mark D. Whelan

for the degree of Master of Education

Faculty of Education

University of Windsor

1998

Abstract

This study investigated the relationship between
graduate education students' achievement- and value-
related motivational beliefs about Internet usage and
five groups of Internet-related perceptions:

1)   perceived likelihood of using the Internet
      under differential access to Internet
      resources

2)   perceived likelihood of using the Internet
      for different educational purposes

3)   perceived likelihood of using the Internet
      for career needs

4)   perceived likelihood of using the Internet
      for personal needs

5)   perceived Internet self-efficacy.

Achievement-related beliefs were examined within a motivational framework used to describe graduate education students' perceived experience and success of using the Internet. Value-related beliefs were constructed from six measures for which the Internet would be valuable: personal needs, future career goals, your partner, your dependents, your students, and society in general.

The sample consisted of 30 graduate education students enroled in the Master of Education programme at the University of Windsor. A questionnaire administered to students in the graduate programme served as the data collection instrument.

The Internet was found to have high value for educators. Educators perceived the Internet to be most valuable for their dependents and society, and surprisingly least valuable for their students and personal needs.

In general, both achievement- and value-related beliefs were found to be significant predictors of Internet-related perceptions. Although no single predictor appeared to play a larger role over the others in explaining Internet-related perceptions,

nonetheless, a number of patterns that might explain the role of specific predictors on Internet-related perceptions did emerge.

The findings in the study indicated that educators Internet usage was highly personal in terms of both perceived value and how they used the Internet. Yet, increased training in using the Internet with students would likely increase educators' Internet use with students.

ACKNOWLEDGEMENTS

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Introduction

This study expands upon the body of research related to educators' beliefs. Studying educators' beliefs has been a relatively new area of interest for educational researchers, however interest in this field has increased significantly over the past three decades (Fang, 1996; Kellenberger, 1994; Pajares, 1993). Specifically, this study will investigate whether graduate education students' Internet usage is related to their achievement-related beliefs about the Internet and their perceived value of the Internet.

Research related to computer beliefs and attitudes of educators in particular has been well established earlier this decade (Chiou, 1995; Chirwa, 1992; Kellenberger, 1994; Necessary & Parish, 1995; Nichols, 1990; Oliver & Shapiro, 1993). As computers have become an integral part of people's lives, their usage has generated great interest in studying their role for education. Educational researchers have studied computer usage, attitudes, motivation, achievement, self-efficacy, and value as well as their interrelationships in an attempt to provide information

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that would help structure and guide the use of computers in education.

Yet, the study of educators' beliefs related specifically to Internet usage is in its infancy (Brown & Malaney, 1996; Gallo & Horton, 1994; Starr & Milheim, 1996). These studies have largely extended other frameworks that have examined educators' beliefs related to computers by simply including Internet usage. Since Internet usage was generally perceived to closely parallel computer usage (Collis, 1996), comparable approaches were used to study the Internet's role in education.

Nonetheless, Internet usage has become a phenomena and its effect on education has become significant (Collis, 1996; Flake, 1996; Fleischman, 1996; Rosen, 1996; the Landscape, 1996). Yet, very little research had been conducted to investigate why so many people who had low perceived levels of Internet experience were using the Internet, not to mention those individuals who chose to have a career in education (Ertmer, Evenbeck, Cennamo & Lehman, 1994; Olivier & Shapiro, 1993).

Studies that examined educators' Internet usage
have, addressed computer attitudes, levels of use,
demographics, and computer self-efficacy (Brown &
Malaney, 1996; Collis, 1996; Flake, 1996; Labonte,
1996; Starr & Milheim, 1996; Gallo & Horton, 1994).
Although these introductory studies have contributed
beneficial information to educators' beliefs regarding
Internet usage, they appear not to have addressed how
an educator's perceived Internet achievement and value
of the Internet may have affected this usage.

In 1994, Kellenberger studied preservice teacher
beliefs related to their computer use. Kellenberger
(1994) proposed that the value of computers for
preservice teachers' personal and career needs was more
closely related to preservice teachers' perceived
future use of computers and their computer self-
efficacy than perceived former achievement. Moreover,
Kellenberger (1994) suggested that a lower level of
computer experience or a less favourable former
achievement with computers may not have deterred
perceived future computer use when computers were
perceived to be of value for their personal and career
needs.

This study will further this theory by examining Internet usage in particular with the broader sample of graduate education students. In particular, this study will examine Internet usage and its value for those who are undertaking a graduate education programme. The relationship of perceived Internet achievement and value of the Internet to their Internet usage will be explored.

Literature Review

Educational Beliefs

Chiou (1995) wrote that "education is a belief-based enterprise" (p. 48) and that many educational debates were debates that concerned personal beliefs and belief structures. Beliefs in education can be both individual and collective. Individual beliefs become collective when research formulates more general belief structures based on the summations and conclusions drawn from individual beliefs. These collective beliefs can then form overall attitudes (Grantham & Vaske, 1985).

The value of understanding educators' beliefs has ultimately helped educators improve student outcomes. Studies have suggested that beliefs are the best predictors of individual behaviour (Bandura, 1986; Nisbett & Ross, 1980; Rokeach, 1968) but are resistant to change. Identifying educators' beliefs and using this information to implement educational strategies aimed at improving student achievement could result in implementations that are more effective than those that do not consider educators' beliefs.

The underlying objective for all educational initiatives is to improve student achievement and learning (Berson, 1996; Doucette, 1994; Wang & Sleeman, 1993). When educators' beliefs were understood collectively, greater success in improving student achievement resulted when these beliefs were incorporated into the implementation of educational strategies.

Pajares (1993) and Fang (1996) emphasized the importance of educators' beliefs. They identified the need to further study these beliefs and to consider them when educational decisions were made and implemented. Regardless of whether the beliefs favoured educational strategies, the importance of understanding the beliefs could be paramount to improving student achievement. More specifically, Nichols (1990) identified beliefs about educational technology in particular but cautioned educators about the findings. Nichols (1990) demonstrated the need to examine beliefs about educational technology but, at the same time, to examine these beliefs so that attempts to implement technology into classrooms are adjusted according to the belief of the individual.

Temporally, Collis (1996) referred to the implementation of computers in education as the first wave of technology integration into schools and the Internet as the second wave. Collis' (1996) comparison of the implementation of these two technological innovations provided educators with the fundamental knowledge of the value in studying the Internet usage of educators. This knowledge could be used as a stepping stone for implementing the Internet into classrooms taking into account educators' Internet and computer beliefs. Ultimately the educational value of the Internet would be its value in classrooms for teachers and students (Bull, Sigmon, Aulino, & Morgan, 1996; Topp & Grandgenett, 1996; Weiss, 1996). Reviewing and understanding the past implementation of computers in education could provide substantial knowledge to aid in successfully implementing the Internet for classroom applications. However, the age of the Internet is different in at least two ways from the age of the personal computer wave that took place previously.

First, when the Internet began to be implemented in education many more computer literate educators

existed than when personal computers were first brought into the schools. Furthermore, educators' attained computer literacy levels were significantly greater (Collis, 1996). Both teachers and educational administrators were much more aware of technology's presence, needs, and potential (Barker, 1994; Fleischman, 1996; Siegel, 1995). In addition, the Internet required greater investment in networks, increased hardware requirements, more stringent policing, increased external connectivity, broader expertise in technical support, and greater planning to coordinate the required internal and external connectivity (Bull, Sigmon, Aulino, & Morgan, 1996; Topp & Grandgenett, 1996).

Second, the educational era of the Internet is different than that of the personal computer. Educational reform was in the forefront of the educational agenda (Massy & Zemsky, 1996; Mehlinger, 1996; Shipley, 1994; Wickstrom, 1995) when the Internet started to become used more often in education. Budget reductions, staff layoffs, and technological changes created a much more competitive environment in education than had existed when the first wave took

place. Although these factors may not have had any effect on educators' beliefs about the Internet, these circumstances must be recognized when working towards establishing collective educators' beliefs about the Internet.

Technology and the Internet

A technological revolution in higher education was described by Barker (1994) to provide educational administrators with the knowledge required to succeed in the information age. The importance of computing power, the information superhighway, computer-mediated communications, electronic publishing, intelligent tutoring systems, groupware, multimedia, intelligent agents, videoconferencing, video-on-demand and virtual reality for education became significant. Barker (1994) emphasized the importance of being aware of these technologies and planning for their implementation. Barker (1994) wrote that those institutions that utilized these technologies would have a competitive edge over those that did not. Moreover, Barker (1994) suggested that institutions

that did not utilize these technologies would become extinct.

Barker's (1994) work pinpointed how important technology has become for education. Numerous journal articles, documented research findings, and countless published records discussed and debated the merits, shortcomings, and future of technology for education. Studies that dealt with teaching, learning, providing, implementing, and evaluating technology could be found at a moments notice (Doucette, 1994, Massy & Zemsky, 1996; Weiss 1996). Despite this, to a large extent, a great deal of uncertainty existed as to specifically how technology would permanently change education and how technology would be most effectively implemented in educational systems.

The latest technological advancement that pervaded educators' concerns was the Internet. Within the past three years, Internet usage has increased dramatically (Barker, 1994; Bull, Sigmon, Aulino, & Morgan, 1996; Collis, 1996; Flake, 1996; Fleischman, 1996; Gallo & Horton, 1994; Rosen, 1996; Starr & Milheim, 1996; the Landscape, 1996; Topp & Grandgenett, 1996). The Internet quickly changed from being a communication

link used occasionally by highly computer literate individuals to a standard tool used or desired to be used by even the least experienced computer users. Internet usage has become a phenomena and its effect on education significant. Although educators did not yet know exactly how the Internet would be incorporated into classroom routines, it was understood that this would happen in the near future.

Numerous studies have examined motivations, attitudes, anxiety and behaviours that affected computer usage in general by those involved with education (Chirwa, 1992; Grantham & Vaske, 1985; Kellenberger, 1994; Necessary & Parish, 1995; Waxman & Huang, 1996). These studies sought to identify predictors that determined and/or contributed to student and educator use of computers. Kellenberger (1994) investigated the computer-related beliefs of preservice teachers. This present thesis study sought to further Kellenberger's study (1994) by examining Internet usage in particular with the broader sample of graduate education students.

Graduate Education Students

The relevance in studying the Internet usage of
full and part-time graduate education students in this
study lies in recognizing their potential contribution
to the educational field. Those who have decided to
seek a Master's Degree in Education are educators who
are seriously interested in educational careers and are
very likely to make considerable contributions to the
field of education. These students have achieved
academic qualifications that exceed average levels
which reflects their motivation levels and capacities
to learn. The Landscape (1996), and Barker (1994)
recognized the importance that technology and the
Internet would have on higher education. Graduate
education students' understanding of these changes and
applications could be significantly notable in light of
their specializations in understanding not only higher
level education, but also educators' concerns for
technological applications to education in general.
These students are associated with post-secondary, high
school and grade school classroom environments which
provide them with knowledge that could provide a
critical understanding to help comprehend the

requirements for implementing the Internet into
schools. Their judgements, evaluations, and criticisms
of educational Internet usage could provide very
beneficial and relevant information to those who would
be concerned about implementing the Internet into their
schools in the future.

Internet Studies

The Internet's role in education has just begun to
be studied. In 1993, Honey and Henriquez conducted a
study that examined educators' use of the Internet.
Eighteen respondents answered questions over the
Internet or by the phone. In addition to demographic
data, participants were asked questions that addressed
their experiences and attitudes about the Internet.
The average amount of experience using technology in
the classroom was 9.5 years. Overall, this sample was
comprised of a very technologically experienced group
of educators. The study's findings did not include any
statistical analysis of Internet attitudes and did not
examine possible relationships between them and
Internet experiences. Moreover, the study did not
address the personal or career needs of the educators

and how these might affect their Internet usage. The
study did however, generate useful information to aid
in implementing the Internet into classrooms by using a
sample of people with a very high level of experience
using technology in the classroom. The study found
that the amount of help, training, and time applied to
Internet usage affected teachers' attitudes towards the
usefulness of the Internet for educational purposes.
Online training resources not only aided teachers in
using and applying the Internet in their classrooms,
but help references from other teachers, technology
specialists, and library/media directors were notably
helpful as well. In the study, access to the Internet
included sufficient hardware in each classroom
(appropriate number of Internet-ready computers),
individual Internet accounts for each teacher, and
proper Internet services to each classroom. Teachers
felt that it was imperative to have these access
components if they were going to be successful in
bringing the Internet into their classrooms. The
researchers also suggested that improving the
Internet's ease of use by providing courses, graphical
interfaces that guided educators to relevant Internet

resources, and well as making designed, substantial, relevant resources available.

Gallo and Horton (1994) conducted a study that examined how direct and unrestricted access affected high school teachers' use of the Internet. This study identified problems that teachers encountered using the Internet, how the Internet affected their computer attitudes, and the needed guidance for bringing the Internet into their classrooms. This study has been referenced by a number of other researchers and writers who contributed to the knowledge base of using the Internet for education (Labonte, 1996; Starr & Milheim, 1996). Of the references cited, Gallo and Horton's work stood alone as the comprehensive piece of empirical research that addressed educational usage of the Internet. Indeed few studies exist that examine Internet for education to the degree of detail of Gallo and Horton's work.

Although Gallo and Horton's (1994) study contributed detailed information about educators beliefs and usage of the Internet, its value in generalizing the results is quite limited. The study identified several teacher needs to encourage Internet

usage: ongoing computer training, providing reference material, Internet training that included the language of the Internet, sufficient hardware and software resources, reliable Internet access, technical support, home Internet access, liberal access hours to school resources, reduced before and after school duties, allowing teachers to experiment with curricula and assessment using the Internet, increased funding to maintain and install Internet connections and support, equitable Internet access to all teachers, and training to assist teachers in becoming facilitators versus lecturers. Gallo and Horton (1994) also acknowledged the problems in generalizing their study: the small sample size, potential sample bias, and interview bias. Yet their findings provided incentive for other researchers to continue studying the Internet for education. The shortcomings of their study clearly pointed out the need for further research efforts that examined educational Internet usage.

Starr and Milheim (1996) administered sixteen questions that gathered data from those who used the Internet for educational purposes. One hundred and forty-seven surveys were gathered from educational

Internet users. All of the respondents were experienced users and were selected from participants of Internet newsgroups. Fifty percent of the respondents replied that they had two or less years of Internet experience. Moreover, strategies for learning the Internet included personal experiences, friends/colleagues, journals/books, classes, and conferences. Major advantages of Internet usage included electronic mail, current information, convenience, low cost, amount of information, and software access while major disadvantages included slow response, a large amount of information, lack of standardization, a large number of users, difficulty of use, and high cost. Although the study did not investigate any relationships that may have existed between Internet usage and possible predictors of Internet use, it did provide empirical evidence that outlined the more common uses of the Internet for educators: electronic mail, world wide web, listservs, newsgroups, FTP, and telnet. Current and future educational uses of the Internet included personal research, work with colleagues, library access, class demonstrations, preparation of class materials, and

student research.   The study found that the majority of
the respondents felt that the Internet would have a
positive impact on education.

