THE INTEGRATION OF INFORMATION TECHNOLOGY
AND ACADEMIC ADVISING:
A CANADIAN STUDY

by

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ABSTRACT

The purpose of this study is to identify key technologies in use within academic advising and student services and to investigate the impact that information technology is having on the delivery of academic advising services and the development of advising theory in Canadian universities. Information technology may include email, information based web-sites, electronic degree audit, internet based web-advising, student information databases and other user specific interfaces. The premise for this study is that the use of technology in academic advising is increasing and is having an impact on the delivery of advising services by reducing the manual burden of information integration and dissemination, and enabling academic advisors to focus developmentally and holistically, focusing on the growth and improvement of students academically and personally. As a professional Academic Advisor my search of literature on information technology and academic advising revealed an absence of qualitative and quantitative information about the use of academic advising technology and its impact on the delivery of advising services. This study was conducted using a mixed model survey of professional academic advisors and advising administrators in Canada's public four year English language research universities. Data analysis showed that while technology use is widespread within Canadian advising centres, that the goals, use and perceptions of technology vary. Many functions which could (and should) be managed efficiently by technology are still being performed manually and the implementation of information technology is not being done in coordination with an institutional retention plan or advising model in mind.
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Ultimately this work is dedicated to my family and friends whose support and patience, was always available. Finally I owe a debt of thanks to Scott and Kyle for the sacrifices of my time that they endured.

For Kyle, my Sunshine.
CHAPTER 1: INTRODUCTION

Information technology and e-business have been making the move into higher education and are having a significant impact of the design and delivery of service and learning programs in post-secondary education. Increasingly, information technology is hailed as "the" solution to administrative and service delivery issues in higher education. The impact of e-business and technological innovation can be felt across universities from university libraries, learning technologies in the classroom to student services nationwide.

Academic advising is traditionally a face to face, personal and resource intensive activity where students seek advice from professional advisors, faculty members or peers to develop academic plans. Heightening the quality of advising programs through strategic development of technological tools to increase the accuracy of student records, provision of on-demand access to student records and profiles, and development of other advising tools that reduce the manual burden of information integration and dissemination are several of the goals of information technology programs. Through the opportunities that information technology can provide and by integrating new technologies into the advising process, it may be possible for advising programs to refocus and develop expertise in advising programs that focus developmentally and holistically on the student's personal and professional goals in addition to the student's academic aims. Technology, when used strategically, should assist institutions in targeting groups of students to improve student success and institutional retention rates.

Technology tools themselves, email, internet web sites, student information systems (SIS), databases, electronic degree audit and other specialized software
applications can improve the daily administration of advising programs when implemented strategically and effectively. Information technology can benefit students through improvements to advising programs and also through transparency and access to institutional and personal information that empowers students to fulfill their educational goals.

Information technology has the potential to advance academic advising from a widely prescriptive model to a developmental and even intrusive model of advising which can benefit all stakeholders, advisors, students and institutions. For technology to advance the theoretical foundation of academic advising it must be utilized with clear vision, goals and support. Technological innovation is most likely accomplished in professional rather than faculty based advising programs, as professional advisors tend to be the larger users and stakeholders in the application of technology.

**Purpose**

The motivation for this study stems from my professional experience as an academic advisor in the Faculty of Arts at the University of British Columbia. As an Academic Advisor I work one on one with students on issues including recruitment, admissions, transfer credit articulation, course and career planning, academic intervention, continuation requirements and convocation. Within my position I utilize a wide variety of technological tools including email, web sites, student data systems and others. Part of my role as an academic advisor is to identify areas for improvement of services through the application of technology. The motivation for this study was to place UBC in the national context and assess how the current level of technological
innovation and the use of information technology in academic advising centers in
Canadian universities is affecting the design and delivery of advising programs. An
assessment of uses and best practices it will enable a discussion on the impact of
technology in the context of academic advising theory and the design of advising
programs. A comparison of the software and applications which are currently in practice
in advising centres, as well an evaluation of the strategic objectives, implementation and
support structures for technological innovation will assist advising centers in setting
goals, objectives and operational plans for the development and implementation of
 technological resources.

**Context**

Technological change is rapid and it is becoming incumbent on institutions to
maintain and develop new technologies which enable them to obtain or meet their goals
and mission. Changes in the expectations and needs of students in higher education are
also putting pressure on institutions to become more service and consumer focused. The
adaptation of technology can assist in reaching these new organizational objectives
within a rapidly changing climate by providing easy access to information and through
the development of other student focused advising tools.

Students who view themselves more as consumers, and see education as a
product, place pressure on institutions and advising centres to expand and improve
services for them as clients. Student development theory has also moved advising
programs forward in developing models of advising that are taking on a larger role in the
lives of students. No longer are advisors called on to provide only prescriptive course
programming and timetabling information. As more registration functions are self-serviced by students, students are seeing academic advisors as life advisors and are expectant of a greater level of service that includes career counselling, personal and crisis counselling as well as the traditional prescriptive elements of advising. Institutions are increasingly pressured to provide greater levels of service to students and to improve their overall retention and student success rates. In many cases, this results in pressure on advising offices to provide greater levels of services without increased resources. As a result, improvements in the use of information technology is seen as one way to improve efficiency and provide better student service.

Generally, there is an absence of both quantitative or qualitative data on the connections between academic advising technology and the impact of information technology on the development of advising theory, even more so in a Canadian context. The prevailing literature that is available on the use and objectives of advising technology is predominately American in origin, which leaves both a gap and an opportunity for research which focuses on Canadian institutions.

*Research Questions*

The research problem to be addressed in this study is to assess how the development and use of information technology is affecting the design and delivery of academic advising programs in undergraduate education and how technology is being used as part of the ongoing development of advising theory. The use of information technology in academic advising is touted as a tool to empower students by providing opportunities for them to self service and access information and academic advising from
a distance. Information technology can also empower advisors by providing on-demand information to assist in the advising process. It is believed that technology, when used to supplement rather than replace in-person advising, can benefit students by reducing clerical activities, allowing advisors to focus on student-centered advising. The use of information technology can have a positive impact on the delivery of advising programs by opening time for professional development of advisors who, in turn, are then able to focus their advising holistically to the benefit of the student. Timely and accurate information is essential to institutional retention and intervention programs targeting at-risk students during key times in the academic cycle. The outcomes of improvements to technology and advising programs is hoped to improve institutional retention rates as students receive better and timelier information, which can improve their academic success. Technology can be used as the enabling factor in the shift from prescriptive advising to developmental and intrusive models of academic advising.

Several research questions will be addressed through the survey instrument and data analysis. Key areas to be explored fall into two primary areas. The first area of interest surrounds the current status of information technology and the second revolves around the perceptions and feelings of advisors regarding the role of technology in the advising process. Specific questions to be addressed include:

1) What is the current status of information technology at Canadian, English speaking, four-year research universities?
   - How is information technology used?
   - Is the use of information technology increasing?
   - Are institutions using technology strategically?
• How do universities and advising centres plan for, integrate and support technology in advising?
• Is information technology being used to replace manual tasks?

2) What are the perspective and opinions of academic advisors regarding the role of information technology in the advising process?

• How do advisors see the value of information technology (positive, negative or other)?
• What kind of information technology background and training do advisors have?

**Structure**

This work is organised logically, beginning with the literature review immediately following this section. The literature review includes a discussion of the foundations, theories and models of academic advising. A discussion of e-business models and theories as well as an introduction to academic advising technology is also included. The following chapters include an outline of the research process incorporating a discussion of the sample, research design and methodology. The design chapter includes a summary of the survey's response rate, as well an outline of the method of analysis and limitations. Data analysis and discussion are covered in three chapters, each dedicated to a central theme. These three chapters are organised to review the current condition of academic advising in Canada, the applications of technology in advising, and finally the voices and opinions of academic advisors. Discussion, recommendations and conclusions follow in the final chapter.
Interest in this topic stems from my professional experience as an academic advisor and the frustration I have experiences in the design, application, use and access to information and information technology within my own unit. It is hoped that other academic advisors, advising administrators and student service units will also be interested in the nexus between technology and academic advising and find this study informative and useful in guiding decisions and development of technological innovation in student services.
CHAPTER 2: LITERATURE REVIEW

This literature review surveys the available scholarly material, including previous research, advising manuals, edited collections and journal articles related to the topics of academic advising and the use of information technology in higher education. In examining the literature relevant to academic advising and technology it is important to review the history and purpose of academic advising, including related theories and models, as well as the purpose, development, current practices and impact of information technology in higher education and student development. Through the use of available literature, I will demonstrate that although there are substantial contributions to the field of academic advising, technology in education, and the purpose and intent of information technology use in academic advising, there is no literature specifically targeted at the assessment of technology usage in academic advising, nor is there literature on these issues from a Canadian perspective. This review will clarify the need for further research in this field and provide support for further inquiry to understand the role of technology in academic advising.