Internet, listserv, and electronic mail usage by
educators was studied in 1996 by Brown and Malaney.
This survey identified educational administrators'
levels of usage and attitudes towards the Internet,
email and listservs.   Three hundred and eighty-nine
responses from student affairs professionals were
tabulated for this study.   The survey was concerned
mostly with Email.   Based on a scale of one to five,
their comfort level was rated at a mean of 3.55, their
interest in learning more about Email was 4.32, and
Email's usefulness to their professional
responsibilities had a mean of 3.71.   Level of usage
was correlated positively with a perceived usefulness
to professional responsibilities (Kendall's Tau B =
.544, p = .0000).   Most significantly, females were
more interested in learning more about Email than were
males (Kendall's Tau B = .169, p = .0071).   This study
demonstrated a need to further study correlations
between predictors of Internet use and actual Internet
use.   Concerns directed specifically at Email usage are

noteworthy, however overall Internet usage must be examined to provide useful information for all aspects of educational Internet usage.

Labonte (1996) conducted a survey of 120 Internet experienced educators from seven different countries. Labonte's (1996) survey identified an introduction to the value of the Internet for teachers and their students. Questions asked covered topics such as empowering students, group work encouragement, facilitating global learning, and motivating students through access. The findings substantiated Honey and Henriquez's (1993) findings that teachers were interested in receiving more Internet training, that the Internet was being used for classroom activities, that most respondents had Internet access at home, and that the Internet was just starting to be used by teachers in the classroom. Moreover, the study pinpointed the concern that educators had for implementing the Internet into their classrooms and identified both teacher and student concerns for accomplishing effective implementation. Respondents felt that stronger direction, guidance, and more experience would be required before they understood how

successful Internet integration into schools would be achieved. Although, this study did not address educators' perceived achievement or value of the Internet, Labonte (1996) wrote that this was a concern and encouraged the notion to study Internet usage from this perspective.

Greenman (1997) conducted an examination of the impact of the Internet on education. A panel of ten educators was asked to assess the Internet in five major respects: 1) the pace of wiring America's schools; 2) the pace of training America's teachers; 3) the general effect on student performance; 4) the specific effect on student performance in individual subjects; and 5) the overall effect on student performance. The findings concluded that not enough schools were wired. Moreover, concerns were voiced that inequities attributed to socioeconomic status, race, and location should not bear influence on decisions as to which schools should become Internet viable. It addition teacher training in using the Internet was found to be seriously lacking. An inherent reluctance of teachers to learn new technologies was cited as a problem.

The panellists felt that measuring student
performance when using the Internet was difficult as
well. They suggested that quality of instruction
should be included into the judgement process.
Although the people on the panel felt that student
interest improved academic participation, they did not
feel that increases in academic performance could be
attributed to student Internet usage in all cases.
Yet, individual subjects, specifically math and English
literacy, were considered to have improved with
Internet usage when incorporated into classroom
situations. Overall, they felt that the Internet had
great potential for education but was not yet being
utilized or realized by educators. This survey
identified the influence and potential value that the
Internet had for education, as well as cautions that
educators felt existed in using the Internet for
education. The responses provided by the panel
indicated the need to further study educational
Internet usage in an attempt to provide data that would
aid in implementing the Internet into education in ways
that would result in its potential application in
education.

Yet, none of these studies considered an educators' perceived Internet achievement and whether this may have affected their Internet usage despite findings in all of the studies that the educators wanted more Internet training if they were to bring the Internet into their classrooms. Moreover, none of these studies examined the value that the Internet may have had for teachers from the perspective of their personal and career needs to an extent that any substantial number of statistically significant measures were identified. Furthermore, none of these studies attempted to develop or apply a conceptual framework to educational usage of the Internet.

Kellenberger's (1994) study examined preservice teachers perceived former level of achievement and self-efficacy with computers. This study investigated whether preservice teachers' motivations were related to their perceived former achievement and computer self-efficacy. Using Kellers' and Kopps'(Keller, 1983; 1984; 1987; Keller & Kopp, 1987) value constructs, Kellenberger (1994) found that the preservice teachers' value for their personal and career needs was more closely related to their perceived use and self-

efficacy of computers than their perceived former achievement with computers. Moreover, Kellenberger (1994) suggested that a lower level of computer experience or less favourable former achievement with computers may not deter computer use when computers were perceived to be of value for their personal and career needs.

This present study expands Kellenberger's work by studying educators' perceived Internet self-efficacy, achievement and value beliefs within a motivational framework. The relationship of perceived Internet achievement and value of the Internet will be compared to their Internet usage.

Kellenberger's Study

Kellenberger's (1994) study sought to examine preservice teachers' beliefs about computers by addressing three components that Kellenberger felt were missing in other preservice teacher computer belief studies. The study attempted to form a conceptual framework for preservice teachers' computer beliefs, examine preservice teachers' perceptions that were closely related to their future use of computers with

their own students, and investigate possible reasons to explain how computer-related perceptions may have developed (Kellenberger, 1996).

Kellenberger's (1994, 1996) study investigated the relationship between preservice teachers' achievement and value-related motivational beliefs about computers and four groups of teaching-related perceptions. In previous studies (Kellenberger, 1990; Kellenberger & Kuendiger, 1993; Kuendiger, 1990; Kuendiger, Gaulin, & Kellenberger, 1992, 1993; Kuendiger, Schmidt, & Kellenberger, 1997) achievement-related beliefs were studied within a motivational framework called "learning history". Learning history was used to describe preservice teachers' perceived former achievement combined with the causal attributions used to explain their achievement. Kellenberger (1994) included a preservice teacher's perceived success of computer experiences as an aspect of learning history to compensate for the situation where a preservice teacher may not have obtained any computer experience through formal computer course work.

For this present study, the motivational construct used by Kellenberger (1994) was applied to Internet

applications. The two motivational belief components of achievement and value were substantiated through an examination of attribution theories of motivation and value related concerns that were deemed relevant for examining Internet usage by educators.

Attribution Theories of Motivation

Weiner (1972) outlined an attribution theory that incorporated achievement motivation. Weiner's work in motivation theory was goal driven to "1) develop a theory that was better than others to explain (account for, predict) behaviour in achievement related contexts and 2) to provide a theory that more readily extended to other motivational domains than other conceptions of achievement strivings" (Weiner, p. 159, 1986). Weiner felt that this cognitive approach towards explaining achievement motivation satisfied these objectives.

Attribution theories of motivation are underlaid by an assumption that humans are motivated to attain a causal picture of the world (Weiner, 1980). Human beings want to know why an event had occurred and the attributional models of motivation theory inherently

address this premise when explaining or predicting behaviours.

There are many types of attribution theories and theorists, however, common threads and problems bound attribution theory together. Attribution theory is based on the premise that causes of behaviours are perceived, that is, causes are not directly observed. It is understood that the perceiver identifies causes to provide more meaning to the environment (Hume, 1739; Weiner, 1980).

Heider was considered to be the founder of attribution theory (Weiner, 1972). Heider (1958) felt that behaviour (B) was a function of the person (P) and the environment (E). This Heiderian equation to explain behaviour (B = f(P,E)) was based on an individual's perceived cause of behaviour, not the actual and observed cause of behaviour. Examples of factors of the person could be effort, ability, amount of time spent studying or fatigue. Examples of factors of the environment could be the difficulty level of a task, weather conditions, grading policies or time periods. These perceived causes were forms of appraisal of the causes of behaviours.

The attribution model of action developed out of Heider's work, combined two schools of thought that addressed affective expression and expectancy of success. Resultant behaviours were attributed to the perceived affect and goal expectancy of the perceived cognition. That is, an individual evaluated a situation based on their perceptions of the value of its outcome. Their behaviourial response was determined by the combination of their affective anticipations and expectancy of success. If an individual perceived a situation to have the potential of offering beneficial outcomes, then the individual would apply their effort to achieve the outcome.

Weiner's model incorporated and expanded Heiders' work seeking to establish the reasons that caused an individual to succeed or fail. Weiner (1972) wrote that ability (power), effort, task difficulty, and luck were the four perceived causes of success and failure for achievement tasks. The three stage model suggested that attributions partially determined several aspects: success or failure, achievement-related effects of succeeding or failing, and future expectancies of success or failure for this or similar tasks. The

model suggested that an individual's success was determined by the perceived requirements necessary in order to succeed. The individual was motivated to succeed based on their perceived value for being successful and the punishment for failing.

Ability (power), effort, task difficulty, and luck could be classified within two causal dimensions: locus of control and stability. The locus of control dimension classified the variable according to whether or not control was an internal or external variable. The stability dimension addressed whether or not the variable in question changes for a person. Each of the four aforementioned variables were categorized under each of the two dimensions.

These variables were applied to an individual's behaviour when predicting the future action necessary in order to succeed. If an individual perceived that the likelihood of succeeding at a task at hand depended upon the amount of luck involved versus the individual's ability, the individual may not attempt the task or may compensate in some way to work towards succeeding. For example, perhaps the individual would attempt the task at a time perceived to be more

favourable. On the other hand, if an individual perceived that the likelihood of succeeding at a task at hand depended upon the individual's ability, and the individual had succeeded in the past with this type of task, the individual would likely attempt the task and expect to be successful.

Kellenberger's (1994) attempt to develop a conceptual model to understand the computer use of preservice teachers used attribution theories of motivation to formulate the motivation framework for the computer use model. Weiner (1990) addressed the current issues of motivation in education and noted the history of the development of motivation in education. Causal attributions, self-efficacy, the need for achievement, locus of control, anxiety about failure, and learned helplessness were recognized and described as topics that were used to examine and understand motivation in education (Ashton, 1984; Klein & Keller, 1990; Weiner, 1994; Wilhite, 1990). These factors were applied by motivational theorists and researchers providing the direction for motivational research in education. Kellenberger tested the appropriateness of these constructs for explaining computer use with the

results calling for more research in this area to further substantiate the study's findings.

Value-Related Beliefs

Kellenberger (1994, 1996) examined value-related beliefs within a framework that was similar to the relevancy category of Keller's motivational model which was developed for computer instruction design (Keller, 1983; 1984; 1987; Keller & Kopp, 1987). For this study this value construct was modified to study Internet usage. Keller's relevancy for the value motive consisted of personal, instrumental, and cultural subconditions. Kellenberger's study (1994; 1996) investigated the values of computers in relation to preservice teachers':

1) own personal needs (personal value)

2) future career goals (instrumental value)

3) spouse, if applicable (cultural value)

4) children, if applicable (cultural value)

5) future students, if applicable (cultural value)

6) society in general (cultural value).

The subcondition personal value concerned an individual's importance in satisfying their own needs. Instrumental value concerned the importance of task as it related to the accomplishment of a particular goal. Keller's third subcondition, cultural value, addressed a task's importance as judged by an individual's family, peers, or society. It was believed that an individual's motivation to complete a task was enhanced when the task was perceived to have value for one of these three subconditions.

Weiner (1990) noted two future concerns that should be examined for motivational studies in the future. These concerns supported Keller's and Kopp's (Keller, 1983; 1984; 1987; Keller & Kopp, 1987) perspective that their value construct could play a significant role in motivation. The first concern was that motivational investigations were not linked with the learning that takes place. Weiner (1990) wrote that there were many variables that affected motivation including self-esteem and affective experience among others. It was felt that these concerns should be addressed in motivational research. Second, it was recognized that a need existed to study motivation from

the perspective that motivation was work related.
Weiner emphasized the importance of studying motivation
within the contexts of social values and the goals of
the culture (Weiner, 1994). Weiner (1994) felt that it
was imperative that motivational studies take place
with respect to the social fabric that existed in the
situations to be studied. This study recognizes these
concerns by applying Kellers' and Kopp's value
constructs that were used by Kellenberger.

Kellenberger's (1994) study offered some insight
in examining how educators' self beliefs may affect
their motivation to learn and apply new technologies in
their classrooms. As educational reforms brought
reduced funding and increased competitiveness to
education (Barker, 1994; Mehlinger, 1996; Shipley,
1994), individuals were pressured to perform in their
work in such ways that they felt would aid in providing
more job security for themselves. Siegel (1995)
reported that only eight per cent of technology's
budgets were spent on staff development for educators
according to Electronic Learning's technology staff
development survey conducted in February 1995.
Harrington-Lueker (1996) outlined educators' concerns

that addressed their fears of the restricted opportunities faced by educators in their efforts to train teachers in new technologies. Examining educators' self beliefs and motivations when limited financial resources for technological training were in effect may shed light on the motivational potential within educators that could be utilized to help in implementing new technologies into classrooms.

Kellenberger's (1994) study identified the need to research educators' motivations and needs that were related to computer attitudes and achievement. This information could help in understanding preservice teachers' beliefs and their future actions in their classrooms. This study furthers this perspective by recognizing the value that this area of research could have for implementing new technologies into classrooms more effectively. Shedding light on educators' motivations and beliefs about Internet technology could provide educational administrators with information that could help them in understanding teachers' actions and thus account for them when the Internet is implemented in their schools.

Self-efficacy and Computers

Bandura (1977) introduced self-efficacy theory.
Self-efficacy deals with an individual's perception of
self-capability. To achieve an end an individual has
to perform actions. Self-efficacy is the judgement
that an individual places on their own ability to
perform the necessary actions required to achieve the
end (Bandura, 1986). In other words, self-efficacy is
a perceived evaluation of an individual's ability by
the individual.

Oliver and Shapiro (1993) wrote that self-efficacy
theory provided a useful framework for understanding
educators' behaviours related to microcomputer use in
education. As microcomputer technology became a more
important aspect for education, more interest was
generated in examining educators' motivations to learn
and understand the technology so that it could be
brought into the classroom. Self-efficacy theory and
computers became a field of study due to its relevance
for learning new computer technologies with an
important emphasis placed on individual effort.

An individual's personal efficacy expectations
were based on four sources of information: performance

accomplishments, vicarious experiences, verbal

persuasion, and emotional arousal (Bandura, 1977).

Each of these expectations could increase or decrease

an individual's level of self-efficacy. Vicarious

experiences, verbal persuasion, and emotional arousal

could, and most likely did, affect an individual's

perceived level of self-efficacy, but not to the degree

that performance accomplishments increased the

individual's perception. These three expectations were

external factors and Bandura (1977) felt that they did

not affect self-efficacy to the degree that performance

accomplishments affected an individual's level of self-

efficacy.

The greater an individual's self-efficacy was, the

more likely the person would attempt and succeed with

the tasks at hand. The more a person succeeded at a

particular performance task, the greater their level of

self-efficacy became. As their self-efficacy increased

occasional failures would not affect their perceived

level of self-efficacy. Eventually their self-efficacy

would become part of their repertoire of skills.