The goal of this study is to demonstrate how the increased use of technology in academic advising and student services is impacting the design and delivery of advising programs. Technology, when strategically designed and implemented, can reduce routine and clerical functions and allow advisors to develop a more encompassing and holistic advising program that moves beyond the traditional prescriptive model. Advisors in developmental advising models are called on to develop their training and expertise in student development theory, necessitating ongoing professional development and training. New technology itself also requires advisors to update their skills and training
on an ongoing basis. Proponents of advising technology such as Gary Kramer and Michael McCauley (1995) assert that technology relieves clerical burdens, efficiently stores and manages information, allows staff to aid students beyond the routine and provides increased time for student development centred activities (p. 27). For technology to assist in the realisation of these goals, institutions must recognise and plan for the inevitable human resource and infrastructure costs.

**Academic Advising Foundations**

Historically, academic advising was founded with faculty members serving as mentors and advisors. Social development, expansion of higher education and increasing student participation rates in North America, particularly in the United States, has served to distance students from faculty. Institutions have moved from a model of *in loco parentis*, where institutions took on the role of parent, educator and advisor to students in residence, to a model where institutions are seen as service providers and students as consumers (Frost 2000). Growth in institutional size, complexity and diversity within the student body has further served to widen the gap between students and faculty (Frost 2000). Many institutions have attempted to close the gap between faculty and students through the advising process. The early 20th century saw a rise in advising “programs” in the United States. Some of the first faculty advising programs were implemented at Johns Hopkins University in Baltimore, Maryland and Columbia University in New York in 1889 and 1906 respectively. These programs were founded on a faculty advising model and sought to reconnect students with faculty members as advisors and mentors. Susan Frost (2000) notes that by the 1930s all institutions had established formalized
faculty advising programs. Professional advising soon followed in the 1940s, first at Alfred University in Alfred, New York, with many other institutions following with professional advising programs that complemented existing faculty advising models (Frost 2000, p. 9). These programs were more student centered and focused than previous advisement services and they began to encourage the exploration of the whole student as well as program planning and faculty mentoring (Frost, 2001, p. 8).

The rise of the professional in student affairs has also increased the interest and research in student development and has assisted in the generation of several new theories and models of academic advising. These theories and models are undergoing development and growth as higher education institutions adapt to change within the education and business sectors, as well as political, cultural and social changes.

The first professional advisors arrived on the higher education scene in the 1930s. The new field of “student personnel work” was narrowly defined as “work having to do with individual students outside the classroom” (Frost 2001, p. 9). The goal of encouraging students to explore goals and interests beyond those purely academic fell to this new group of higher education professionals. Student personnel workers encompass such job titles as academic advisor, counselor, career advisor, admissions officer, financial aid advisor and many others (Frost 2001, p. 9).

**Academic Advising Theories**

Although there are several theories of academic advising and many more models of advising systems, this literature review will focus primarily on the differences between the three predominant theories: prescriptive, developmental and intrusive advising within
a professional or mixed professional-faculty advising system. The starting point for
discussion of the theories of academic advising is a definition of academic advising.

Definitions of academic advising have evolved over time, synonymously with the
development of associated theories. Advising, once viewed solely as a clerical function
where advisors performed a set of “procedural tasks,” has grown to recognize its
developmental value and advisors now serve as facilitators for the realization of both
student development and institutional goals of retention and degree completion (Pardee
2000, p.204). The most oft cited definition of academic advising, developed by David
Crockett (1984) asserts that academic advising is:

a developmental process which assists students in the clarification of their
life/career goals and in the development of educational plans for the realization of
these goals. It is a decision-making process by which students realize their
maximum educational potential through communication and information
exchange with an advisor; it is ongoing, multifaceted, and the responsibility of
both student and advisor. (p. 3)

Academic advising, by definition, is more than simply course planning, scheduling and
other routine functions. The advising process focuses on assisting the student in the
realisation of his or her academic and personal potential. Advisors are resources and
facilitators intended to encourage the growth and development of students holistically.

Prescriptive Advising

The predominant model of advising up to the mid 20\textsuperscript{th} century, prescriptive
advising, focuses on advisors as information sources, relying on students to know when it
is necessary to gain access to advising resources. Prescriptive advising is defined as "a relationship built on the authority of the advisor and the limitation of the student" (Frost, 2000, p.12). This type of advising is reactive and does not encourage or provide opportunities for long-term development, follow-through or relationship building between participants. Prescriptive advising relies on the student to bring forward problems requiring attention and on the advisor to provide answers or solutions to the problems at hand. Students in prescriptive models remain at a disadvantage, as they are only encouraged to seek advising when problems or questions arise rather than being invited to an advising session to examine both academic and non-academic issues (Jeschke, Johnson and Williams, 2001, p. 49).

Traditional models of academic advising consist largely of program planning, course selection and scheduling resulting in a type of advising that is narrow and regulatory in nature and relies on students to explore other personal and vocational options outside of the advising realm. An increase in interest in student development theory has helped to generate new models of advising which focus on overall student development and satisfaction rather than simply the functionality and applicability of course selection.

*Developmental Advising*

The second model of academic advising, developmental, builds on theories of student development. Developmental advising, focuses on the needs of the whole student, is grounded in the theory of human development as applied to undergraduate student populations. Human development theory recognizes that developmental
processes are continuous throughout life and are cumulative, whereby one experience builds on another (Miller & McCaffrey, 1982, p. 80). The influence of human development can be seen in academic advising as the different needs of students are considered and addressed according to what stage of development a student has reached. The needs of students in early adulthood, 16-23 years old, are different than those of mature students in their middle adult years, 35-57 years old (Miller & McCaffrey, 1982, p. 25). Advisors in developmental advising models are trained, and advising programs are structured to handle these mixed needs, taking a more paternal approach with younger students and a peer support role for older students.

Developmental advising has become the foundation for professional academic advising programs in the later half of the 20th century and has been expanded and advocated by many experts in the student affairs field. Developmental advising links both student development theory and academic advising with institutional goals of recruitment, retention, student success and satisfaction.

Developmental advising seeks to engage the student in his or her academic development and life planning process. Developmental advising has many practitioners. Roger Winston, Theodore Miller, Thomas Crites are among those oft cited in the field of advising theory, particularly in building the link between student development theory and academic advising. In their 1984 collection Developmental Academic Advising, Ender, Winston, Roger and Miller showcase authors who have contributed positively to the literature on academic advising through chapters dedicated to the theory and practice of academic advising from a developmental perspective. Roger Winston (1984) lays the
foundation for the study of academic advising by articulating the following definition of developmental advising:

a systematic process based on a close student-advisor relationship intended to aid students in achieving educational, career, and personal goals through the utilization of the full range of institutional and community resources. It both stimulates and supports students in their quest for an enriched quality of life.

(Winston, 1984, p. 19)

This definition closely mirrors the focus of academic advising generally: Academic advising consists both of the practical functions of course planning and scheduling as well as developmental aspects that focus the discussion holistically on a student's larger life goals, skills and personal growth. The onus in developmental advising programs still rests on the student to access advising services, however, once a relationship has been initiated, the goal of developmental advising is for the relationship to continue and mature over a student's time in a program or institution. Advisors in developmental models therefore must be trained and experienced in more than simply degree requirements and institutional processes. Advisors should be knowledgeable in theories of student development, vocational and career advising as well as institutional requirements and procedures in order to fully meet student expectations. Students expect advisors to be able to answer questions related to academic studies as well as vocational and career outlooks and transitions. Institutionally, advisors are expected to be able to identify students at risk of academic failure and develop an academic plans that meets the needs of the student based on developed advising and student development theory. Developmental advising is most often performed by professional advisors rather than
faculty members and is time and resource intensive. Research has shown that students tend to prefer, and benefit more from, academically and personally, developmental, rather than prescriptive advising (Winston, et al., 1984). These student benefits speak directly to institutional goals of retention and student satisfaction.

Intrusive Advising

A less utilized, but increasingly accepted model of academic advising, is intrusive advising. Intrusive advising builds on the developmental model with the goal of forming an ongoing advising relationship between students and advisors. The key difference is that intrusive advising goes beyond developmental advising in that it is strategic, deliberate and institution initiated (Jeschke, Johnson and Williams, 2001, p. 49). It is strategic as advising contact is initiated at key times of the year for students and is followed-up on a regular basis. It is deliberate as it anticipates the needs of students at particular junctions in their program and in many ways is reminiscent of one of the earliest advising models of en locus parentis. The similarity with developmental advising is clear, to develop an ongoing advising relationship that focuses on the needs of the whole student. However, intrusive advising seeks to pre-empt problems through early and strategic intervention. Positive impacts of intrusive advising include improved retention rates, reduced probationary and withdrawn students, improved graduation rates and even improved grade point averages (Jeschke, Johnson and Williams, 2001, p. 47). Intrusive advising at its best is supported by technology that provides key information such as grades, attendance and program reports and facilitates easy communication between students and advisors so institutions can target specific students for intervention.
Academic Advising Models

The move away from traditional course planning to a more complex view of academic advising has also had an impact on the structure and delivery of advising programs themselves. Historically, students sought academic advising from faculty members rather than professionally trained student service staff. Advising services were not institutionally coordinated or regulated which resulted in problems of consistency and accuracy across institutions and programs. Increased participation rates in the early 20th century combined with diversity in student populations and the increasing complexity of degree and vocational options have helped to move academic advising from a faculty function to a professionally administered and organized practice within institutions. This move towards formalized and structured advising programs, in many cases, has brought together professional and faculty advisors into a mixed model of advising services.

Organized advising systems are unique to the institutions they serve. Some institutions organize their advising programs centrally, providing advising and supplemental services to all institutional students in one student services location. Other institutions have adopted School or Faculty specific advising centers where the advisors serve a particular population of students. Other institutions manage advising within their Registration or Enrolment Services centers, while others have no structured advising programs. The point to be realized is that every institution is unique and that academic advising is structured to meet the needs of a particular institution or student body. In Canada for example, Wendy Trigg (1997) showed that academic advising is a shared responsibility with the majority of advising, for undergraduate Arts students, done
through a central Faculty specific advising office (p. 34). Trigg’s 1997 study showed that despite a majority of advising taking place in Faculty advising offices that advising functions are shared between other university units such as the Registrar’s Office, Student Services Office and Counselling Services (p. 34). Centralized advising offices were also shown to share advising responsibilities (Trigg, 1997, p.34).

Just as there are many different structures for the advising centers, there are also many types of advisors engaged in the student advising process. Faculty members serving as faculty advisors have historically provided the majority of advising services. These faculty advisors typically advised in their particular discipline or field as well as providing information about the broader range of institutional policies and procedures. Studies show that faculty-only advising models have been declining recently in favour of full-time professional advisors who are often better equipped to deliver developmental advising services due to their training, motivation and educational backgrounds (Reintz 1996, p. 215). The professionalisation of advising frees faculty to return to their predominant roles of research and teaching.

Professional counsellors are another group of student service professional, however they are not academic advisors, nor are academic advisors counsellors. These two professional fields do, however, share many commonalities. Both fields are focused on the development of the whole student and are grounded in student development and human development theory, however, counsellors are specifically trained to use the psychological tools of goal setting and life management, and academic advisors in the areas of curriculum and educational opportunities in order to achieve overarching life goals. In selecting the participants for this study it was discovered that many Canadian
institutions utilize counsellors in academic planning and offer personal counselling within the advising centre.

Promises of Technology

A colleague of mine once wrote, "Computers are not advisors. Computers are simply a tool which provides both students and advisors with important factual information" (Trigg, 1997). Computers and information technology, however, are often hailed as a panacea for a variety of crises in higher education. Recent developments in the use of information technology, particularly in academic advising, has resulted in a move away from traditional models of prescriptive advising to a student focused developmental and even intrusive advising model in undergraduate education. Advances in student information database systems that provide instant access to student records and grades, degree audit software which quickly summarises degree progress and email and other communication technologies which enable fast and efficient communication aide in the advising process. The outcome of this move toward technology and developmental advising is an institutional belief that students are empowered to gain access to information and explore their non-academic interests and career goals within the advising relationship where the focus is becoming more holistic and focused on the whole student. It can conversely be argued that the rapid expansion of information technology in student services and academic advising is shifting responsibility from student programming away from academic advisors to students. While for some this move can be empowering, for others it is cold, impersonal and isolating. Institutional assumptions about the
technological fluency of their student body overlook those students without technological resources or know-how which further contributes to their marginalisation.

The goal of developmental and intrusive advising is to bring at-risk students together with academic advisors to improve the academic success of the student and support the institutional mission of improving retention rates and outcomes (Jeschke, Johnson and Williams, 2001, p. 47). Technology, when used to complement face-to-face advising, can free advisors to focus their skills and advising expertise to student focused activities while routine and clerical functions are reduced through technological innovation. Advisors are also able to concentrate on professional development and training to gain a stronger knowledge base from which to advise students. The goal of technology is to supplement rather than replace the in-person advising process.

Technological development and implementation must be targeted at the end users, advisors and students, while advising services must be developed with the student in mind.

Increasing the reliance on technology requires a shift in the hiring and training of both clerical and advising staff. Naturally, ongoing development and changes to technological resources and systems requires ongoing training of staff which resulting in more time being spent in professional development with a focus on technology rather than on acquiring developmental tools which directly benefit the advising process. This ongoing training is not without cost as the need for more technologically fluent staff also results in higher salary costs as staff members demand compensation for technological knowledge.
Computers themselves are commonly utilized as repositories of information. By storing and managing student records electronically, access to information is increased which in turn can result in a decrease in manual filing and clerical function. However, set-up and maintenance of large scale student record keeping databases can be costly and complex as these systems are called on to provide detailed reporting on students based on a narrow set of parameters to be programmed by skilled technicians.

Basic infrastructure is also an expense to be considered in technological development in advising centres. Not only does staff need current software but also modern equipment on which to operate, software upgrades often necessitate unit-wide hardware upgrades as the processing requirements of the software increases. Upgrades can be costly and are inevitably ongoing. With software and hardware upgrades comes a learning curve as staff adapt to new technologies. This can lead to decreases in services as staff take on training and units adapt programs to make the most efficient use of new technologies.

This increased ease of access to information does free advisors to focus developmentally and holistically within the advising relationship. However, with access to more and more information, the expectations placed on advisors also increases. Advisors are becoming expected to ‘know all’ and to utilise increasing amounts of information in an advising session which may result in information overload for the student.

The goal of integrating technology in advising is often to enhance the delivery of advising programs through the development of professional expertise of the advisor by reducing the time associated with manual data retrieval and analysis. The design and
delivery of technology must meet the needs of advisors, staff and students to ensure that efficiency in technological application and the institutional goals of enhancement of the overall student experience are realized.

The later half of the 20th century is often referred to as the “information age.” Information is driving the new economic reality and there is constant pressure to adopt and improve technology within both private enterprise and education, universities are by no means exempt from this process. Wayne Childs (1996) asserts that “more information has been produced in the last 30 years than during the previous 5,000” (p.13) and that this information supply is doubling every five years. The challenge is to assess the value of available information and develop a plan to harness this information in a productive and meaningful way.

The demand for technological innovation in higher education has been growing ever since the e-business revolution swept through the business world in the late 1990’s. ‘E-learning’, ‘e-commerce’ and ‘e-care’, the three components of ‘e-business’, are transforming all aspects of higher learning from libraries, to classrooms and even student services. It is in the service area where technology is capable of having a profound and meaningful impact, from an academic advising perspective, for both students and institutions.

**E-business & Technology**

Having outlined the scope and function of academic advising in higher education, this section will now look at the purpose and integration of technology in education and the delivery of advising and student services. E-business is “the application of a variety
of information technologies to the delivery of an organization’s mission” (Katz & Oblinger 2000, p. 2). How does this definition apply to institutions of higher learning? The e-business revolution is affecting many areas of business and services in one form or another. E-business in higher education, where the institutional mission is learning and research, manifests itself in a variety of ways. What is important in higher education is that information technologies are being utilized to deliver new learning models, including on-line and distance learning, incorporate and conduct research and more effectively and efficiently manage institutions as a whole.

Katz and Oblinger (2000) refer to two additional “e” definitions in their analysis of the effects of technology in higher education. E-learning refers to “using the internet for instruction in post-secondary education and training” (p. 4). This definition is somewhat limiting as information technology can refer to a wide variety of adaptive technologies and is not limited to the Internet, which is primarily focused on delivery of information and requires additional adaptive software or complimentary feedback technologies to be an effective delivery vehicle for learning.

E-care, in contrast, is the administrative side of the use of technology in higher education. Defined as “using the web to deliver support services and decision making aids to individuals inside or outside an organization” (Katz & Oblinger, 2000, p. 6), it is e-care where the greatest gains can be seen in adapting technology to the delivery and management of administrative functions such as student services.

Academic advising falls under both the e-learning and e-care perspectives in the use of information technology. When advising is viewed as teaching, many e-learning principles can be applied to the delivery of advising programs. Web-CT, information
videos and CDs as well as on-line interactive advising tools can be utilized in delivering orientation and student success oriented modules of an advising program. E-care principles can be utilized in the administration and organization of advising programs. The internet is often the primary information technology vehicle utilized in academic advising, where it serves to organize and display information relevant to students in one comprehensive location. On-line administrative functions can be developed to reduce paperwork and follow-up time for both staff and students. It is important that the internet and technology not be seen as the 'be all' and 'end all' of program administration. The goal of utilizing technology to improve the speed of information processing, to manage information efficiently and to reduce clerical and budgetary issues is paramount so time, energy and expertise can be redirected to improving program structure and delivery. Failure to plan strategically for technological integration can result in the intended benefits of technology not being realized, and instead are creating increased workload for staff as well as providing potentially incorrect or misleading information to students. Academic advising centers and institutions as a whole must ensure that the larger goal of technological integration is accompanied by reciprocal testing, training and support structures for staff and students caught in any transition cycle. This can be accomplished through training and technical and support personnel placed in the advising centre.

Advisors themselves are information providers; technology can contribute to the development and delivery of academic advising and relieve much of the day to day information dissemination load of advisors as general information is moved to on-line formats. Information, once compiled and retained manually, is now accessible with the click of a mouse. Manual calculations are a thing of the past and both students and
advisors are the beneficiaries of reclaimed time and accuracy. This is the logic of the e-revolution in academic advising, however, the results are not readily tangible. Technology in all aspects of student services must be clear in intent, audience and support structures. An e-business strategy is critical to e-development in higher education, learning and services. Technology integration in academic advising is no different: it must be strategic and supported. It is not enough to simply automate processes, institutions must look to technology to reengineer processes and procedures rather than simply enhance existing ones (Peterson, 1996, p. 100). Blending technology with student services is best achieved through a consultative process. Technological innovation, according to Charles Haberle, can serve as a “catalyst toward getting people to strengthen their working relationships and spawn alliances within institutions” (1996, p. 117).