Evidence exists that this theory could have value

for implementing new computer technologies effectively

for educators. Self-efficacy theory was shown to have been an excellent predictor of behaviour (Ertmer, Evenbeck, Cennamo, & Lehman, 1994; Oliver & Shapiro, 1993). An individual who was going to learn new technologies for education could be given an efficacy test so that any necessary adjustments could be made to provide a situation that held a greater potential for the individual to succeed with the task at hand. Researchers felt that an increased level of self-efficacy for a particular task would increase the likelihood of success (Ertmer, Evenbeck, Cennamo, & Lehman, 1994; Oliver & Shapiro, 1993). If variables could be identified that would increase the self-efficacy, greater chances for success would exist. With computer technologies becoming a strong force in education, learning the new technologies was critical for educators. Making this easier in any way could be beneficial to implementing changing computer technologies into schools.

Yet, research in computer self-efficacy and specifically Internet self-efficacy is minimal. In 1994, Ertmer, Evenbeck, Cennamo, and Lehman conducted a study that measured students' pretest and posttest

levels of self-efficacy for wordprocessing and Email.
The study found that the quality and not necessarily
the quantity of time spent on the computer tasks
increased a student's computer self-efficacy. The
positive classroom environment that was created (early
successful experiences and positive attributional
feedback) combined with required time-on-task,
increased students' computer self-efficacy for
wordprocessing and Email. This study supported the
value that self-efficacy could have for motivating
educators to learn about computers. Performance
accomplishments demonstrated the effect they could have
on an individual's computer self-efficacy. The quality
of exposure to computers was identified as being more
important to a student's success with computers which
reflected a student perception that their self-efficacy
was improving when performance accomplishments were
realized.

Yet, there were several concerns regarding this
study's suitability to apply its findings to Internet
usage for educators: the sample size was small, the
groups were not equivalent, and the subjects were
physical education majors. Research that addressed

these shortcomings and furthered investigations into
examining the value of educational practices that
empowered an educator with the confidence to learn was
required.

Jorde-Bloom (1988) found that other factors such
as aptitude, gender, personal characteristics,
organizational components, and environmental conditions
served as strong motivators for computer behaviours.
This study examined how early childhood administrators'
self-efficacy expectations affected computer use.
Jorde-Bloom (1988) concluded that self-efficacy
expectations were strong indicators of computer
behaviour, but they were not the only indicators.
Other factors also played significant roles in
determining and predicting computer behaviour. These
conclusions tended to point out the importance of self-
efficacy in predicting computer behaviours as well as
cautioning that other factors could not be ignored.
Improving self-efficacy could improve and encourage
computer success, but this could be different for
different people. Research that examined these
concerns was required to work towards developing

motivational tools that could work positively for many individuals.

The promise that self-efficacy holds for implementing new computer technologies is significant. If pre-learning computer self-efficacy tests were administered to prospective learners, necessary adjustments could be made for those learners who may need improved success rates in order to learn new computer technologies. Adjustments on an individual's part to compensate for their perceived lack of computer self-efficacy or achievement may simply mean that they spend more time learning the technology, increase their convenience level (i.e., purchase a computer for their home), seek expert advice or training, purchase books and/or training materials that they feel are suitable and adequate for their individual purposes, and apply their efforts more or less diligently dependent upon their own situational requirements. Research that took into question and accounted for computer self-efficacy could contribute to the small amount of research that has been done so far in this field, furthering its application and usefulness for microcomputer training and learning.

As information technology and the Internet
developed and played larger roles in education
(Richardson, 1995; Sanchez, 1995; Ubois, 1995),
educators were compelled to learn the new technologies
required to implement these technologies into the
classroom. Flake, Kuhs, Donnelly and Ebert (1995)
discussed the new role of teachers as researchers that
the University of South Carolina recognized. The goal
of their Master of Arts in Teaching programs was to
ensure that each teacher intern recognize that theory,
research, and practice were dynamically interrelated
and interdependent. The program helped teacher interns
develop the skills required to become researchers and
independent learners. Teacher educators felt that a
teacher's new professional role required teachers to be
self-taught learners who would be able to identify
learning needs through research and then teach their
findings to their students. Improving the quality of
education would be achieved in spite of educational
reforms due to the fact that the teachers themselves
had the ability to obtain, learn, and apply current
material that would be needed in classrooms. This
component of the program emphasized the importance in

understanding educators' motivations, self-efficacy, and confidence in learning by demonstrating its relevance for an educator who was working during times of educational reform. Similarly, Zimmerman, Bandura, and Martinez-Pons (1992) outlined a social cognitive theory of academic self-motivation in a study that examined student achievement, self-efficacy and personal goal setting for students. This study demonstrated the value of self-efficacy in learning and how it could be important for educators.

Conceptual Framework Of Internet Perceptions

Kellenberger (1994) investigated four groups of teaching perceptions. Here, differences in preservice teachers' teaching-related perceptions were related back to differences in either the achievement or value motivational frameworks that were developed. Kellenberger (1994) found that the relationship between the value of computers for preservice teachers themselves and teaching-related perceptions was stronger than between achievement-related beliefs and teaching-related perceptions.

This study will expand upon this by examining whether differences in educators' Internet perceptions can be related back to differences in the achievement-related or value-related motivational frameworks.

Five groups of Internet-related perceptions were investigated:

1) perceived likelihood to use the Internet under differential access to Internet resources.

2) perceived likelihood to use the Internet for different educational purposes.

3)   perceived likelihood to use the Internet for
      career uses.

4)   perceived likelihood to use the Internet for
      personal uses.

5)   perceived Internet self-efficacy.

Differential Access to Internet Resources

Educational Internet studies addressed educators'
concerns towards having access to suitable hardware and
software resources to use the Internet. Labonte's
(1996) study included questions that asked: "Did you
have Internet access at home?", "Did you have adequate
access to hardware/software?", and "Was your access at
school limited to Email?". Starr & Milheim (1996)
asked: "What were the major disadvantages of the
Internet for you?" and, "How were you connected to the
Internet in your work setting?", providing the
respondent with the opportunity to discuss insufficient
availability of Internet resources. Gallo and Horton's
(1994) findings drew them to conclude that teachers'
Internet workstations must be configured with
sufficient memory, disk space, and processor speed.
They further concluded that a need existed for a

suitable local network environment, full-time network support, home Internet access, and sufficient Internet access times. These studies emphasized the concerns and needs required to successfully integrate Internet into educational situations.

Thus, educators' motivations to use the Internet could depend upon the ease of availability and suitability of computer (hardware/software) resources required to access the Internet (Honey & Henriquez, 1993; Gallo & Horton, 1994; Starr & Milheim, 1996). Restricted Internet access, insufficient computer resources, and/or insufficient technical support could reduce educators' motivations to learn Internet technologies and implement these technologies into classrooms.

Research question.

The research question addressed here is:

1. Are differences in educators' achievement- or value-related motivational frameworks related to differences in their perceived likelihood to use the Internet on a regular basis under differential access to hardware, software, and internet-knowledgable individuals?

Expected results.

The availability of suitable resources would, to some degree, determine an educator's effort to apply these resources to classrooms. Keller's (1983) and Kloosterman's (1990) motivational frameworks suggest that educators with either a less favourable Internet learning history or a lower perceived set of Internet values are expected to report a lower perceived likelihood of using the Internet when resources are limited than those with a more favourable learning history or a higher set of Internet values.

Internet use for Different Educational Purposes

There are many different educational uses for the Internet. Direct Internet applications for students in classrooms was considered to be the most common use, but educational Internet studies demonstrated that educators were using the Internet for many different purposes (Brown & Malaney, 1996; Gallo & Horton, 1994; Honey & Henriquez, 1993; Labonte, 1996; Starr & Milheim, 1996). Types of Internet use available to educators include educational research, Email, World Wide Web, newsgroups, discussion lists, working with

colleagues, library access, course work, chat groups,
file transfers, hobbies, and personal interests. The
availability of this wide range of uses for the
Internet provides a user with the opportunity to find a
use that would satisfy a need. Almost anyone would
have a need for at least one of these uses. The
motivations behind an educator's need to use the
Internet despite their perceived level of Internet
achievement must be examined in this study.

Research question.

The research question addressed here is:

2. Are differences in educators' achievement- or value-
related motivational frameworks related to differences
in their perceived likelihood to use the Internet for
different educational uses on a regular basis?

Expected results.

Results from Kellenberger (1994) suggest that
educators with less favourable perceived computer
achievement may not have been deterred from using
computers when computers were perceived to have value
for their personal or career needs. This may explain

why Gallo and Horton's (1994) study found that Internet
users who had low levels of computer experience and
less Internet experience were still very interested in
using the Internet and not intimidated to participate
in a study that evaluated Internet use. Therefore, it
is expected that educators will be using the Internet
regardless of their perceived level of Internet
achievement as long as they perceive the Internet to
have value for them.

Career Use of the Internet

     Gallo and Horton (1994), Starr and Milheim (1996),
and Labonte (1996) investigated how educators were
using the Internet for educational purposes. Each
study generated information that addressed an
individual's level of Internet experience, which parts
of the Internet were used, for what type of educational
purposes the Internet was used, methods to improve
Internet usage for educators, and the value that the
Internet had for educators. These studies exemplified
the perceived importance that the Internet may have for
educators' careers. All of the respondents in these
studies were either using the Internet in educational

arenas or were interested in doing so in the near future. The studies found that the Internet was being used by educators to satisfy current career demands (i.e., Email) and to incorporate its use into their profession with the expectation that the Internet was going to become part of their daily work schedules in educational contexts, not just for administrative contexts.

Keller's (1983) motivation theory postulated that individuals would be motivated to perform tasks if the task was perceived to be of value for their career goals. The aforementioned studies clearly exhibited educators' desires to learn new technologies and incorporate them into their skill sets for their applied work efforts (Gallo & Horton, 1994; Starr & Milheim, 1996; Labonte, 1996). The reasons they were motivated to do so was not clearly addressed. Yet, there was an underlying assumption and/or understanding that a desire to achieve career success was an inherent motivator to achieve Internet skills, but empirical evidence to support this notion was not presented in these studies.

Research question.

The research question addressed here is:

3. Are differences in educators' achievement- or value-related motivational frameworks related to differences in their perceived likelihood to use the Internet for their career needs?

Expected results.

From Kellenberger's (1994) results, the computer learning history of preservice teachers was less strongly related to computer use than the perceived value for career needs. Brown and Malaney (1996) found that although educational Email users felt they lacked Email knowledge, they still, however, used Email. Email was used for communicating professionally and considered necessary for many who were using Email. Therefore, it is expected that the Internet will be used by educators when they perceive the Internet to have value for their career and personal needs. It is felt that their perceived success or experience level in using the Internet will not deter their career use of the Internet.

Personal Use of the Internet

Internet studies that investigated educational use of the Internet (Gallo & Horton, 1994; Starr & Milheim, 1996) illustrated the personal interest that educators had for the Internet. Gallo and Horton (1994) reported that one respondent stated that "The Internet has really been a lot of fun and extremely personal". Another respondent stated that factors which influenced their decision to use the Internet were "fascination" and "curiosity". A number of these Internet users who had little or no Internet experiences still used the Internet without many reservations. Nonetheless, they were motivated to use the Internet for their personal lives and freely discussed this with the researchers.

The importance to examine the motivations behind this usage in this study would help to identify predictors of Internet usage and any possible relationships that may exist between Internet usage and achievement or value. Identifying these factors could aid in implementing the Internet into classrooms by recognizing important beliefs that educators have and utilizing these beliefs to encourage broadening Internet usage to include classroom usage.

Research question.

The research question addressed here is:

4. Are differences in educators' achievement- or value-related motivational frameworks related to differences in their perceived likelihood to use the Internet for their personal needs?

Expected results.

Consistency with Kellenberger's (1994) findings that preservice teachers' degree of computer achievement did not deter them from using computers is expected here. Thus, those educators who have a high perceived value of the Internet personally are expected to use the Internet for personal needs even if their achievement with the Internet is limited.

Internet Self-efficacy

To this researcher's knowledge, this is the first study that will investigate Internet self-efficacy. Computer self-efficacy was studied and documented by a number of researchers (Oliver & Shapiro, 1993). Collis (1996) linked personal computers to the Internet in education, and felt that self-efficacy theory could be

applied to the Internet as had been done to personal computers in education. Ertmer, Evenbeck, Cennamo, and Lehman's (1994) computer self-efficacy study identified the possibility to increase an individual's self-efficacy, demonstrating that self-efficacy could be capitalized upon and used to a significant advantage. The importance of educating educators in new technologies is critical (Harrington, 1993; Tally, 1995) and improving self-efficacy could be one method that could be used to encourage independent learning which could have significant value in times of educational reform.

Research question.

The research question addressed here is:

5. Are differences in educators' achievement- or value-related motivational frameworks related to differences in their perceived Internet self-efficacy?

Expected results.

Kellenberger's (1994) findings suggest that achievement-related beleifs would have less of an effect on self-efficacy variables compared to value-

related beliefs. Ertmer et. al. (1994) found that increased levels of self-efficacy indicated greater usage levels as did Jorde-Bloom's (1988) study of computer usage. Consistent with Kellenberger's findings Jorde-Bloom (1988) also found that other variables affected computer use. Similar results are expected here.

Conceptual Model of Study

The following figure represents a conceptual model of this study (see Figure 1). The motivational belief components labelled "Achievement" and "Value" are presented in circles in the motivational belief box. The following Internet related perceptions investigated are indicated by five ellipses within the Internet-related perception box: differential access to Internet resources, use and value of the Internet for different educational purposes, use and value of the Internet for career needs, use and value of the Internet for personal needs, Internet self-efficacy.

Possible relationships between motivational beliefs and Internet-related perceptions are indicated by two sets of lines. The set of five broken lines

indicates the possible relationship between
achievement-related motivational beliefs and the five
Internet-related perceptions. The set of five dotted
lines indicates the possible relationship between
value-related motivational beliefs and the five
Internet-related perceptions.