Peterson (1996) pinpoints five key elements in successful integration of technology in academic advising. First, as previously argued, technological innovation in academic advising must form part of an overall information technology strategy for the campus. Each campus is unique and, as with all strategic plans, so must the plan for information technology be adapted to the unique needs of the particular institution. Second, and equally important, there must exist the capacity for maintenance. Institutions must be capable of updating processes and maintaining technologies as institutions and programs change. Reliable, modern infrastructure is also required to deliver technological services. Administrative buy-in and finally funding are also key elements in the success or failure of technological reengineering (p. 103).
Academic Advising Technology

Turning to technology itself, it is important to define the types of technology utilized in academic advising. For the purposes of this study, information technology refers to all types of computer assisted information storage and management capabilities. This includes internet, intranet, extranet, email, list serves, web chat, degree audit program, web advisor programs, electronic scheduling, student record databases, e-commerce support services, on-line GPA calculators, course schedules, articulation, transfer and admissions processing systems and electronic student profiling to name some of the most frequently used technologies in place today. These products may be developed in-house or purchased “off the shelf” from software development firms.

According to Gary Kramer and Michael McCauley (1995) the purpose of utilizing information technology in academic advising is four fold:

a) To relieve clerical burdens and enable people to be student centered

b) Use machines to provide collection, storage, retrieval, distribution and management of information

c) Allow academic personnel to aid students beyond the routine, and

d) Provide time needed for student development. (p. 27)

Academic advising is a time-intensive and people focused activity. Technology can assist in advising by reducing paper usage, providing consistency and accuracy of advising records and improving the access, transparency and accountability of institutional information and programs. Technology, when properly implemented and supported has the potential to allow advisors to work more in-depth with students.
In 2002, Kramer and the NACADA Technology in Advising Commission sought to assess the technological backgrounds of NACADA members (Academic Advisors and Administrators) as well as to gather the opinions of members' towards the use of technology. This informal survey was conducted on-line and received over 800 responses. This study was the first of its kind to survey advisors on the use and perceptions of technology in their professions. This survey was not specific to the state of technology in advising in either the US or Canada as it included responses from advisors in both countries. Nor do the preliminary results of the survey, released in 2004 address the larger question of how technology impacts the development of academic advising theories and programs.

The key to success in adapting information technology in academic advising is efficient and appropriate implementation of technologies as well as support and training for staff and students. The needs of students may vary across institutions or even within institutions so it is therefore essential for institutions and advising centers to be strategic in assessing their needs and available support resources before implementing any new technologies. Supports must be in place to provide training to those expected to use new technologies and to ensure buy-in from prospective users. As academic advising is a people-based enterprise, a blend of technology with advising can permit advisors and advising staff to focus on the needs of students beyond simple course planning and records maintenance. However, as academic advising is a personal and individual enterprise, students must not be expected to rely on technology for advising, instead advising technology must aid in the personal, one on one, advising process. Technological innovation can serve both students and institutions as students gain control
and independence over their educational experience and institutions gain greater accountability, greater expertise and potentially decreased labour costs if technology is effectively applied to remove redundancy and repetition (Childs, 1996, p.19).

Students in the modern age of technology are “super consumers” who demand and expect instantaneous service and satisfaction (Childs, 1996, p.16). Childs (1996) discusses research that highlights the differences between today’s students and those of a generation ago. He discusses how changes in society, family and media have occurred and the impact that these changes have on students. He points to changes in education, where students have unlimited access to information but in a system that is not as focused on learning as it is on behaviour (p. 16). As a result, Childs contends that today’s students are less academically prepared for the rigors of university life (p. 16). These students are at higher risk for failure and are more likely to need the support of an intrusive advising program throughout their university experience further outlining the need for technological and professional advances in the delivery of advising services.

Today’s undergraduate students follow Child’s observations and are increasingly computer literate and media savvy. In his 2000 look at the North American ‘Millennial Student’, Fred Newton comments on how the current generation of student is at the “cutting edge” of technological proficiency (p. 11). He comments on how ‘Millennial Students’ have grown up with technology through computers at school and at home and have had wide access to information through the internet, unseen in past generations. These students' technical know-how often exceeds their parents and institutions run by older, less technical generations. This demographic difference is also seen in a technological generation gap between faculty/advisors and students/advisees.
Summary

While the literature speaks well on the nature and purpose of academic advising, the intent of technology adaptation in academic advising, and the impact of technology in higher education, there have been no similar studies conducted to determine if technological innovation is meeting its intended goals in academic advising. Research in this area would be beneficial to determine if technology use is having a positive impact in advising centers through the proposed reduction in clerical and routine functions and the reciprocal improvement of student satisfaction that would result or a negative impact through the increased time commitment required of developmental and intrusive advising programs. Research is also necessary to ascertain if technology is having a positive impact on student outcomes through changes in advising programs which focus on developmental and intrusive rather than prescriptive elements of the advising process. The question of whether technology is enabling advisors to become more knowledgeable through increased professional development opportunities is also one issue that must be addressed through further study. General questions that will provide the framework for studying the impact of technology on academic advising must also be posed: what technologies are currently in use in academic advising? what new technologies are needed? are institutions and advising centers committed to a strategic development of technology? are advisors and support staff receiving adequate training and, are technologies being utilized efficiently and to their full capacity? These are questions focused on the direction and effective implementation and improvements to the use of information technology in the field of academic advising. The goal of this study is also
to generate a summary of current practices and best uses of information technology in academic advising centers in Canadian four year undergraduate programs, and make recommendations for the ongoing development and implementation of academic advising technologies to ensure the enhancement of academic advising services and progression of advising theory.
CHAPTER 3: DESIGN AND RESEARCH MODEL

Researcher in Context

As an Academic Advisor I am faced on a daily basis with questions from students about where they can access information and how to best interpret and analyze the information they find. Particular to my position I have been fortunate to work on several projects to improve the use of technology in academic advising and student services institution wide. It is through this lens that I have found that there are significant gaps between what information technology can do and what it is doing. Information technology is not an end to a means, but is a means to an end. I believe that through the appropriate use of information technology it is possible to advance academic advising away from prescriptive models where advisors are information providers to a more developmental and even intrusive model where advisors are enablers and supporters of student success. Success comes in many different forms, academic, personal and vocational. Developmental advising takes into account all of these perspectives when working with students and promotes the development of the ‘whole’ student rather than just the academic side. Intrusive advising is a model of advising in which institutions take control over when and how advising happens and targets particular groups of students, such as minorities, athletes, underachieving and high achieving students. This model can be applied to any sub-set of students, however, without access to information it is impossible to efficiently advise groups of students en-masse. Information technology and intrusive advising are inextricably linked. With improved information about students, it becomes incumbent on institutions to use this information effectively to
ensure the success of students, however that success is measured. From my professional experience we, as advisors, are at the beginning of harnessing all the information that is available into a comprehensive advising system that meets the needs of students and institutions. It is my goal to discover how other peer institutions are using technology in order to put forward recommendations for change and development of new models that will satisfy institutional and student needs.

**Sample**

The target population for this study is professional academic advisors in Canadian post-secondary institutions. The sampling frame and target population for this study is professional undergraduate advisors in Arts, including Humanities, Social Sciences and Creative and Performing Arts, and Sciences, including life and physical sciences, Faculties at Canadian, public four year non-denominational English speaking institutions. These Faculties were chosen specifically as many institutions were found to have a combined Arts and Science Faculty. For ease of analysis and generalizing, the survey was designed to include participants in both respective faculties as well as institutions with centralized, university wide advising offices. Advisors targeted for this study include part-time and full-time undergraduate Academic Advisors as well as Deans and Directors of academic advising programs, student development and student affairs offices. As one of the goals of the study is to provide a clear base of comparison for research based institutions, including my own, colleges, university-colleges, denominational, private, non-English and distance education institutions were excluded. A total of 42 institutions and 343 participants were selected (see Appendix A for a list of
surveyed institutions). The survey was limited to publicly funded, English speaking institutions. As a result only three institutions in the province of Quebec were surveyed. French language institutions were excluded due to a personal lack of expertise in French language and due to the differences and challenges faced in the development and integration of non-English technologies. Currently the majority of software used in Canada is developed in English. Private institutions were also excluded due to differences in funding programs. By focusing on publicly funded institutions, differences in funding are lessened and comparison can be more easily made. It is also hoped that by limiting the institutional profile, this study may be replicated in other jurisdictions and serve as a basis for comparison for future studies. Institutional information has been obtained from the Association of Universities and Colleges of Canada web site (www.aucc.ca) and individual contact information has been collected from institutional directories, web sites and personal contacts.

All participants received the same survey and were selected for their direct contact with students and their role as academic advisors, counsellors, student development officers and advising heads or administrators. The participants’ direct contact with students made them well placed to form opinions on the use of technology and its impact on their daily advising functions. Participants were identified from institutional directories, web sites and personal phone calls to advising offices.

Within these institutions professional advising practitioners, Academic Advisors, Advising Administrators, Student Development Officers, Counsellors with advising responsibilities and Administrative Heads (Deans, Associate Deans, etc) responsible for students and/or academic advising were selected as they are most likely to be involved in
the development of advising technologies and would have the most familiarity with the development and delivery of daily advising services. Academic advising programs with faculty based advising models (advising done solely by faculty members) have also been excluded as faculty members may not be actively involved in the development of academic advising technologies and programs. Faculty members also may not be responsible for the day to day implementation, delivery and assessment of advising services. Having the survey addressed specifically to professional advisors, including advising heads and administrators will ensure that a link is established between those who may have knowledge and interest in developing and improving advising services through the use of technology and front-line student advisors.

Research Method & Design

With such a large and geographically diverse sample population the choice of instrument was to play a large role in the success of the study. Ultimately a mixed quantitative and qualitative survey was selected (Appendix C). The survey was designed by the researcher following recommendations from the writings of Floyd Fowler (1995, 2002) and George Gray and Neil Guppy (2003) including letters of introduction and follow-up strategies. The survey consisted of a total of 54 questions, closed, multi-choice, Likert scale and open ended responses aimed at establishing both the current uses of technology in academic advising and the overall opinions of advisors towards the use of technology. Participants were provided additional space for comments or observations. The survey was piloted among my colleagues in Arts Academic Advising Services. Design changes including the addition and removal of questions, rewording
and restructuring was completed based on the feedback received. The original study design included follow-up interviews with selected participants. Unfortunately due to time and personal constraints, intended follow-up interviews were not completed. The voices of advisors are present however, through the comments made throughout the original survey.

The survey was implemented in two stages, the first, the on-line survey followed an initial letter of introduction (Appendix B), mailed to 343 recipients in April, 2005. An email invitation to complete the survey followed a week later and included the secure survey site link. It was assumed that all respondents would have easy access to email and the Internet via their professions.

Follow-up reminder cards were sent to non-respondents two weeks after the email invitation and a final reminder letter with a hard-copy of the survey and return envelope was mailed to the remaining non-respondents two weeks after the reminder postcard. At the time of the final mailing, early June, 2005, the on-line survey site was closed to avoid duplication of responses. Professional academic advisors are committed to the success of their profession and are easy to survey in areas which stand to improve the delivery of advising programs. A good response rate was expected.

Responses

A total of 345 participants were identified across the 42 institutions. Of these 345 eligible participants, the researcher and committee member were excluded. The survey emails were sent to the remaining 343 participants in mid-April 2005. The first on-line response was received on April 26, 2005. The on-line survey was available for a limited
time (April 15, 2005 to June 1, 2005). In total, 73 responses were received on-line over the 6 week period. Email responses and telephone calls were received from a total of 21 participants who indicated that they were not interested in participating. A number of participants responded to the survey indicating that they had left their advising positions, through career change, retirement or leave of absence, in most of these cases the participants were removed and replaced with their respective successors resulting in a small reduction in the overall participant total (-10). Some participants indicated that they had been incorrectly identified as having advising responsibilities despite being located within the advising office and that they did not perform or administer student advising services. These participants were excluded (16).

The final reminder with hard-copy of the survey was mailed out to the remaining 249 participants in early June, 2005 and received a total of 32 responses which brought the overall number of responses to 105 respondents. After the requisite participants list amendments, the adjusted population total is 317 participants (n=317). The overall participation rate amounts to 33% (105/317). The respondents represent 37 out of 42 institutions surveyed (88%), and nine out of 10 provinces (90%).

Responses were received from all eight categories of participant roles. The dominant response group was professional advisors with a total of 48 responses followed by 26 responses from advising administrators and 17 from advising heads. Of these three main groups, academic advisors are underrepresented from the sample frame. The sample frame included approximately 60% academic advisors, including professional advisors, faculty advisors and other institutional advisors, while only 46% of responses were received from professional advisors. Advising administrators while seeming to be
overrepresented, 25% of the total compared with 14% of the sample frame, reported 95% that they continue to perform academic advising. Academic heads are evenly represented from both the sample frame (17%) and the respondent group (16%). This apparent overrepresentation of advising administrators and apparent shortage of academic advisors could have resulted in a shortage of data on the direct impact of technology in day to day advising however as this group as a whole reported 97% that they were performed academic advising, the resulting data on the impact of information technology and academic advising will still be valuable and accurate.

Analysis

Analysis of the data was made possible using SPSS 12.0, a comprehensive statistical analysis software package. Data from the on-line survey was transformed into variables and downloaded directly to SPSS from the data collection site. SPSS was then used to analyze the data and provide descriptive statistics, tables and figures for publication. Qualitative responses were analyzed manually by grouping responses into quantifiable totals, where possible and through a free form analysis identifying key themes among the comments. Qualitative comments from respondents have been included to complement the quantitative data and to provide personal perspectives on a range of topics from the survey.

Limitations

As with all studies, interpretation of results is not without limitations. Limitations include researcher bias, limits of scope and generalisability as well as response rate. As a
professional academic advisor, my research is motivated by my daily professional life. Bias is a possibility in both the design and analysis of responses. My own personal perspective that information technology is a force to be reconciled in the delivery of service has influenced my study in many ways. While I firmly believe that as advisors and administrators, we are not using information technology to its full potential, my goal with this study is not to enforce any particular perspective but rather to analyze what is happening at institutions, highlighting the differences and potential for improvements that will benefit advisors, students and institutions.

This study is limited to the perspectives of academic advisors and advising administrators, as such is it missing the voice of two key groups in academic advising: students and support staff. As one of the main thoughts on the issue of information technology in academic advising is the reduction in clerical functions and improved access to student information, support staff would necessarily have a strong voice and opinion on the issue of information technology integration in their professional lives. The client in academic advising is students. By excluding students from this survey, their voice on the issues self services, access to information and advising is lost. However, the goal of this study is to hear from advisors and administrators on how they are using technology and how they see technology in the development of their advising models and activities, as such, while the voices of support staff and students are important, they are not the primary focus of this study. The voices of advisors can be seen throughout this work in small but meaningful quotes. Due to the structure of the on-line survey, qualitative comments were limited by character space thus resulting in only brief comments from advisors. It is through these comments however, that the perspectives of
advisors come through and show how advisors and in a limited way how support staff and students are impacted by the decisions made in developing and implementing technological resources in advising and changes to the advising models.

Another limitation in this study is timing. This study was launched in mid-April, 2005 and continued through June 2005. This is a particularly challenging time period in most advising offices. Units are dealing with the end of the academic year and the challenges that students bring during the exam period, annual convocation and graduation review as well as the annual review of students for their next academic year. Many of the non-respondents who emailed to indicate that they were not able to participate indicated this busy period as one of the factors. Unfortunately due to time limitations of my own, an alternate survey date was not possible. Given these circumstances a response rate of 33% is modest and many conclusions are still possible. Ideal timing for this study would be during the advising low period after the start of the academic year in the fall or at the beginning of the spring term, October/November or February/March.

The overall response rate of 33% is modest and enables many of the conclusions drawn to be generalized across institutions and advising centers. Through the data analysis many trends have been noted that are indicative of many of the changes occurring in institutions in Canada.

Summary

Curiosity about the links between technology and student services began with my professional interest and commitment to improving student services and advising programs. I have been fortunate to work with many information technology programs
which aim to more effectively connect access to information and information technology in the advising process. In order to place this work in context with peer institutions a survey of academic advisors at English speaking research universities across Canada was conducted. This study however does exclude other post-secondary institutions, which leaves opportunity for further study. The survey, implemented both on-line and on paper, received a 33% response rate and through analysis can provide tentative answers and insights to the primary research questions. Connections between information technology and academic advising models will become clearer through this analysis.
CHAPTER 4: ACADEMIC ADVISING IN CONTEXT

Questionnaire

The survey was organized into five sections: 1) Advisor Characteristics: designed to obtain data on the role of the participant in their advising office, the amount of training received, and their own technological abilities, 2) Technology Characteristics: this section deals with the technology in use in advising offices and institutions ranging from email use and word processing to degree audits and on-line advisors, this section (and others) will be compared with the informal work of the NACADA Technology in Advising Commission’s survey on technology in academic advising, 2002, 3) Unit Characteristics: this area, modeled on the work of Wendy Trigg (1997) seeks to determine the structure of advising offices and can be compared with earlier work to show changes in size, structure and function within undergraduate advising across Canada, as well as highlight which previous in-person functions have moved to on-line models, 4) Advising Characteristics: this sections seeks to show how technology is being used in academic advising and how technology is impacting the future of academic advising, 5) Development Characteristics, this sections seeks to determine how institutions as a whole view the use of technology in academic advising, and finally 6) Demographic/Institutional Characteristics: this section demonstrates the demographic nature of advisors including age, gender and credential as well as placing other statistics within institutional size contexts.
Institutional Profile

Size

The goal of the study was to survey academic advisors in the key undergraduate disciplines of Social Science, Humanities, Fine Arts, Life and Physical Sciences in Canadian public four year, English speaking, degree granting universities. Responses were received from 37 of 42 surveyed institutions in nine out of ten surveyed provinces. Responses were received from a range of institutions sizes as well, both small and large. A majority of responses were received from larger institutions as they a) responded in greater numbers, and b) had a greater number of advisors. Figure 1 illustrates the distribution of responses from institutions of various sizes. Comparing the use of technology across institutions of varying size will be a recurrent theme throughout this analysis as it is hypothesized that there are significant differences between the institutions in their uses and goals of their implementations of information technology.