Motivational Beliefs   Relationships Addressed   Internet Related Perceptions

Differential access to Internet

Use and value of the Internet for educational

Use and value of the Internet for career needs

Use and value of the Internet for personal needs

Internet self efficacy

Achievement Related

Value Related
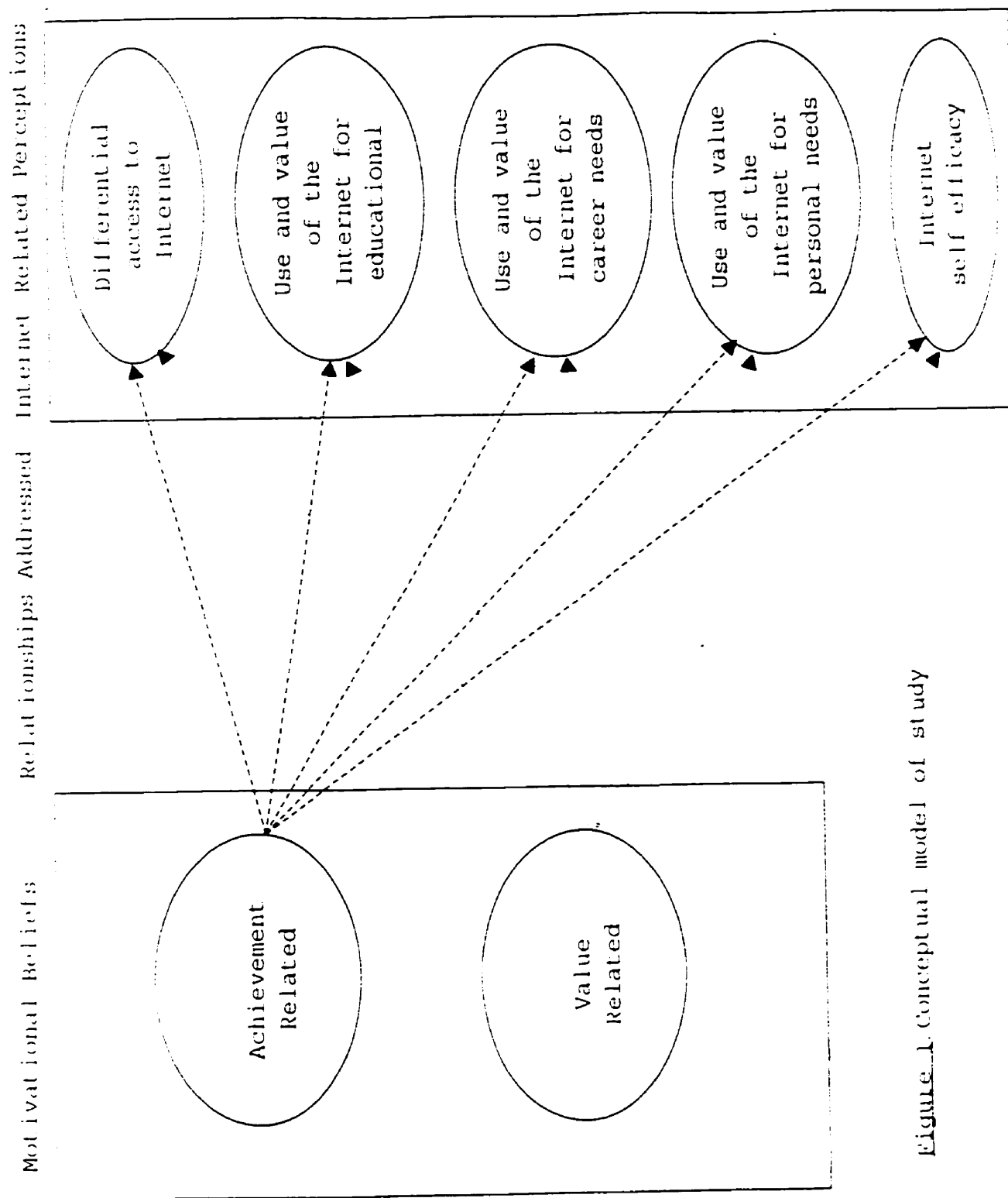
Figure 1. Conceptual model of study

Method

Subjects

Subjects in this study were students enrolled in
the Master of Education programme at the University of
Windsor. Admission requirements to the programme
included: a four-year undergraduate degree with an
overall B average, at least B standing in the final two
years, a Bachelor of Education degree or equivalent
professional preparation, and at least one year of
successful professional experience in education. A
student who could demonstrate experience, interest, and
motivation that made them appropriate candidates for
the degree could be accepted into the programme without
a Bachelor of Education degree. The programme offered
two areas of specialization: curriculum and
administrative studies. Upon completion of the
programme students would be better qualified for either
specialized roles in teaching and training or
administrative positions within the field of education.

Demographic information gathered from the thirty
respondents in the sample suggests students in the
programme had quite varied backgrounds. The mean age
of the respondents was 33 years old. One respondent

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did not indicate their age. Of those who answered the gender question, females comprised 86% of the sample while only 14% of the sample were males.

Full-time students made up only 13% of the sample with 87% of the sample comprised of part-time students. Sixty percent of the students worked full-time and 26.67% of the students worked part-time. Four subjects (13.33%) did not work at all. Of those who worked, the vast majority (96%) were employed in the education field while only one respondent was employed in social services. Sixty-five percent of the respondents were teachers, two subjects (9%) were vice-principals, one subject (4%) was a tutor, and one subject a social worker (4%). Support staff workers accounted for the remaining 13% of the sample. As can be seen from Figure 2, a little more than half of the sample had 5 years or less of full-time teaching experience.

Of the sample, five respondents had never taken a computer course, four had taken one computer course, fourteen had taken two or three computer courses, and seven had taken four or more computer courses. Overall 70% of the sample had taken two or more computer courses and 83% of the sample had taken at least one

computer course. The distribution of the number of computer courses taken can be found in Figure 3. Students' progress through the programme varied from students who had just begun their programme to students who were at the end of their programme.

Instrument

A questionnaire developed by the researcher was used to gather the data (see Appendix A). The questionnaire required from fifteen to thirty minutes to complete. Approximately 40% of the questionnaires were returned completed. Although the instrument consisted of twenty-eight items, the maximum number that any one respondent was to answer was twenty-five.

The questionnaire consisted of three separate sections. Questions one through seventeen were to be answered by all students in the sample. Questions eighteen through twenty-five were to be answered by those students who had any Internet experience. Questions twenty-six through twenty-eight were to be answered by those students who did not have any Internet experience at all.

More than 10 years (19.8%)

No experience (33.4%)

6—10 years (23.4%)

1—5 years (23.4%)
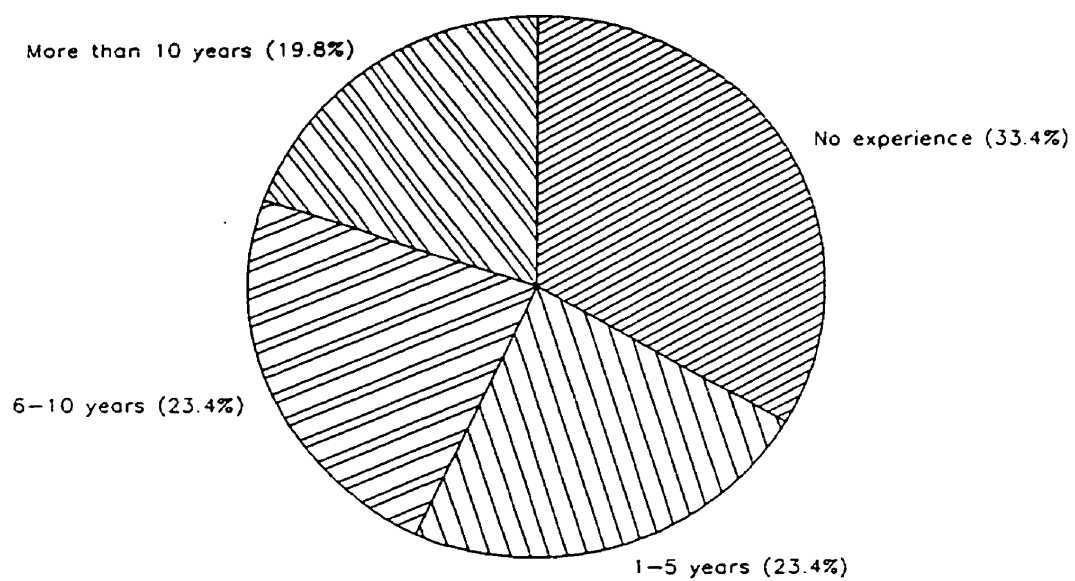
<u>Figure 2</u>. Number of years of full-time teaching experience
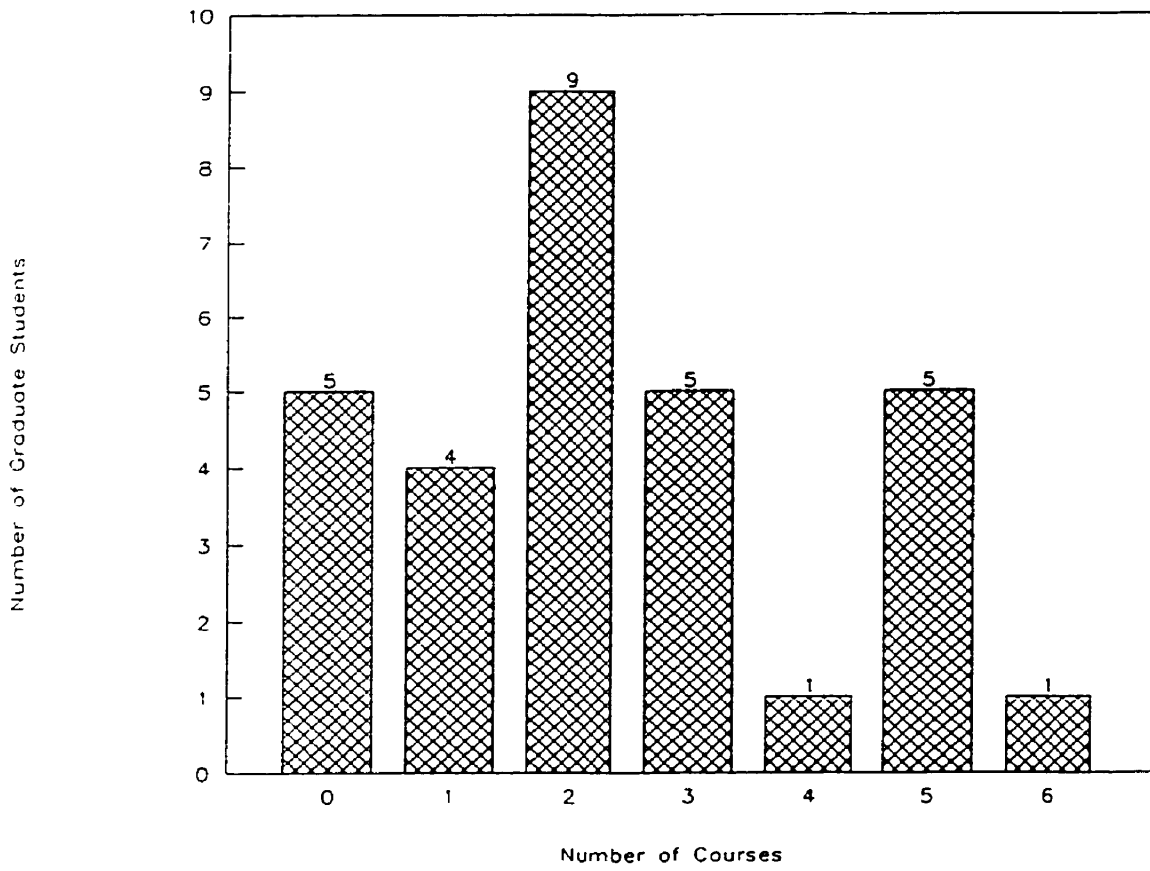
Figure 3. Number of computer courses taken by educators

Background Data

Items one through twelve collected background data: age, gender, student status, employment status, occupation, number of years of full-time teaching experience, the number of computer courses taken, interest level in computers, knowledge level of computers, perceived amount of personal computer experience, perceived amount of computer experience with students (if applicable), and interest level in the Internet. Items seven through twelve were measured on a 5-point Likert scale.

Motivational Beliefs

Achievement related.

Items sixteen, seventeen, and eighteen were used to obtain data related to the respondent's perceived level of Internet achievement. All of these items were measured using a five-point Likert scale. An individual's perceived level of Internet experience for both their personal and educational use was obtained from items sixteen and seventeen. These items were based on similar items used by Kellenberger (1990, 1994). Item eighteen asked respondents to indicate

their perceived level of success with their Internet experiences. Kellenberger (1994) determined that an individual's perceived level of computer success was an appropriate measure that could be used to evaluate and describe an individual's achievement level with computers. For this study this measure was adopted and applied to Internet usage. Item seventeen offered a "not applicable" selection.

Value related.

Items thirteen A through F were used to gather data associated with the value-related motivational framework outlined earlier (see construct described earlier). The six items in this section were measured on a 5-point Likert scale. Items referring to partner, dependents, and students could be checked as "not applicable" if appropriate. This question was based on Kellenberger's (1994) study and modified for the purposes of this study.

Internet-Related Perceptions

Differential access to Internet.

Item fourteen collected data related to the perceived likelihood of using the Internet under differential access to Internet resources: Internet access at work, at home, and at the faculty. The first two items allowed for a "not applicable" selection. All items were measured on a 5-point Likert scale.

Different educational purposes.

Item twenty-two D and items twenty-five A through J were related to the use of the Internet for different educational purposes. The first item asked respondents to indicate how often they use the Internet for student activities. The second item included nine parts. This item asked respondents to indicate how much the realization of the following nine items would increase the use of the Internet with students: more convenient access to the Internet, more Internet training, more training in the use of the Internet with students, as well as the Internet being perceived to be more valuable for own needs, career goals, partner, dependents, students, and society in general. All

items were measured on a five-point Likert scale with item twenty-five providing space for an open-ended response.

Career needs.

Items twenty-two C and E were associated with respondents' career needs. Respondents were asked to indicate how often they use the Internet for work-related preparation activities and professional activities, respectively. Both items were measured on a 5-point Likert scale.

Personal needs.

Items twenty-two A, B, and F, twenty-three A through J, and twenty-four A through H were related to use of the Internet for personal needs. All items were measured on a five-point Likert scale. The three items in question twenty-two asked respondents to indicate how often they used the Internet for their personal interests, leisure/hobby interests, and own education interests outside faculty courses, respectively. Items in question twenty-three asked respondents to indicate how much the following aspects contributed to their

Internet usage: low cost, up-to-date information on the Internet, large amount of useful information on the Internet, convenient access, access to software, communication with others, and technical support staff. This question was based on one used by Starr and Milheim (1996) with contributions from Gallo and Horton (1994) and was modified for this study. Question twenty-four asked the respondents to indicate how much the following aspects hindered their Internet usage: high cost, out-of-date information on the Internet, small amount of useful information on the Internet, inconvenient access, slow response time, and a lack of standardization. This item was based on a question used by Starr and Milheim (1996) and modified for this study. Space for an open-ended response was provided for questions twenty-three and twenty-four.

Internet self-efficacy.

Questions fifteen, nineteen, twenty, and twenty-one were related to Internet self-efficacy. Question fifteen asked the respondents to indicate their perceived knowledge about the Internet. Question nineteen asked respondents to indicate how much

experience they had with the following: electronic mail, the world wide web, newsgroups, discussion lists, chat groups, file transfers, and remote login. This item was used by Starr and Milheim (1996) and modified for this study. Question twenty asked respondents to indicate how often they used the Internet. Question twenty-one asked respondents to indicate their perceived amount of time spent on the Internet. Questions fifteen, nineteen, and twenty-one were measured on a 5-point Likert scale. For question twenty, respondents were asked to select a choice from four predefined time frames and an open-ended response. The data gathered from this question was coded and scored from one to four according to the following categories: once a month or less, more than once per month but less than or equal to once a week, more than once a week but less than five days per week, or five or more days per week. One respondent was omitted from the analysis for this question. This respondent indicated that their Internet use was random and this response was not felt to indicate a specific time period that could be measured.