Figure 1 – Institution Size and Response Rate
Faculty

The data received shows that most participants, 78% represent either the Faculty of Arts or Science or both. Table 1 illustrates the distribution of participants across disciplines at their institutions. Participants who indicated that they advised in both Arts and Science programs were rolled together to form the Centralized Advising Office category.

Table 1 – Faculty Distribution of Participants

<table>
<thead>
<tr>
<th>Faculty</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts (including Humanities, Social Sciences and Fine Arts)</td>
<td>29</td>
<td>28</td>
</tr>
<tr>
<td>Science (including Physical and Life Sciences)</td>
<td>22</td>
<td>21</td>
</tr>
<tr>
<td>Registrarial Services</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Centralized Advising Offices for multiple faculties</td>
<td>31</td>
<td>30</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

Model

Academic Advising is neither centralized nor decentralized as a model in Canadian institutions. Academic advising also occurs in other areas such as Continuing Education, Residence Life, Counselling, Student Affairs and Student Success Offices. Each model of advising represents its own benefits and drawbacks. Figure 2 below demonstrates the breakdown of institution size and advising model. At smaller institutions, centralized advising offices are the most prevalent model. This is likely a factor of the small size and the efficiency of a centralized advising office. At larger institutions, faculty specific models emerge as the dominant model as a centralized advising centre is unlikely to have the resources to advise large numbers of students and hold expertise in multiple areas of study. Centralized advising and student service offices are still seen at the larger institutions, however these centralized offices still cater to a
smaller number of programs than at smaller institutions where centralized advising offices are responsible for institution wide advising. Mixed models were also seen, combining both centralized advising offices for undecided students and faculty specific advising offices for specializing students.

Figure 2 – Institution Size and Advising Office Models

Advising Centre Characteristics

Advising Loads

Smaller institutions, whether utilizing centralized or mixed models of advising, boast lower advisor to student ratios than larger institutions. This difference can be significant when reviewing where information technology resources are directed. Table 2 below outlines the average advisor to student ratio by institution size. Advisor to student ratios are a difficult thing to assess as advisors within any given unit may have specific groups of students for whom they are responsible which will result in a low advisor to student ration for them and an increased one for their colleagues. Faculty and
institutional enrolment and total number of advisors (full time and part time) were used in calculating ratios for this study. As the institution size increases, the advisor to student ratio also increases. The average advising load for all institutions is 1:1,129. Logically, institutions with higher advisor to student ratios would be the ones most heavily engaged in the development of new technologies that would make advising more efficient, reduce manual burdens and improve the advising relationship by enabling students to self-service information on many day to day tasks.

<table>
<thead>
<tr>
<th>Institution Size</th>
<th>Advisor to Student Ratio</th>
<th>Percentage Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,500 - 4,999</td>
<td>1:758</td>
<td></td>
</tr>
<tr>
<td>5,000 - 9,999</td>
<td>1:1,028</td>
<td>36%</td>
</tr>
<tr>
<td>10,000 - 19,999</td>
<td>1:1,159</td>
<td>13%</td>
</tr>
<tr>
<td>20,000 +</td>
<td>1:1,339</td>
<td>15%</td>
</tr>
</tbody>
</table>

Advising Hours

On average, participants reported spending 17 hours a week advising an average of 35 students each for an overall average of 1,645 students per year*. With an average advisor to student ratio of 1:1,129 it is clear that on an in-person basis, advisors are seeing some students repeatedly throughout the year. Advisors were not queried regarding the needs of students who seek advising repeatedly throughout the year. Students may require advising at different points throughout the academic year but not have access to or seek advising. At larger institutions where the advising load is high and the number of available advisors is low, high demand can result in a shortage of advising appointments leaving students without access to necessary services.

* Assumes office closure for 1 week and holidays of 4 weeks per calendar year.
Advising Types

Advisors reported personally advising students through a variety of mediums, by telephone, in person and electronically via email. The main thrust of academic advising is done in person. Ninety-five percent of respondents indicated that their unit offers individual advising services, either by drop-in or appointment. Table 3 below outlines the advising functions that are provided to students in-person, in group sessions and on-line. Most typical advising functions are performed on an in-person basis as well as having similar information available on-line. The availability of specific advising functions in group sessions was reported to be lower due to the lower reporting of group advising sessions. Only seventy percent of advisors reported that their unit was involved in group advising specifically for first-year students, major information fairs, new student orientation, career sessions and student success workshops. Advising functions that are very personal and student specific do not lend themselves well to group settings. Functions such as Appeals, Concessions, reviews and permissions are granted on a case by case basis and are not suitable for group settings or on-line advising. Other personal topics such as course and major selection and special learning opportunities are also performed in-person by the majority of advisors as they require more probing questions and discussion of personal and academic goals before guidance can be offered.
As the majority of advising functions are best performed in person, advisors were asked to identify how students met with advisors. A combination of drop-in and pre-booked appointments were used. Table 4 below outlines the percentage of respondents who reported advising student in one or the other or both methods, as well as the length of time typically spent in each type of appointment. Pre-booked appointments tended to be slightly longer than drop-in appointments. This could indicate a difference in the type of advising performed in each type of appointment where drop-in appointments addressed short answer, quick response situations compared with pre-booked appointments which focus on more time intensive situations.

### Table 3 - Advising Function and Delivery Method

<table>
<thead>
<tr>
<th>Function</th>
<th>In Person</th>
<th>On Line</th>
<th>Group Sessions</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain Degree Requirements</td>
<td>97%</td>
<td>90%</td>
<td>60%</td>
<td>3%</td>
</tr>
<tr>
<td>Explain Academic policies and procedures</td>
<td>98%</td>
<td>85%</td>
<td>55%</td>
<td>0%</td>
</tr>
<tr>
<td>Assist with course selection and/or scheduling of courses</td>
<td>95%</td>
<td>78%</td>
<td>49%</td>
<td>7%</td>
</tr>
<tr>
<td>Assist with selection of major program</td>
<td>96%</td>
<td>64%</td>
<td>47%</td>
<td>7%</td>
</tr>
<tr>
<td>Identify and explain special learning opportunities</td>
<td>90%</td>
<td>58%</td>
<td>44%</td>
<td>12%</td>
</tr>
<tr>
<td>Letter of permission request</td>
<td>83%</td>
<td>54%</td>
<td>7%</td>
<td>24%</td>
</tr>
<tr>
<td>Academic Appeals</td>
<td>89%</td>
<td>49%</td>
<td>9%</td>
<td>18%</td>
</tr>
<tr>
<td>Transfer credit review</td>
<td>84%</td>
<td>45%</td>
<td>9%</td>
<td>26%</td>
</tr>
<tr>
<td>Academic Concession</td>
<td>77%</td>
<td>37%</td>
<td>8%</td>
<td>23%</td>
</tr>
<tr>
<td>Career advising</td>
<td>63%</td>
<td>34%</td>
<td>28%</td>
<td>50%</td>
</tr>
</tbody>
</table>

### Table 4 - In Person Appointment Versus Drop-in Availability and Length (minutes)

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
<th>Minimum Length</th>
<th>Maximum Length</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drop In appointments</td>
<td>96</td>
<td>5</td>
<td>60</td>
<td>25.54</td>
</tr>
<tr>
<td>Pre-booked appointments</td>
<td>99</td>
<td>10</td>
<td>60</td>
<td>30.16</td>
</tr>
</tbody>
</table>
Advisor Characteristics

Roles

This study was designed to assess the use of information technology among Academic Advisors and Advising Administrators including Deans, Associate Deans and Department Heads. Invitations to complete the survey were sent to a total of 343 individuals and were received from 105 eligible participants. Eighty-two percent of respondents fell into one of three categories, Professional Advisor, Advising Administrator and Administrative Head. Table 5 outlines the breakdown of the primary role of participants.

<table>
<thead>
<tr>
<th>Role</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Advisor</td>
<td>48</td>
<td>46%</td>
</tr>
<tr>
<td>Advising Administrator</td>
<td>26</td>
<td>25%</td>
</tr>
<tr>
<td>Administrative Head</td>
<td>17</td>
<td>16%</td>
</tr>
<tr>
<td>Registrar, Assistant Registrar</td>
<td>5</td>
<td>5%</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>4%</td>
</tr>
<tr>
<td>Faculty Member</td>
<td>4</td>
<td>4%</td>
</tr>
<tr>
<td>Student Development Officer</td>
<td>1</td>
<td>1%</td>
</tr>
</tbody>
</table>

Participants who indicated their role as ‘Other’ included Career Counselor, Academic Support Coordinator, Correspondence Course Notes Coordinator and Project Manager. Ninety-two percent of participants indicated that they performed academic advising in their current positions. The small number of respondents (n=8) who indicated that they did not currently perform academic advising indicated that they had previous experience with advising and were still involved in the administration of academic advising. One participant indicated that they did not fall into one of the defined...
categories and did not perform academic advising in their current position. These responses were included as the participants have previous academic advising experience and their feedback on the use of technology in advising is valuable.

*Age and Gender*

The advisors surveyed range in age from early career, 21-30 years to late career, 61-65. The majority of advisors, 76%, reported that they were in the mid career range of 31-60 years of age. Table 6 below shows the breakdown of age ranges for participants. As noted below, there is also a demographic shift in the later mid-career range where 32% of advisors indicated that they were in the 51-60 years of age range. This will result in, as with many other occupations, a large number of advisors being eligible for retirement in the next 15 years which will open career opportunities for new professionals.

<table>
<thead>
<tr>
<th>Professional Category</th>
<th>21-30</th>
<th>31-40</th>
<th>41-50</th>
<th>51-60</th>
<th>61-65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Advisor</td>
<td>27</td>
<td>25</td>
<td>23</td>
<td>23</td>
<td>2</td>
</tr>
<tr>
<td>Student Development Officer</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>100</td>
<td>-</td>
</tr>
<tr>
<td>Faculty Member</td>
<td>-</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Advising Administrator</td>
<td>8</td>
<td>23</td>
<td>27</td>
<td>31</td>
<td>-</td>
</tr>
<tr>
<td>Administrative Head</td>
<td>6</td>
<td>-</td>
<td>29</td>
<td>35</td>
<td>29</td>
</tr>
<tr>
<td>Registrar, Assistant Registrar</td>
<td>-</td>
<td>20</td>
<td>-</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>Other</td>
<td>25</td>
<td>-</td>
<td>50</td>
<td>25</td>
<td>-</td>
</tr>
<tr>
<td>Percentage Total of all Respondents</td>
<td>16</td>
<td>19</td>
<td>25</td>
<td>32</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 7 below displays the gender breakdown of participants by professional category. As evidenced below, women tended to be most prevalent in the categories of Professional Advisors, Student Development Officer, Advising Administrator whereas
males were more evident in higher administrative positions such as Faculty Member, Dean, Associate Dean and Registrar. There appears to be a high percentage of women in the advising field, representing 69% of respondents. Women are found predominantly in the fields of Advising Administration and Professional Advising. There appears to be a shortage of women in Administrative Head and Registrar roles.

Table 7 – Gender Distribution by Professional Category

<table>
<thead>
<tr>
<th>Role</th>
<th>Male (n)</th>
<th>% in Role</th>
<th>Female (n)</th>
<th>% in Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>Student Development Officer</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>Advising Administrator</td>
<td>3</td>
<td>12</td>
<td>23</td>
<td>89</td>
</tr>
<tr>
<td>Professional Advisor</td>
<td>12</td>
<td>25</td>
<td>36</td>
<td>75</td>
</tr>
<tr>
<td>Registrar, Assistant Registrar</td>
<td>3</td>
<td>60</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>Administrative Head</td>
<td>11</td>
<td>65</td>
<td>6</td>
<td>35</td>
</tr>
<tr>
<td>Faculty Member</td>
<td>4</td>
<td>100</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td>31</td>
<td>72</td>
<td>69</td>
</tr>
</tbody>
</table>

Table 8 summarizes the age and gender breakdown of advisors at Canadian institutions. The lack of professional advisors or advising administrators at the 61-65 year range could be explained by a number of factors. First, advisors may be moving out of advising roles late in their careers to take on more administrative roles rather than hands on advising. The lack of professional advisors at the 61-65 year range could also be indicative of a shift in the occupation as a whole and the professionalisation of the field that happened in the late 1970's following several studies on the importance of student services in higher education and development of formal academic advising theories and models (Cook, 2001). During this shift, a number of new professionals were hired in their mid 20's and are only now beginning to move into their later years.
This research also demonstrates a decline in the mean age of professional advisors and an increase the mean age of advising administrators. This would seem to indicate that as professional advisors gain skills and expertise in their fields, they are able to move into more senior administrative roles.

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Male</th>
<th>Percent</th>
<th>Female</th>
<th>Percent</th>
<th>Total</th>
<th>Total Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-30</td>
<td>5</td>
<td>5</td>
<td>12</td>
<td>11</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>31-40</td>
<td>6</td>
<td>6</td>
<td>14</td>
<td>13</td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>41-50</td>
<td>7</td>
<td>7</td>
<td>19</td>
<td>18</td>
<td>26</td>
<td>25</td>
</tr>
<tr>
<td>51-60</td>
<td>11</td>
<td>10</td>
<td>23</td>
<td>22</td>
<td>34</td>
<td>32</td>
</tr>
<tr>
<td>61-65</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td>31</td>
<td>72</td>
<td>69</td>
<td>105</td>
<td>100</td>
</tr>
</tbody>
</table>

*Credential*

As advisors are working with students pursuing bachelor level education and potentially those moving on to graduate work, the level of academic experience is expected to be at or above the bachelor’s level in order for advisors to have a comparable frame of reference and student experience on which to draw. Data shown in Table 9 indicates that the standard credential for this group of respondents is a bachelors or masters degree. At the higher administrative levels, Dean, Associate Dean, the standard credential is a Doctorate. As a group, academic advisors are highly educated with 90% of respondents holding a university degree.
Table 9 – Position and Academic Credential (n)

<table>
<thead>
<tr>
<th>Position</th>
<th>High School Diploma</th>
<th>Some Post-Secondary</th>
<th>Post-Secondary Certificate/Diploma</th>
<th>Bachelors Degree</th>
<th>Graduate Certificate/Diploma</th>
<th>Masters Degree</th>
<th>Doctorate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Advisor</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>24</td>
<td>3</td>
<td>16</td>
<td>-</td>
</tr>
<tr>
<td>Advising Administrator</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>10</td>
<td>1</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Administrative Head</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Registrar</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Student Development Officer</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Faculty Member</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2</strong></td>
<td><strong>3</strong></td>
<td><strong>4</strong></td>
<td><strong>37</strong></td>
<td><strong>5</strong></td>
<td><strong>34</strong></td>
<td><strong>19</strong></td>
</tr>
</tbody>
</table>

Table 10 below shows the gender breakdown of credentials of respondents. With the greater number of women respondents, it is not surprising to see a number of females with credentials below a bachelors degree. Women, in this group, appear to be more involved in education at all levels where the male respondents seem to pursue traditional educational paths, bachelor degree, master’s degrees and doctoral degrees. At the doctorate level however males tend to dominate as they did in the Administrative Head roles.
Table 10 – Gender and Credential (% of total)

<table>
<thead>
<tr>
<th>Credential</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelors Degree</td>
<td>9</td>
<td>27</td>
</tr>
<tr>
<td>Masters Degree</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>Post-Secondary Certificate/Diploma</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Post-Graduate Certificate/Diploma</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Doctorate Degree</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>Some post-secondary</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>High School Diploma</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Non responses</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Training and Development

Experience

Participants report having been involved in academic advising for an average of 103 years, ranging from a low of six months to a high of 35 years. Collectively this group has a total of 1,034 years of advising experience. The median experience level of this group is seven years. As a group these participants share a wealth and abundance of advising experience.

Participants indicate that they have been in their current positions for an average of five years, ranging from a low of one month to a high of 30 years. The median experience in their current advising positions is three years. This experience, both in advising as a whole and in their specific positions, places these respondents in a good position to comment and contribute to the dialogue on the integration of academic advising and information technology.
Training

Academic advising training does not appear to take place with any regularity or formality in Canadian undergraduate institutions. Only 28% of respondents reported that they had undergone any formal academic advising training when they began their positions. The remaining 72% of respondents indicated that they received either no training (49%) or informal training only (51%). Wendy Trigg’s 1997 study of academic advisors found that at 57% of institutions, academic advisors received no training prior to beginning their advising positions (p. 43). Comments from many advisors conveyed similar experiences.

Advising training was sitting in with the other advisors doing the work, in order to observe

Sat in on advising sessions with the previous advisor for a few days

Advising training was hands-on. An existing advisor supervised my work, answered my questions, showed me the technology and explained policies and office practices.

Even participants who reported that they received formal training indicated that the training, in many cases, consisted of sitting in with other advisor’s advising sessions. In cases where respondents reported no training, advisors were essentially on their own, equipped only with policy books and the University Calendar. One advisor commented,

This was a new position for Fine Arts so I did not have any advising training. I had to review the Calendar and talk to Admissions, Records etc.

Advisors have shown themselves to be resourceful and creative when entering the profession in order to learn quickly and adapt to an ever changing environment. Inconsistencies and lack of formal polices and training programs have forced academic advisors to seek out training opportunities on their own. Academic advisors use
professional development and ongoing advising training as a means of improving their skills and knowledge base. Most academic advisors surveyed participate in ongoing training and development after beginning their positions. Fifty-one percent of respondents indicated that they were engaged in advising training in the past year. Forty-four percent of respondents who were involved in advising training indicated that they had spent four or more days in training activities during the past year. These activities included conferences, workshops, conferences and presentations. The average number of days spent in advising training was less than two.

Sixty-six percent of participants reported that they also pursue ongoing professional development with 63% of respondents indicating that they have spent one or more days in professional development activities in the past year. Fifty-five percent of respondents who have engaged in one or more days of professional development in the past year have had four or more days of professional development.