Non-Internet Users

Questions twenty-six through twenty-eight related
to factors affecting non-Internet users. Question
twenty-six asked respondents to indicate how much the
following items contribute to their lack of Internet
usage: access to a computer in general, access to the
Internet, computer training in general, Internet
training, time constraints to learn how to use a
computer in general, time constraints to learn how to
use the Internet, perceived value of the Internet,
technical support staff, and an opened-ended option.
Question twenty-seven asked respondents to indicate how
soon they would start to use the Internet if the
preceding aspects were realized. Question twenty-eight
asked respondents how much the realization of the
following aspects would contribute to their increased
use of the Internet with their students: more
convenient access to the Internet, more Internet
training in general, more training in the use of the
Internet with students, perceived to be of more value
for their own needs, their career goals, their partner,
their dependents, their students, and society in
general. An open-ended selection was also available

for this question. Question twenty-six and twenty-eight were measured on a 5-point Likert scale, while question twenty-seven offered six selections of time frames from which the respondent could select one choice.

Procedure

Data was gathered during the fall semester of 1997. In October questionnaires were delivered to professors and graduate assistants to be distributed in graduate classes. The questionnaires were returned to the professor, graduate assistant or the faculty office. The enclosed cover letter (see Appendix A) informed students of the process to participate in this study. The students were instructed to answer the questions truthfully reflecting their own personal feelings. They were informed that they were participating voluntarily and that they could leave a question blank if they did not wish to answer a particular question. Anonymity was guaranteed.

Research Design and Analysis

Statistical analyses were performed on a personal computer using SPSS version 8.0 for all respondents who identified themselves as Internet users. A significance level of .05 was used throughout the study. Moreover, unless otherwise indicated, significance levels that reach .01 were also indicated.

Responses to variables measured on a Likert 5-point scale were numerically coded from 1 to 5 (see questionnaire in Appendix A). All non-responses were left blank. Question number twenty was coded numerically from 1 to 4. Only one respondent included an open-ended response for item twenty-three while only two respondents included open-ended responses for item twenty-four. Since there were no similarities among the responses no further analyses were included for these open responses.

Step-wise regression analysis served as the primary statistical procedure for this study. Step-wise regression analyses were run for each dependent variable with all independent variables included as predictors. For regressions that resulted in multiple steps the change in R^2 was tabulated to further examine

the contribution of each significant predictor. For each significant factor in each step of the regression, the unstandardized coefficient (B), standard error of the unstandardized coefficient (SEB), and standardized coefficient (β) are presented along with the multiple correlation squared (R^2) for the first step and where necessary, the change in the multiple correlation coefficient squared (ΔR^2) for each subsequent step.

Results

Computer and Internet Background

While respondents' interest in computers was quite
high ($M_{computerinterest}$ = 4.22), their perceived knowledge
of computers was only slightly greater than "somewhat
knowledgable" ($M_{computerknow}$ = 3.48). Moreover, although
their level of computer experience for their own use
was generally high ($M_{owncomputerexp}$ = 4.19), their level of
computer experience with their students was
considerably lower ($M_{computerexpstudents}$ = 2.96).

Not surprisingly, the mean perceived level of
computer success was higher than "neutral" ($M_{computersuccess}$
= 3.89). Similarly, Kellenberger (1994) found that
preservice teachers' mean perceived level of computer
success was 3.72 when they left their programme.

Like their computer interest, educators' interest in
the Internet was also quite high ($M_{Internetinterest}$ = 4.42).
Indeed, twenty-five out of twenty-six respondents
indicated that their interest in the Internet was 4 or
greater. Similarly, Gallo and Horton (1994) used the
term "exciting" to describe intrinsic influences
(feelings) that affected continued Internet use by
educators. Like the respondents in this study, the

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educators in Gallo and Horton's study (1994) indicated strong interests in the Internet as well.

Achievement-Related Beliefs

Internet Success

Educators' perceptions of their Internet success was similar to their perceived computer success ($M_{Internetsuccess}$ = 3.84). Eighteen (67%) of the twenty-five respondents indicated a score of 4 or more. Only one respondent indicated that their perceived use of the Internet was very unsuccessful. Two respondents did not answer the question. Although Gallo and Horton (1994) found that when educators do not have a basic understanding of using the Internet their Internet usage was impeded, this does not appear to be a concern for most of those in this study.

Personal Internet Experience

Educators indicated that their level of own Internet experience was more than "some experience" ($M_{ownInternetexp}$ = 3.67). Fifteen respondents (55%) indicated a score of 4 or more for their level of own Internet experience. Twelve respondents (45%) indicated scores

of 2 or 3. Overall the respondents indicated that their level of own Internet experience exceeded midrange levels, however a large percentage indicated that their own Internet experience was midrange or less.

Internet Experience With Students

Although twenty-two of the educators who had Internet experience also had Internet experience with their students, five did not. In general, educators indicated that their level of Internet experience with their students was low ($M_{internetexpstudents}$ = 2.0). Twelve educators indicated that they did not have any Internet experience with their students and six indicated that they had "some" or less than "some" Internet experience with their students. Moreover, no educator indicated that they had "a lot" of experience with their students. Comparatively, as outlined earlier, educators' level of computer experience with their students was somewhat higher ($M_{computerexpstudents}$ = 2.96). This finding is consistent with Collis' (1996) discussion of the Internet being in an introductory phase in education.

Value-Related Beliefs

Overall educators believed that the Internet had a somewhat high value for themselves and others (see Table 1). The Internet was found to be most valuable for society and educators' dependents. No educator indicated that the Internet was less than "somewhat valuable" for society. Interestingly, the Internet was perceived to be least valuable for students. Although Kellenberger (1994) found computers to be most valuable for students and society, two respondents in this study felt that the Internet was not valuable at all to students and only nine respondents indicated that the Internet was more than "somewhat valuable" for students.

Internet-Related Perceptions

Differential Access to the Internet

As seen in Table 2, the means of perceived ease of Internet access at work, home, and the faculty varied. Clearly, Internet access at home was the easiest amongst the available choices. Only five respondents indicated that Internet access at home was not available, suggesting that most of the respondents had

Table 1

Mean and Standard Deviation of Perceived Value of the

Internet

Item	M	S.D.
Value of the Internet for: ● Personal Needs	3.78	0.93
● Future Career Goals	3.89	0.97
● Partner	3.90	1.37
● Dependents	4.17	0.94
● Students	3.43	1.29
● Society	4.24	0.88

Internet access at home. One respondent indicated that Internet access at home was not easy.

Table 3 shows a summary of the regression results that reached significance for ease of access to the Internet. For each significant factor in each step of the regression, the unstandardized coefficient (B), standard error of the unstandardized coefficient (SEB), and standardized coefficient (β) are presented along with the multiple correlation coefficient squared (R^2) for the first step and change in the multiple correlation coefficient squared (ΔR^2) for each subsequent step. Only "ease of Internet access at home" was significant. Here, "perceived Internet success" was a significant predictor in the first step of the regression while both "perceived Internet success" and "value for partner" were significant predictors in the second step. Interestingly the coefficient of "perceived Internet success" was close to 1.0 in the first step and close to 2.0 in the second step. The negative coefficient associated with "value for partner" appears to simply reduce the increased effect of "perceived Internet success" in the second step over the first. Thus, one should not necessarily

Table 2

Mean and Standard Deviation of Perceived Ease of Access

to the Internet

Item	M	S.D.
Ease of Internet Access: ● At work	3.65	1.69
● At home	4.32	1.21
● At faculty	3.44	1.62

Table 3

Summary of Significant Stepwise Regression Analyses for Factors Predicting

Perceived Ease of Access to the Internet

Item	Regression Step	Significant Factor(s)	B	SEB	β
Ease of Internet Access: • At home	1 (R^2 = 0.75**)	Perceived Internet Success	0.84	0.20	0.87**
	2 (ΔR^2 = 0.25**)	Perceived Internet Success	2.00	0.00	2.06**
		Value for Partner	-1.00	0.00	-1.30**

Note. ** p < .01, * p < .05.

infer that an increased "value for partner" is associated with a lower perceived "ease of Internet access at home" as both significant predictors must be taken into account. This indeed appears to be the case. The correlations of both "value for partner" and "perceived Internet success" with "ease of Internet access at home" were positive ($r_{valuepartnerease}$ = .266, p > .05; $r_{successease}$ = .466, p < .05).

Different Educational Purposes

Not surprisingly, the frequency of Internet use for student activities was somewhat low (M_{act} = 2.16; see Table 4). This is consistent with the low mean for educators' Internet use with students outlined earlier $M_{students}$ = 2.0). The remaining means in Table 4 indicate that there was no single item that could be easily identified to be a stronger contributor to increased Internet use with students over any of the others.

Table 5 shows a summary of the significant regression results for use of the Internet for different educational purposes. Only four of the dependent variables were significant: increased Internet use with students if more convenient access

for class, more training using the Internet with
students, perceived to be more valuable for your own
needs, and perceived to be more valuable for partner.
Not surprisingly, "more convenient access for class" as
a contributing aspect of increased Internet use with
students was significantly related "personal Internet
experience". Interestingly, "more training using the
Internet with students" as a contributing aspect of
increased Internet use with students was negatively
related to the "value of the Internet for personal
needs", but at the same time, positively related to
"Internet experience with students". Perhaps, those
who had Internet experience with students wanted more
training but those who felt it was valuable for their
personal needs felt they did not need additional
training in the use of the Internet with students.
Lastly, "perceived to be more valuable for own needs"
and "perceived to be more valuable for partner" as
contributing factors for increased Internet usage with
students were significantly and positively related to
"value for partner" and "value for students",
respectively.

Table 4

Mean and Standard Deviation of Internet use for Different
Educational Purposes

Item	M	S.D.
Frequency of Internet Use for Student Activities	2.16	1.41
Increase Internet use with Students if: ● More convenient access for class	3.67	1.37
● More Internet training	3.28	1.10
● More Internet training with students	3.80	0.86
● More valuable for own needs	3.08	1.02
● More valuable for career goals	3.24	1.20
● More valuable for partner	2.83	1.20
● More valuable for dependents	2.67	1.30
● More valuable for students	3.27	1.16
● More valuable for society	3.08	1.15

Table 5

Summary of Significant Stepwise Regression Analyses for Factors Predicting

Perceived Internet Use for Different Educational Purposes

Item	Regression Step(s)	Significant Factor(s)	B	SEB	β
Increase Internet use with students if: ● More convenient access for class	1 (R^2 = 0.96**)	Personal Internet Experience	1.50	0.14	0.98**
● More training using the Internet with students	1 (R^2 = 0.64**)	Value for Personal Needs	-0.77	0.26	-0.80**
	2 (ΔR^2 = 0.25**)	Value for Personal Needs	-0.91	0.17	-0.95**
		Internet Experience with Students	0.29	0.09	0.52**
● Perceived to be more valuable for your own needs	1 (R^2 = 0.64**)	Value for Partner	0.36	0.14	0.80**
● Perceived to be more valuable for your partner	1 (R^2 = 0.61**)	Value for Students	1.23	0.40	0.78**

Note. ** $p < .01$, * $p < .05$.

Career Needs

The means for the two items examining Internet use for career needs appear to be similar ($M_{workrelatedprep}$ = 2.73, $M_{professional}$ = 2.92). Educators indicated that they were using the Internet "somewhat often" for career needs.

Table 6 shows a summary of the significant regression results for use of the Internet for career needs. The table shows both dependent variable regressions were significant. "Internet use for work related preparation activities" and "Internet use for professional activities" were significantly and positively related to "value for partner" and "value for students", respectively.

Personal Needs

The means associated with the amount of Internet use for personal needs were very similar for all three items ($M_{personal}$ = 2.85, $M_{leisure/hobby}$ = 2.46, $M_{owneducation}$ = 2.73; see Table 7). Yet, the means for the aspects that contributed to educators' Internet usage varied. "A large amount of information" was noticeably the aspect that contributed the most to educators' Internet usage over the other aspects ($M_{largeinfo}$ = 4.27). Oppositely,

Table 6

Summary of Significant Stepwise Regression Analyses for Factors Predicting

Perceived Internet Use for Career Needs

Item	Regression Step	Significant Factor	B	SEB	β
Internet use for: ● Work related preparation activities	1 (R^2 = 0.85**)	Value for Partner	1.54	0.25	0.92**
● Professional activities	1 (R^2 = 0.74*)	Value for Students	0.72	0.16	0.86*

Note. ** $p < .01$, * $p < .05$.

"Access to software" was noticeably the aspect that contributed the least to educators' Internet usage over the other aspects ($M_{accesssoftware}$ = 2.69). The means for the aspects that hindered educators' Internet usage were perceived less strongly than those that contributed to use. Not surprisingly though, "slow response time" was found to be the aspect that most hindered educators' Internet usage ($M_{slowresponse}$ = 2.89), while "out-of-date information on the Internet" was the aspect that least hindered usage ($M_{outofdateinfo}$ = 1.77) .

Table 8 shows a summary of the significant regression results for use of the Internet for personal needs. Interestingly, the three dependent variables associated with amount of Internet use all had value-related perceptions as predictors. Likewise, "large amount of useful information" as an aspect contributing to Internet usage was significantly and positively related to "value for career goals". This may be due to the value associated with the large amount of career-related aspects found on the Internet. Lastly, the hinderance of slow response time on the Internet when students use it in a class might explain the

Table 7   86

Mean and Standard Deviation of Uses of the Internet for

Personal Needs

Item	M	S.D.
Internet use for: ● Personal Interests	2.85	1.38
● Leisure/hobby use	2.46	1.33
● Own education Interests	2.73	1.48
Contribution of Own Internet use Due to: ● Low cost	3.23	1.34
● Up to date information	3.96	1.04
● Large amount of useful information	4.27	0.78
● Small amount of time to find useful information	3.39	1.17
● Convenient access	3.73	1.08
● Access to software	2.69	1.41
● Communication with others	3.12	1.51
● Technical support staff	3.83	8.83
Hinderance of own Internet use due to: ● High cost	2.15	1.41
● Out of date information	1.77	1.21
● Small amount of useful information	1.92	1.29
● Large amount of time to find useful information	2.81	1.27
● Inconvenient access	2.15	1.41
● Slow response time	2.89	1.24
● Lack of standardization	2.62	1.36

Table 8

Summary of Significant Stepwise Regression Analyses for Factors Predicting

Perceived Internet Use for Personal Needs

Item	Regression Step	Significant Factor	B	SEB	β
Internet use for: • Personal interests	1(R^2 = 0.72**)	Value for Society	1.61	0.38	0.85**
• Leisure/hobby activities	1(R^2 = 0.75**)	Value for Personal Needs	1.54	0.34	0.87**
• Own educational interests outside faculty	1(R^2 = 0.77**)	Value for Dependents	1.38	0.28	0.88**
Contribution of own Internet use due to: • Large amount of useful information on the Internet	1(R^2 = 0.58*)	Value for Future Career Goals	0.58	0.17	0.76*
Hinderance of own Internet use due to: • Slow response time	1(R^2 = 0.57*)	Internet Experience with Students	0.71	0.23	0.76*

Note. ** $p < .01$, * $p < .05$.

"Internet Experience with students" as a significant predictor affecting the hinderance of Internet usage.

Self-efficacy

Educators indicated that they were "somewhat knowledgable" about the Internet ($M_{Internetknowledge}$ = 3.4; see Table 9). Interestingly, none of the educators indicated that they were very knowledgable about the Internet. This is very similar to their knowledge about computers ($M_{computerknowledge}$ = 3.48) indicated earlier. Of the means associated with levels of experience with different Internet resources, electronic mail and the World Wide Web were noticeably higher. These findings were not surprising and are consistent with other research findings that have addressed educational use of the Internet (Starr & Milheim, 1996). The mean usage level for the Internet was found to be more than once per week but less than five times per week ($M_{Internetuse}$ = 3.04). This is a reasonable finding and is consistent with the mean for educators' perceived amount of time spent on the Internet as being about "appropriate" ($M_{timespent}$ = 2.54).

Table 9

Mean and Standard Deviation of Internet Self-efficacy

Item	M	S.D.
Internet knowledge	3.41	0.69
Experience with: Email	4.0	1.06
World Wide Web	3.81	1.13
Newsgroups	2.04	0.94
Discussion lists	1.62	1.10
Chat groups	1.69	0.93
File transfer	1.68	0.99
Remote login	2.15	1.41
Frequency of Internet usage	3.04	0.81
Appropriate amount of Time Spent on Internet	2.54	0.86

Table 10

Summary of Significant Stepwise Regression Analyses for Factors Predicting

Perceived Internet Self-efficacy

Item	Regression Step	Significant Factor	B	SEB	β
Internet Knowledge	1($R^2 = 0.84^{**}$)	Personal Internet Experience	0.67	0.11	0.92^{**}
Experience with: ● Electronic Mail	1($R^2 = 0.76^{**}$)	Personal Internet Experience	1.21	0.24	0.87^{*}
● Newsgroups	1($R^2 = 0.82^{**}$)	Value for Personal Needs	1.17	0.23	0.90^{**}
● Chat groups	1($R^2 = 0.84^{**}$)	Value for Dependents	1.13	0.18	0.92^{**}
● File transfer	1($R^2 = 0.47^{**}$)	Internet Experience with Students	0.59	0.24	0.69^{**}
● Remote login	1($R^2 = 0.62^{**}$)	Internet Experience with Students	0.74	0.22	0.78^{**}
Frequency of Internet Usage	1($R^2 = 0.65^{**}$)	Value for Society	0.92	0.30	0.81^{**}
Appropriate amount of time on Internet	1($R^2 = 0.61^{**}$)	Personal Internet Experience	0.79	0.24	0.78^{**}

Note. ** $p < .01$, * $p < .05$.

Table 10 shows a summary of the significant regression results for Internet self-efficacy. The table shows that "Internet knowledge", "Email use", and "Perceived amount of time using the Internet" were significantly related to "personal Internet experience". The acquisition of useful educational software on the Internet likely explains the finding that "file transfer use" and "remote login" were significantly related to "Internet experience with students". The use of "newsgroups", "chat groups", and "frequency of Internet usage" though were all related to value-related aspects: personal needs, dependents, and society, respectively.

Results for Non-Internet Users

Not surprisingly, one of the three non-Internet users strongly indicated that a lack of time contributed to their non-Internet usage. This respondent added comments to the questionnaire indicating the importance of these time constraints on the individual's life that prevented Internet usage by this person.

Surprisingly all three respondents indicated that access to a computer did not contribute to their lack of Internet usage. None of the respondents rated computer access as having bearing on their usage of the Internet. Yet, responses varied as to how Internet access in particular affected their non-usage.

Two of the respondents indicated that some computer training contributed to their lack of Internet use, yet one respondent indicated that this variable did not affect their lack of Internet use at all. Consequently Internet training was deemed to have contributed "a lot" to non-Internet usage by two respondents, and "some" by the other respondent. Thus Internet training appeared to be a somewhat important contributing factor to these educators' non-Internet usage.

Time constraints to learn how to use a computer and the Internet were ranked as "a lot" by two respondents and "some" by the other respondent. Along with Internet training these were the highest scoring contributing factors to non-Internet usage by the educators sampled.

The perceived value of the Internet did not contribute to a lack of Internet usage by two of the respondents. However the respondent who cited significant time constraints, responded that this factor contributed "a lot" to their lack of use of the Internet. The Internet may not considered to be of value by this respondent and didn't warrant the time required to become familiar with the Internet.

Surprisingly, a lack of technical support staff did not appear to be a contributing factor to non-Internet usage. Two of the respondents reported a ranking of between "none" and "some" and one respondent reported a rank of "none".

Yet, interestingly all three respondents reported that they would use the Internet relatively soon if the impediments for non-Internet usage were removed. Two respondents replied that they would begin using the Internet within the next month and the individual who replied that they were faced with significant time constraints would start using the Internet within the next three months. None of the respondents felt that their Internet usage would begin within a long-term time frame.

The first respondent reported that many factors would contribute to their increased Internet usage: an increase in convenient access, more Internet training, Internet training with students, as well as increased perceived value for their own needs, for their career, for their partner, for their students, and for society.

The second respondent reported that the only variable that would contribute to their increased Internet usage with their students would be more Internet training in general. All other variables were not selected. This individual responded consistently that lack of Internet training had much influence in their non-usage.

The third respondent reported mid-range scores for most variables. This respondent indicated that perceived value of the Internet for society, was "a lot". Yet this respondent did not require training. However, they indicated that they may need more training in the use of the Internet with students. This respondent also noted that they did not have enough time for Internet training.

Summary and Conclusions

The purpose of this study was to investigate the relationship between educators' achievement- and value-related motivational beliefs about the Internet and five groups of Internet-related perceptions. Kellenberger (1994) used a motivational construct based on "learning history" to explain preservice teachers' perceived former achievement with computers. Similar models of "learning history" have been used by earlier researchers (Kellenberger, 1990, Kellenberger & Kuendiger, 1993; Kuendiger, 1990; Kuendiger, Gaulin, & Kellenberger, 1992, 1993; Kuendiger, Schmidt, & Kellenberger, 1994). In this study this model was modified so that an educators' previous Internet achievement might be used to explain their Internet usage.

Kellenberger (1994) also examined value-related beliefs within a framework similar to Keller's relevancy category motivational model (Keller, 1983; 1984; Keller & Kopp, 1987). Kellenberger (1994) used six measures for which computers would be valuable. This study also used these six measures, but were modified so that an educator's perceived value for the

Internet could be examined. Respondents were asked to indicate how valuable the Internet was for their: own personal needs, future career goals, partner, dependents, students, and society in general.

The two aforementioned motivational belief components were related to five groups of Internet-related perceptions:

1) perceived likelihood to use the Internet under differential access to computer resources

2) perceived likelihood to use the Internet for different educational purposes

3) perceived likelihood to use the Internet for career needs

4) perceived likelihood to use the Internet for personal needs

5) perceived Internet self efficacy.

Each of these focused on educators' perceptions about their present and future Internet usage.

Computer and Internet Background

The respondents' interest level in computers was substantial ($M_{computerinterest}$ = 4.22). This suggests that educators had a strong interest in computers.

Kellenberger (1994) found preservice teachers to have a similarly strong interest in computers at the end of their programme as well.

Educators perceived knowledge about computers was found to be more than "somewhat knowledgable" ($M_{computerknow}$ = 3.48). Interestingly, their perceived knowledge about computers appears to be somewhat less than their perceived interest in computers. The increased complexity and expanded use of computers in many areas may explain why educators feel they are only somewhat knowledgable about computers and yet, at the same time, interested in what can be done with them. In other words, educators may be fascinated with what computers can do, but realize that they themselves may not have substantial knowledge as to how the computer accomplishes such tasks.

Interestingly, educators' level of perceived computer experience for their own use ($M_{owncomputerexp}$ = 4.19) was somewhat higher than their perceived level of computer experience with their students ($M_{computerexpstudents}$ = 2.96). Some reasons to explain this apparent difference may be related to the earlier discussion regarding educators possibly perceiving themselves to

be only "somewhat knowledgeable" about computers. First, although many may have personal experience in using a computer, they still may not yet feel comfortable enough in using one with students. Second, some educators may feel that they should know what to do when something unexpected happens with computers or be able to answer any questions raised by students. Third, perhaps they may feel uncomfortable about the possibility that students may know more about computers than they do.

A mean of 3.89 was reported for educators' perceived level of computer success. Out of a possible rating of 5 this finding is encouraging and indicates that educators perceive themselves to be more than "neutral" but less than "very successful" in using computers. Kellenberger (1994) reported a similar mean of 3.72 for preservice teachers leaving the programme and suggests that educators' perceived computer success was comparable to Kellenberger's preservice teachers' perceived success.

This study reported a mean of 4.42 for educators perceived level of interest in the Internet. Interestingly this mean is similar to the mean reported

for educators' perceived interest in computers. The Internet has been described as the next wave of technology for education (Collis, 1996) and this reported mean perhaps reflects the current interest that educators have for the Internet. Collis' (1996) outline of the history of the implementation of computers and the Internet in education outlined stages of development of these two applications. Collis (1996) suggested that when the technology is new, it generates strong interest, but as educators become familiar with the technology their interest may wane. This, however, does not appear to be the case at this point in time. One reason to explain the similar means of computer and Internet interest is that the Internet is inextricably linked with computers.

Summary of Means

Achievement

Educators' perceived Internet success ($M_{Internetsuccess}$ = 3.34) indicates that, overall, they are using the Internet to an extent that makes them feel that they are more than "neutral" but less than "very successful". This suggests that educators are

confident in using the Internet and comfortable with their Internet usage. Their perceived Internet success was similar to their perceived computer success ($M_{computersuccess}$ = 3.89). This is interesting in that the Internet is a new technology and levels of Internet success would be expected to be much less than their levels of computer success. Yet, educators perceive their Internet success to be similar to their computer success.

Educators' levels of personal Internet experience ($M_{owninternetexp}$ = 3.67) and their Internet experience with students ($M_{internetstudents}$ = 2.0) differed noticeably. This finding is not surprising for two reasons. First, the Internet can still be considered in its introductory stages of being applied in classroom situations. As such, educators' levels of Internet use with their students would be expected to be less than their own levels of Internet experience. Second, similar reasons outlined earlier in explaining the apparent differences between own computer experience and experience in using computers with students may apply here as well.

Not surprisingly, educators' experience in using computers with their students ($M_{computerexpstudents}$ = 2.96)

appears to be higher than their levels of experience using the Internet with their students. Since the Internet is a newer technology it is expected that this apparent difference would exist. In addition, educators' level of experience with computers ($M_{owncomputerexp}$ = 4.19) appears to be greater than their level of Internet experience. Again, this is not surprising. However, it is interesting that, despite this apparent difference, their perceived levels of computer success and Internet success were very similar.

Value

Overall, educators' values of the Internet were more than "somewhat valuable". Coupled with their high interest level for the Internet and level of perceived Internet success, this study's findings indicate that these educators are quite aware about the Internet and its value.

Surprisingly though, educators' perceived value of the Internet for their students was the lowest rated value item amongst the available choices ($M_{valuestudents}$ = 3.43). Several factors may explain this finding. First, the Internet is in its infancy in being applied

to educational settings. There are many discussions
that have addressed the Internet's suitability in
educational contexts (Collis, 1996) and perhaps these
concerns are playing a role in the educators' apparent
perceptions regarding the Internet's value for their
students. Second, perhaps educators feel that the
Internet is more valuable for students' personal
interests as opposed to academic purposes and this is
why they feel the Internet does not have as much value
for students as it does for others. Third, the
advancement of new technologies is generally met with
resistance and hesitation. These concerns could also
be contributing to educators perceiving the Internet to
have lower levels of value than the other value items
available for selection.

Yet, it was interesting that the value that
educators had of the Internet for their dependents
$M_{valuedependents}$ = 4.17) was the highest rated value item
amongst the available choices. This finding may
reflect the Internet's perceived "popularity" for the
next generation and educators' recognitions of this
situation. Coupled with educators' high levels of
interest in the Internet this finding could indicate

they felt that the Internet will play an important role in the personal lives of their children in the future and hence educators' value of the Internet for their dependents would be quite high.

The apparent disparity in the value of the Internet for educators' dependents versus their students may be the result of an overall perception that the Internet has more personal value or value in the future than present educational value. That is, although educators realize the value that the Internet has for their dependents, they may not see how these values apply to education yet.

Differential Access to the Internet

Accessing the Internet at home was found to be the easiest way to use the Internet for educators. Studies suggest that ease of access to Internet resources can influence the level of Internet usage (Gallo & Horton, 1994; Starr & Milheim, 1996; Greenman, 1997). Access to the Internet at home may play an important role in educators' Internet usage overall but does not appear to have much influence on classroom use in particular.

Different Educational Purposes

Frequency of Internet use with students was found to be relatively low. It seems apparent that the Internet is still in its infancy in being applied into educational situations and the findings in this study would be consistent with this understanding (Collis, 1996; Gallo & Horton, 1994). Widespread applications of Internet usage in educational settings appear not to have taken place as has the application of computers into education.

Career Needs

Educators indicated that they were using the Internet "somewhat often" for career needs. This study's findings indicate that educators are using the Internet for own uses most often.

Personal Needs

A large amount of useful information was found to be perceived to contribute the most to an educator's own Internet use. Up to date information, technical support staff, and convenient access were factors that would contribute somewhat to educators' use of the

Internet as well. Interestingly, these means were similiar to those for using the Internet for career needs. This indicates the relative importance that educators have for using the Internet for their own needs. Not surprisingly, the means for reasons contributing to educators Internet use were much higher than reasons hindering its use.

Internet Self-Efficacy

Email was found to be the feature that educators had the most experience using. Honey and Henriquez (1993), Gallo and Horton (1994), and Starr and Milheim (1996) also identified similar findings. The World Wide Web was found to be the second resource educators had experience using. Again, Starr and Milheim (1996) found similar results. Educators had less than "some experience" using newsgroups, remote login, chat group experience, FTP, and discussion lists. Discussion lists were identified as being used the least often. Yet, Starr and Milheim (1996) found that approximately sixty percent of the educators used newsgroups, FTP, and remote login while approximately eighty percent used listserves. However, Honey and Henriquez (1993)

found that forty-eight percent of teachers were using remote login for professional activities and thirty-two percent for student activities while sixty-three percent of teachers used news or bulletin boards for professional activities and fifty percent for student activities. Educators in this present study may have had less experience overall than those in other research studies. Yet, one must remember that, unlike the other studies reported above, this study asked educators to indicate their level of experience and not simply whether they used a resource.

Educators felt that they used the Internet an appropriate amount of time: more than once per week but less than five days per week. This suggests that educators did have some experience in using the Internet but not a lot of experience.

Summary of Regressions

The findings indicate that both achievement and value predictors were equally important as predictors with no one predictor appearing to have a greater role over any other.

What follows is a discussion of the regression results found in this study. Since the predictors lead to interesting patterns that help explain educators' use of the Internet, results will be discussed in terms of the predictors of Internet usage as opposed to a discussion focused in terms of the Internet perceptions.

Achievement

Perceived internet success.

Educators' perceived Internet success and having easy access to the Internet at home were found to be significantly related. It is not surprising to find that the higher an educator's perceived success in using the Internet, the higher they perceive their ease of access to the Internet at home. Gallo and Horton (1994), Starr and Milheim (1996) and Labonte (1997) all found that educators felt that it was very important to have adequate resources to use the Internet. Differential access to Internet-capable resources was considered to have a strong bearing on educators' usage of the Internet. Ease of access to the Internet, with all of its adequate hardware and software requirements,

would most likely be achieved at home. Not surprisingly, an educator who perceives themselves to have attained a certain level of Internet achievement would be more inclined to have easy Internet access at home. This would likely allow educators the combination of the freedom of accessability in conjunction with the constraints in their schedules. Furthermore, the opportunity for the educator to acquire adequate hardware and software resources would be up to the educators themselves, and not hindered by reduced school budgets. Other studies (Gallo & Horton, 1994; Starr & Milheim, 1996; Greenman, 1997) that have examined educational use of the Internet have clearly identified the importance of the ease of accessing the Internet and this study's findings are consistent with these.

Personal internet experience.

The significant relationship found between an educator's own Internet experience and their perceived Internet knowledge is not surprising. It follows that as an educator uses the Internet and becomes more skilled and capable with its offerings that an

educator's knowledge of the Internet would increase
(Gallo & Horton, 1994). As their knowledge increases
their understanding and subsequently their comfort and
confidence using the Internet would likely increase.
This is consistent with Bandura's (1977) description of
self-efficacy where accomplishments and vicarious
experiences were identified as factors used to evaluate
self-efficacy.

An educator's perceived personal Internet
experience was found to be a predictor of using Email.
This is not surprising since Email is easy to learn and
easy to access. Honey and Henriquez (1993) found that
ninety-one percent of teachers used the Internet for
personal Email usage. In addition, Starr and Milheim
(1996) found that over ninety percent of the educators
in their study used Email. This study, however,
suggests that Email would be used for personal uses.

It is not surprising to find a significant
relationship between an educator's personal experience
of the Internet and their perceived amount of time
using the Internet. Again, this suggests that
educators may spend much of their time on the Internet
for personal use. Perhaps educators' own Internet

experience influences the value the Internet has for
their students since educators appear to use the
Internet for personal uses.

An educator's personal experience of the Internet
was found to be significantly related to having more
convenient access to the Internet for their class as a
contributing factor to increased Internet usage with
students. Horton and Gallo's study (1994) found that
educators who were using the Internet for classroom
applications were concerned about having adequate
hardware and software resources for these purposes.
This is also consistent with Collis' (1996) and
Greenman's (1997) concerns for Internet applications in
classroom settings. The findings in this study suggest
that those educators who had a lot of personal Internet
experience most likely have a lot of access to the
Internet. Additionally, Gallo and Horton (1994) found
that when access to the Internet was provided to
teachers they started to use the Internet with their
students. Perhaps educators who are interested in
using the Internet in their classrooms feel that they
need the same level of access to the Internet that they

have when they are using the Internet for their own
purposes.

Internet experience with students.

Perceived Internet experience with students was
found to be a predictor for using FTP and Telnet. It
is interesting that this study's findings have
identified educators who are using the Internet with
students are also using FTP and Telnet. Educators who
are using these features could be downloading
shareware, and/or freeware that could be used for
classroom work with students.

That an educator's perceived Internet experience
with students was identified as being a predictor of
slow response times hindering an educator's Internet
use is interesting. Starr and Milheim (1996) found
that twenty-five percent of the respondents indicated
that slow response times were a major disadvantage to
using the Internet for educators. Slow response times
could hinder classroom applications that often takes
place within time constraints. An educator who is
facing time constraints and often experiences slow

response rates could feel challenged to meet time schedules in classrooms.

It was interesting that a significant relationship was found between an educator's perceived experience with students and their indication that more training in using the Internet with students would increase their Internet use in the class. One reason for this was outlined by Starr and Milheim's (1996) findings that applying the Internet with students is not yet a fully developed application. Thus, educators who are currently using the Internet with students may recognize this. It is interesting that the significant relationship was found with those educators who used the Internet with students. These individuals appear to be ready to further their efforts with students. Consistent with this, Gallo and Horton (1994) found that educators were interested in receiving more training in Internet applications for students even after they had used the Internet with their students. Perhaps the reasons for this include a lack of focus on the Internet for educational purposes resulting in limited training or support in applying the Internet into classrooms. Also, educator's low perceived value

of the Internet for their students suggests that educators may not be aware of the value that the Internet may have for students and thus feel they need more training in using the Internet appropriately with students.

Value

Personal.

The finding of a significant relationship between an educator who perceives the Internet to have value for their personal needs and their Newsgroup experience was interesting. The type of information available on newsgroups includes opportunities, prices, dates, and times for recreational activities, travelling, cruises, and vacations. The context of many of these sites is very much of a personal nature. It seems reasonable that an educator who accesses newsgroups on the Internet would perceive the Internet to have value for their personal needs. Yet, instructing students how to access the latest information on specific items or issues that could affect their success in their personal lives might be considered an important part of applying the use of the Internet. That is, information

available from newsgroups could be very advantageous to students as well when they are looking for information that they may need for their personal pursuits.

Not surprisingly, a significant relationship was found between educators who perceive the Internet to have value for their personal needs and their use of the Internet for leisure and hobby activities. This result is a reasonable expectation as well. Just as personal use of the Internet was found to be a predictor of using newsgroups, so is use of the Internet for leisure and hobby uses. As indicated earlier, newsgroups and leisure and hobby uses are closely related in a number of ways and it would be expected that both of these items would be predicted by personal use of the Internet.

A significant relationship was found between those educators with higher levels of personal value feeling less strongly that more training with students would increase classroom use over those who had lower levels of personal value. Two possible reasons may explain this inverse relationship.

One, educators who perceive the Internet to have value for their personal needs may be keeping their

Internet usage personal and not interested at this point in implementing the Internet into classroom situations. This suggests that educators may either have a clear distinction between their personal needs and use with students or don't think that it is important to apply Internet into classrooms for aspects related to personal needs of the student.

A second reason could be that those educators who have a high personal value for the Internet don't think that they need more training to use it with students. Perhaps they feel that they already know how to use the Internet but maybe haven't realized that they may need additional pedagogy training when it comes to applying Internet with students. Perhaps these people are not willing to learn how to apply the Internet with students and thus do not feel that more training in using the Internet with students would affect their Internet use with students.

Career.

An educator who perceives the Internet to have value for their career and a large amount of useful information on the Internet contributing to their

Internet usage were found to be significantly related. Starr and Milheim (1996) found that approximately eighty percent of the respondents in their survey felt that a large amount of useful information available on the Internet was a major advantage to using the Internet. The finding in this study suggests that educators may perceive the large amount of information available on the Internet to be important to their career needs and this may encourage their Internet use.

Partner.

It is interesting that a relationship was found between an educator who perceives the Internet to have value for their partner and having easy access to the Internet at home. An educator who perceives the Internet to have value for their partner could feel that having easy access to the Internet at home might indicate that the partner would use the Internet at home. But, this occurrence may influence an educators' perceived Internet success. Perhaps an educator's partner's use at home has a critical role in whether or not an educator uses the Internet and is not entirely due to the Internet being easily accessed at home.

Considering the discussion that addressed the previous significant finding, it is interesting that a significant relationship was found between an educator who perceives the Internet to have value for their partner and using the Internet for work related preparation activities. This could be a preferred learning situation in that an educator may have more opportunities to learn about the Internet through their partner's use due to the easy Internet access provided at home and thus results in the educator's own use for work related preparation activities.

An educator who perceives the Internet to have value for their partner was found to be a predictor for an educator feeling that an increase in their perceived value of the Internet for their own needs would increase their Internet usage. It is consistent with previously mentioned findings in that an educator's perspective on their perception of their partner's value for the Internet plays a role in their own concerns for Internet usage. Perhaps educators who have partners with a high value of the Internet don't see the value of the Internet for themselves. But, if they did see value for their own needs, they would

increase their use perhaps through their partner's help in learning about the Internet. That is, the support system they feel they need may exist through their partner so that they themselves could learn about the Internet easily.

Dependents.

A significant relationship was found between educators who perceive the Internet to have value for their dependents and chat group experience. A common use of the Internet for younger users of the Internet is to access chat groups. Concerns regarding Internet addiction largely stem from levels of chat group experience. Additional concerns are that younger users of the Internet do have a great interest in using this feature of the Internet. It is interesting that those educators who perceive the Internet to have value for their dependents may be using chat groups as well. This could indicate that they use chat groups either by being prompted by their dependents or by learning about chat groups from their dependents and initiating their own chat groups experiences.

A second significant relationship was found between educators who perceive the Internet to have value for their dependents and using the Internet for their own education interests outside faculty courses. One reason to explain this is that educators may be seeking to set an example for their dependents that encourages their dependents' Internet use in a way that they have deemed responsible. Educators' own approaches to Internet usage could set an example or demonstrate interest in using the Internet resulting in increased value of the Internet for their dependents.

Oppositely, educators could be learning from their dependents' Internet usage. Educators could be finding out through their dependents' Internet usage the value that the Internet has for their personal interests and following their dependents' leads in using the Internet in the same way.

Students.

A positive indication that Internet applications with students may be progressing to a level of professional consciousness is that educators who perceived the Internet to have value for their students

was found to be a predictor for using the Internet for professional activities. An educator who perceives the Internet to have value for their students may seek to ensure for themselves a self-perception of their own responsibility in using the Internet. That is, these educators may be interested in establishing for themselves a situation where they perceive their own Internet usage for professional activities to be consistent with their perceptions of the value that the Internet has for their students. Alternatively, their own Internet usage for professional activities may, in turn, positively influence their perception that the Internet has value for their own students.

A significant relationship was found between an educator who perceives the Internet to have value for their students and an educator feeling that they would increase their Internet use with their students if they perceived the Internet to have more value for their partner. This is an interesting finding. The findings discussed earlier regarding an educator's perceived value of the Internet for their partner suggested that an educator who perceived the Internet to have value for their partner might be motivated to use the

Internet for their own needs. Perhaps educators are interested in having their partners show them how to use the Internet so that they can learn how to use the Internet and then use the Internet with their students. Educators who perceive the Internet to have value for their students in the first place could be looking for assistance in helping them to apply the Internet into their classrooms.

Society.

An educator's perceived value of the Internet for society and their use of the Internet for personal interests were found to be significantly related. Again this finding suggests that these educators, like the members of society, may largely use the Internet for personal interests. Thus, educators perceive the Internet to have value for adult society, but many may not perceive the Internet to have value for their students. Educators' levels of interest in the Internet, Internet success, and personal use of the Internet were high, but their level of use of the Internet with their students was low, as was their perceived value of the Internet for their students.

This finding suggests that educators use the Internet for their personal use and thus perceived it to be valuable to society as a whole, but do not feel that the Internet has much value for their students, and thus do not use the Internet with students very much.

A second significant relationship was found between an educator's perceived value of the Internet for society and the amount of time that an educator uses the Internet. Educators who perceive the Internet to have value for society are probably using the Internet a lot, but it may be mostly for personal uses, not uses with students. The Internet offers unlimited amounts of information that addresses any topic imaginable and is easily accessable. Because educators understand this aspect of the Internet they use it readily, thus spending time on the Internet. However, they may not use the Internet with their students because they may not perceive it to be valuable to them because of their own perceptions regarding Internet use for personal uses. This is an interesting finding that again sheds light on educators' overall views towards the Internet with respect to its application in classrooms.

Non-Internet Users

Only three out of thirty non-Internet educators were identified in the study. All three respondents indicated that access to a computer did not affect their non-use of the Internet. These respondents indicated that Internet training and computer training did contribute to their non-Internet use. Time constraints did not appear to play a role in their non-use of the Internet. Yet, receiving some training in using the Internet with students appears to be a contributing factor in increasing Internet use for these educators and each respondent indicated that they felt that they would be using the Internet within a relatively short period of time.

The respondent who indicated that their Internet use would increase if convenient access increased, they received more training, and their values regarding Internet use increased, appears to be an individual who is not motivated to use the Internet by both value related beliefs and other reasons. This individual does not appear to perceive themselves to be someone who is not computer or Internet literate at all. Yet, they perceive their situation regarding non-Internet

use to be strongly related to their low perceived value of using the Internet.

The second respondent indicated that Internet training with students would increase their Internet usage, and the third respondent indicated that time constraints restricted their Internet usage in all ways. These two individuals' Internet usage does not appear to be restricted by their perceived Internet achievement either, nor their value motivation beliefs as was the case with the previous individual.

Implications for Implementing Internet into Classrooms

The study identified a number of significant relationships that could be used to help in understanding and implementing Internet into classrooms. Both achievement- and value-related beliefs identified possible predictors of Internet usage for educators that could be managed in an effort to encourage, promote, and achieve more Internet applications into classrooms.

Overall the study did not find that educators felt that their access to the Internet was restricted or inhibited to a degree that prevented or discouraged

their Internet use. This held true for all educators:
those using and those not using the Internet. Although
a number of educators indicated that more convenient
access to the Internet would increase their use of the
Internet with their students, this does not appear to
be as significant a factor as other studies have
suggested. Perhaps at this point in time educators
feel that their access to the Internet has reached a
satisfactory level but this may have not been the case
when earlier educational Internet studies were
conducted.

The findings in this study suggest that more
training in using the Internet with students would
increase Internet use with students for both educators
who were using the Internet and those who were not
using the Internet. This finding indicates a need that
could be implemented into staff development programmes
that pinpoints specific Internet trainings that would
be valuable to apply in practice.

Internet self-efficacy's role in educational
Internet usage was found to be important. Internet
self-efficacy was found to be related to both
achievement- and value-related motivational beliefs.

Implementing and encouraging Internet training
programmes that include both trainings in Internet use
with students and self-efficacy variables would perhaps
increase Internet usage in classrooms. Increasing
Internet self-efficacy could contribute to educators
becoming more self-directed in both learning new
Internet applications and applying them into
classrooms. This could be achieved without the need to
spend money in areas where the training might not have
a significant effect in actual Internet classroom
applications.

Motivational lectures and directives that focus on
the value that the Internet can have for an educator's
career, personal needs, and different uses of the
Internet for education could have positive impacts on
the level of Internet usage in classrooms. The
findings in this study suggest that an educator's
perceived value for the Internet related to these
motivational beliefs can have significant effects on
Internet usage. Increasing educators' perceived levels
of value for the Internet could result in increased
levels of Internet usage in classrooms.

The findings in this study indicate that educators' use of the Internet could be affected in ways that are highly personal and to this researcher's knowledge, not studied before. The findings indicate that educators are experiencing motivations for Internet usage that are closely tied to their personal belief systems and that this may affect their Internet use in education.

The Internet seems to be perceived around personal aspects, however educators don't seem to feel that, even though the Internet is important for them personally, that it would have value for students. Although computers are perceived to be valuable for students, most educators don't feel the same way about the Internet. Perhaps educators have to start examining the Internet's capabilities from the perspective of how it may have value for their students if widespread implementations of the Internet were to take place sooner rather than later. Perhaps educational administrators should focus some of their concerns for applying Internet into classrooms by identifying and emphasizing the value that the Internet can have for students, and thus more Internet

applications could be developed and implemented in the classroom.

Although, the findings in this study suggest that educators who use the Internet probably use it for personal reasons they don't feel that they need more training to use it with students. Despite using the Internet for their own personal reasons, they may not have thought of how they could apply it in classroom situations. Perhaps these educators could be informed as to how the Internet could be applied in the classroom so that the Internet's value for students could be recognized. This could increase Internet usage with students and thus benefit the students.

This study and others (Gallo & Horton, 1993, Starr & Milheim, 1996) found that ease of access to the Internet and fast response times are expected by educators if they are going to implement Internet into classrooms. This aspect must be in place if widespread Internet use in classrooms is going to take place.

The learning curve in using the Internet appears to be initiated through self-teaching or by educator's partners or dependents. It does not appear that it initially originates from pedagogical training. With

the help of a partner or dependent the new knowledge
required to learn how to use the Internet could be
sufficient to initially train an educator. However,
further training in learning how to use the Internet
with students would most likely be beneficial in
increasing Internet use with students.

Limitations and Suggestions for Further Studies

All limitations that apply to empirical research
of this type also apply to this study. For example,
the possibility that a significant result occurs by
chance cannot be excluded in this study. To the
knowledge of the researcher this is the first study
that relates educators' achievement- and value-related
beliefs about the Internet to their Internet related
perceptions. Therefore, the individual results
reported in this study must be confirmed before they
can be generalized to a larger population. Moreover,
other populations of educators have to be studied to
determine whether similar results prevail for these
different populations.

Previous studies (Kellenberger, 1990; Kuendiger,
1990; Kuendiger, Gaulin, & Kellenberger, 1992,

Kellenberger, 1994) have applied the conceptual
framework used in this study to examine motivations in
education. However, none of these studies has examined
Internet usage and application by educators. Future
studies may focus on three areas.

One, future studies that examine Internet
achievement and its perceived value for different
populations of educators are required to attempt to
identify changes in beliefs about Internet usage over
time. Two, studies that examine educators' educational
and personal needs of the Internet might work towards
clearly identifying factors that may affect applying
the Internet in classrooms. Three, studies might
examine the possible effects of the Internet's
perceived roles in educators' personal lives and how
these may be used to motivate its incorporation into
their curricula.

This study found that both Internet achievement
and value were significantly related to the five
Internet-related perceptions investigated. These
findings suggest that personal use of new technologies
does not necessarily indicate the transfer of these
technologies to the classroom. Yet, the underlying

motivational frameworks used in this study could be used to study the implementation of new technologies in classroom situations with a focus on the relationship between personal aspects and value for students.

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Appendix A: Questionnaire

Main Study Cover Letter

    I am a student in the Master of Education program at the University of Windsor. I am conducting a study on Graduate Education Student Beliefs Related to the Internet as part of the requirements for my degree.

    I am asking you for your voluntary participation in this study. If you wish to participate, please complete the following short questionnaire. Since I am interested in your own personal feelings, please answer the questions truthfully. You may leave an individual question blank if you do not wish to answer it. Your returning of the questionnaire will be taken as an indication of your consent. If you do not wish to participate, please leave the entire questionnaire blank.

    The answers to the questions are strictly confidential. Your answers are provided anonymously and will be used for research purposes only. If you have any questions before, during, or after the study please ask. You may withdraw from the study at any time. A permanent copy of the completed research work will be available in the thesis collection of the University of Windsor Library. If you have any concerns, please feel free to contact D. Larry Morton (Chair, Faculty of Education: Research Ethics Committee) at 253-4232 ext. 3835 or Dr. David Kellenberger, (Assistant Professor, Faculty of Education) at 253-4232 ext. 3823 or myself at work, 966-1656 ext. 4467, at home, 736-4112.

Thank you for your time.

                                      Yours truly,

                                        Mark Whelan

QUESTIONNAIRE

1. Indicate your age: _____

2. Circle your gender: Female   Male

3. Circle your student status: Part-time   Full-time

4. Circle your employment status: None   Part-time   Full-time

    If employed either part-time or full-time indicate your employer's main function (i.e., education, health care, etc.):
    _____

    Occupation: _____

5. How many years of full-time teaching experience do you have? _____

6. How many computer-related courses have you taken? _____

FOR THE FOLLOWING QUESTIONS PLEASE CIRCLE THE NUMBER WHICH REPRESENTS THE MOST APPROPRIATE RESPONSE.

7. How interested are you in computers?

1	2	3	4	5
Not Interested		Somewhat Interested		Very Interested

8. How knowledgable are you about computers?

1	2	3	4	5
Not Knowledgeable		Somewhat Knowledgeable		Very Knowledgeable

9. How much experience do you have using a computer for your own use?

1	2	3	4	5
No Experience		Some Experience		A Lot Of Experience

10. How much experience do you have using a computer with your students?

1	2	3	4	5
No Experience		Some Experience		A Lot Of Experience

    Check if not applicable _____

IF YOU HAVE NO COMPUTER EXPERIENCE, CONTINUE WITH QUESTION #12.

11. How successful have your experiences generally been with computers?

1	2	3	4	5
Very Unsuccessful		Neutral		Very Successful

12.   How interested are you in the Internet?

1	2	3	4	5
Not Interested		Somewhat Interested		Very Interested

13.   How valuable is the Internet to:

A)   Your own personal needs?

Not Valuable		Somewhat Valuable		Very Valuable
1	2	3	4	5

B)   Your future career goals?

Not Valuable		Somewhat Valuable		Very Valuable
1	2	3	4	5

C)   Your partner?

Not Valuable		Somewhat Valuable		Very Valuable

Check if not applicable _____

1	2	3	4	5

D)   Your dependents?

Not Valuable		Somewhat Valuable		Very Valuable

Check if not applicable _____

1	2	3	4	5

E)   Your students?

Not Valuable		Somewhat Valuable		Very Valuable

Check if not applicable _____

1	2	3	4	5

F)   Society in general?

Not Valuable		Somewhat Valuable		Very Valuable

1	2	3	4	5

14.   How easily can you access the Internet:

A)   At work?

Not Easily		Somewhat Easily		Very Easily

Check if not applicable _____

1	2	3	4	5

B)   At home?

Not Easily		Somewhat Easily		Very Easily

Check if not applicable _____

1	2	3	4	5

C)   At the faculty?

Not Easily		Somewhat Easily		Very Easily

1	2	3	4	5

15.   How knowledgeable are you about the Internet?

1	2	3	4	5
Not Knowledgeable		Somewhat Knowledgeable		Very Knowledgeable

16. How much experience do you have using the Internet for your own use?

1   2   3   4   5

No Experience   Some Experience   A Lot Of Experience

17. How much experience do you have using the Internet with your students?

1   2   3   4   5

No Experience   Some Experience   A Lot Of Experience

Check if not applicable _____

IF YOU HAVE NO INTERNET EXPERIENCE, CONTINUE WITH QUESTION 26.

18. How successful have your experiences generally been with the Internet?

1   2   3   4   5

Very Unsuccessful   Neutral   Very Successful

19. How much experience do you have with the following Internet resources?

	No Experience	Some Experience	A Lot of Experience
A) Electronic Mail	1 2	3 4	5
B) World Wide Web	1 2	3 4	5
C) Newsgroups	1 2	3 4	5
D) Discussion Lists (i.e., Listserv)	1 2	3 4	5
E) Chat Groups (i.e., IRC)	1 2	3 4	5
F) File Transfers (i.e., FTP)	1 2	3 4	5
G) Remote Login (i.e., Telnet)	1 2	3 4	5

20. How often do you use the Internet?

Every day _____

Days per week (specify number) _____

Every _____ weeks (specify number)

Every _____ month(s) (specify number)

Other(s) (specify) _____

FOR THE FOLLOWING QUESTIONS PLEASE CIRCLE THE NUMBER WHICH REPRESENTS THE MOST APPROPRIATE RESPONSE.

21. How much time do you feel you spend on the Internet?

1	2	3	4	5
Too Little Time		Appropriate Amount of Time		Too Much Time

22. How often do you use the Internet for:

A) Personal Interests?

Not Often		Somewhat Often		Very Often
1	2	3	4	5

B) Leisure/Hobby Activities?

Not Often		Somewhat Often		Very Often
1	2	3	4	5

C) Work-Related Preparation Activities?

Not Often		Somewhat Often		Very Often
1	2	3	4	5

D) Student Activities?

Not Often		Somewhat Often		Very Often
1	2	3	4	5

E) Professional Activities?

Not Often		Somewhat Often		Very Often
1	2	3	4	5

F) Own Education Interests Outside Faculty Courses?

Not Often		Somewhat Often		Very Often
1	2	3	4	5

23. How much do the following aspects contribute to your Internet usage?

A) Low Cost

None		Some		A Lot
1	2	3	4	5

B) Up-to-Date Information on the Internet

None		Some		A Lot
1	2	3	4	5

C) Large Amount of Useful Information on the Internet

None		Some		A Lot
1	2	3	4	5

D) Small Amount of Time to Find Useful Information on the Internet

None		Some		A Lot
1	2	3	4	5

E) Convenient Access

None		Some		A Lot
1	2	3	4	5

F)   Access to Software

None		Some		A Lot
1	2	3	4	5

G)   Communication with Others

None		Some		A Lot
1	2	3	4	5

H)   Technical Support Staff

None		Some		A Lot
1	2	3	4	5

I)   Other Aspect(s) (Please Specify)

None		Some		A Lot
1	2	3	4	5

24.   How much do the following aspects hinder your Internet usage?

A)   High Cost

None		Some		A Lot
1	2	3	4	5

B)   Out-of-Date Information on
the Internet

None		Some		A Lot
1	2	3	4	5

C)   Small Amount of Useful Information
on the Internet

None		Some		A Lot
1	2	3	4	5

D)   Large Amount of Time to Find Useful
Information on the Internet

None		Some		A Lot
1	2	3	4	5

E)   Inconvenient Access

None		Some		A Lot
1	2	3	4	5

F)   Slow Response Time

None		Some		A Lot
1	2	3	4	5

G)   Lack of Standardization

None		Some		A Lot
1	2	3	4	5

H)   Other Aspect(s) (Please Specify)

None		Some		A Lot
1	2	3	4	5

25.   If the following aspects were realized, how much would they contribute to
your increased use of the Internet with your students?

A)   More convenient access to the
Internet for your class
   Check if not applicable _____

None		Some		A Lot
1	2	3	4	5

B)   More Internet training in general

None		Some		A Lot
1	2	3	4	5

C)   More training in the use of the
Internet with students
   Check if not applicable _____

None		Some		A Lot
1	2	3	4	5

D)   Perceived to be more valuable
for your own needs

None		Some		A Lot
1	2	3	4	5

E) Perceived to be more valuable for your career goals

None		Some		A Lot
1	2	3	4	5

F) Perceived to be more valuable for your partner
    Check if not applicable _____   1

None		Some		A Lot
	2	3	4	5

G) Perceived to be more valuable for your dependents
    Check if not applicable _____

None		Some		A Lot
1	2	3	4	5

H) Perceived to be more valuable for your students
    Check if not applicable _____

None		Some		A Lot
1	2	3	4	5

I) Perceived to be more valuable for society in general

None		Some		A Lot
1	2	3	4	5

J) Other Aspect(s) (Please Specify)

None		Some		A Lot
1	2	3	4	5

IF YOUR REPLY TO QUESTIONS 16 or 17 WAS THAT YOU HAD ANY INTERNET EXPERIENCE YOU HAVE FINISHED THE QUESTIONNAIRE. THANK YOU FOR YOUR CO-OPERATION.

26. How much do the following aspects contribute to your lack of use of the Internet?

A) Access to a computer in general

None		Some		A Lot
1	2	3	4	5

B) Access to the Internet

None		Some		A Lot
1	2	3	4	5

C) Computer training in general

None		Some		A Lot
1	2	3	4	5

D) Internet Training

None		Some		A Lot
1	2	3	4	5

E) Time constraints to learn how to use a computer in general

None		Some		A Lot
1	2	3	4	5

F) Time constraints to learn how to use the Internet

None		Some		A Lot
1	2	3	4	5

G) Perceived Value of the Internet

None		Some		A Lot
1	2	3	4	5

H) Technical Support Staff

None		Some		A Lot
1	2	3	4	5

I) Other Aspect(s) (Please Specify)

None		Some		A Lot
1	2	3	4	5

27. If the aspects contributing to your lack of use of the Internet were addressed immediately, circle the earliest time you would plan to use the Internet.

        Within the next month

        Within the next three months

        Within the next six months

        Within the next year

        Within the next few years

        Never

28. If the following aspects were realized, how much would they contribute to your increased use of the Internet with your students?

A) More convenient access to the Internet for your class
    Check if not applicable _____

None		Some		A Lot
1	2	3	4	5

B) More Internet training in general

None		Some		A Lot
1	2	3	4	5

C) More training in the use of the Internet with students
    Check if not applicable _____

None		Some		A Lot
1	2	3	4	5

D) Perceived to be more valuable for your own needs

None		Some		A Lot
1	2	3	4	5

E) Perceived to be more valuable for your career goals

None		Some		A Lot
1	2	3	4	5

F) Perceived to be more valuable for your partner
    Check if not applicable _____

None		Some		A Lot
1	2	3	4	5

G) Perceived to be more valuable for your dependents
    Check if not applicable _____

None		Some		A Lot
1	2	3	4	5

H) Perceived to be more valuable for your students
    Check if not applicable _____

None		Some		A Lot
1	2	3	4	5

I) Perceived to be more valuable for society in general

None		Some		A Lot
1	2	3	4	5

J) Other Aspect(s) (Please Specify)

None		Some		A Lot
1	2	3	4	5

THANK YOU FOR YOUR CO-OPERATION

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