Summary

Results of this study indicate that respondents are engaged in academic advising in a variety of advising formats, centralized, faculty specific and mixed model institutions of varying size and complexity. These differences will provide useful information on the with regard to the implementation of technological tools that support academic advising.

Advisors surveyed are also shown to be female and well educated, holding, on average, bachelor and masters degrees. Advisors also reported spending a majority of their work week engaged in academic advising, spending an average of 17 hours per week advising students. As most of the respondents are professional advisors or advising
administrators, they are expected to have a good understanding of academic advising, technological tools and resources as well as the integration of academic advising within institutions.

Academic advisors report a collective median experience of seven years of experience with academic advising but report that they received little training when they began their positions, as such many engage in ongoing advising training and professional development.

Academic advising is predominantly conducted in an in-person setting complemented by some services being provided on-line. Case specific information is supplied in drop-in or pre-booked appointments while general information is provided through on-line and group advising.
CHAPTER 5: TECHNOLOGY AND ADVISING

Technology Knowledge

Experience

As the goal of this study is to assess the use and integration of technology in advising, advisors were surveyed on many issues surrounding the use of information technology in their positions. One-hundred percent of respondents indicated that they use computers and information technology in their current position. This unanimous response supports the assumption that advisors are computer literate.

Participants were also surveyed about their technological literacy. Figure 3 below shows the distribution of responses regarding computer literacy. An overwhelming majority of participants self assessed their computer literacy as average. Fewer reported above average or excellent skills with only a small minority, eight respondents, who indicated that their computer literacy is below average. This can be problematic when new technologies are introduced as the weakest technology user is unlikely to fully grasp all the functionality of new systems, thus limiting their effectiveness and efficiency. These users will also require additional support and training which may not be provided to the level that they require to gain a full understanding of the integration of new technologies to their role as advisors.
Training

When asked about the type of technical training received when they began their positions, nearly one third of respondents indicated that they had received no technical training when they began their positions. The majority of respondents, 40% had received only informal training, sitting in with other advisors and learning on the go, while 25% of respondents indicated that they had received formal technical training, workshops and courses when they began their positions. Despite this lack of formal technical training, many advisors have demonstrated themselves to have become technologically literate through their use of and access to technology. As academic advising is not often an entry level position it is likely that most advisors came to their current positions with some degree of technical knowledge and experience. Most advisors will have had extensive experience with technology as it is prevalent in most career fields and academic study
and research. Future academic advisors will be even more technologically literate as information technology becomes increasingly widespread.

Advisors reported that despite their existing technological experience that they also pursued ongoing technical training. Fifty-five percent of respondents indicated that they pursued ongoing formal technical training within the past one year. In addition to the professional and advising training that advisors are engaged in, 55% of respondents indicated that they had received technical training in the past year. The majority of technical training was done in shorter increments when compared to advising training and professional development. Fifty-two percent of respondents who indicated that they took technical training in the past year indicated that this training was one to two days. Very few respondents, only 10%, indicated that they had engaged in four or more days of technical training in the past year. This differs substantially with the advising training and professional development that was pursued in which the majority was four or more days. Technical training it seems is not pursued as intently as other types of training as it lends itself better to shorter, more intensive, hands on workshops. Ongoing technical training and support are important as advising centers and institutions develop new tools. Advising training and professional development opportunities that are offered with an emphasis on technological training can support the development of academic advising programs that are focused on the needs of students and institutions.

Advisor Uses of Technology

Key to an analysis of the benefits and uses of information technology in academic advising is a review of what technologies are currently in use in advising centers. All
advisors surveyed indicated that they used computers and information technology in their daily advising functions, however it is important to look more closely at the day to day advising as well as the cyclical functions that come with academic administration to ensure that technologies are used strategically, effectively and efficiently.

Use of Technology within Advising Centers

Advisors were polled on the technologies used in their advising units. Table 11 represents a summary of hardware, software and information technology management tools commonly used in advising offices across Canada. Missing cases may be a result of participants failing to check that they do not have a particular technology or it may be that participants have access to but do not use a particular technology tool. For the purposes of analysis, only participant responses which indicated that they do not have a particular tool have been noted below.
Table 11 – Technology Tools in Use

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Daily</th>
<th>Weekly</th>
<th>Monthly</th>
<th>Do Not Have</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop PC</td>
<td>91%</td>
<td>1%</td>
<td>-</td>
<td>4%</td>
</tr>
<tr>
<td>Laptop PC</td>
<td>12%</td>
<td>10%</td>
<td>7%</td>
<td>35%</td>
</tr>
<tr>
<td>Pocket PC/PDA</td>
<td>9%</td>
<td>-</td>
<td>1%</td>
<td>67%</td>
</tr>
<tr>
<td>Desktop MAC</td>
<td>6%</td>
<td>-</td>
<td>1%</td>
<td>62%</td>
</tr>
<tr>
<td>Data Projector</td>
<td>5%</td>
<td>5%</td>
<td>16%</td>
<td>28%</td>
</tr>
<tr>
<td>Assistive Devices</td>
<td>3%</td>
<td>2%</td>
<td>-</td>
<td>65%</td>
</tr>
<tr>
<td>Laptop MAC</td>
<td>2%</td>
<td>-</td>
<td>1%</td>
<td>63%</td>
</tr>
<tr>
<td>Web Cam</td>
<td>1%</td>
<td>-</td>
<td>1%</td>
<td>71%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Software</th>
<th>Daily</th>
<th>Weekly</th>
<th>Monthly</th>
<th>Not Have</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Processing</td>
<td>95%</td>
<td>4%</td>
<td>1%</td>
<td>-</td>
</tr>
<tr>
<td>Electronic Calendar</td>
<td>78%</td>
<td>6%</td>
<td>3%</td>
<td>5%</td>
</tr>
<tr>
<td>Database Software</td>
<td>52%</td>
<td>11%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Spreadsheet</td>
<td>51%</td>
<td>13%</td>
<td>14%</td>
<td>-</td>
</tr>
<tr>
<td>Presentation Software</td>
<td>14%</td>
<td>9%</td>
<td>29%</td>
<td>4%</td>
</tr>
<tr>
<td>Web Development Software</td>
<td>6%</td>
<td>7%</td>
<td>6%</td>
<td>38%</td>
</tr>
<tr>
<td>Graphics Software</td>
<td>6%</td>
<td>5%</td>
<td>7%</td>
<td>42%</td>
</tr>
<tr>
<td>Voice Recognition Software</td>
<td>6%</td>
<td>-</td>
<td>-</td>
<td>75%</td>
</tr>
<tr>
<td>Statistical Software</td>
<td>5%</td>
<td>3%</td>
<td>5%</td>
<td>50%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>On-Line/Communication Tools</th>
<th>Daily</th>
<th>Weekly</th>
<th>Monthly</th>
<th>Not Have</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td>100%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Internet Browser</td>
<td>95%</td>
<td>5%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SIS Systems</td>
<td>55%</td>
<td>3%</td>
<td>1%</td>
<td>24%</td>
</tr>
<tr>
<td>Degree Audit</td>
<td>40%</td>
<td>7%</td>
<td>6%</td>
<td>30%</td>
</tr>
<tr>
<td>List Serves</td>
<td>38%</td>
<td>18%</td>
<td>12%</td>
<td>11%</td>
</tr>
<tr>
<td>Electronic Filing Systems</td>
<td>30%</td>
<td>6%</td>
<td>3%</td>
<td>45%</td>
</tr>
<tr>
<td>Interactive Forms</td>
<td>29%</td>
<td>14%</td>
<td>12%</td>
<td>17%</td>
</tr>
<tr>
<td>Instant Messaging</td>
<td>19%</td>
<td>5%</td>
<td>-</td>
<td>45%</td>
</tr>
<tr>
<td>Web Advisor</td>
<td>16%</td>
<td>6%</td>
<td>1%</td>
<td>51%</td>
</tr>
<tr>
<td>Electronic Record Transfer</td>
<td>14%</td>
<td>5%</td>
<td>4%</td>
<td>54%</td>
</tr>
</tbody>
</table>

At a basic level, advisors work on desktop computers, using email, browsers and word processing software. This is consistent with the type of work advisors do, drafting memos and letters to and for students and investigating academic and career options via the web. Many institutions have made course schedules available on-line as well as other valuable advising information which is easily accessed electronically. Seventy-eight percent of respondents reported using electronic calendar systems suggesting that the management of time has been taken over by technology.
The technology that academic advisors use is very specific to their functions. Few advisors report using presentation software on a daily basis, however, many reported using it on a monthly basis. Presentation software is most often used for group advising sessions. Academic advisors are not web developers and very few reported using web development software at any significant level. This lack of expertise in web development highlights the need for consultation and collaboration with other units when developing on-line advising tools. Academic advisors are also not strong users of statistical software which demonstrates that assessment of academic advising and statistical reporting of advising contacts and functions is either done outside advising centers or not at all. Assessment is key to designing advising programs which meet the needs of students, staff and advisors. Advising units should have the expertise to conduct their own assessments rather than relying on institutional data which may not address advising specific concerns or functions.

These figures, when compared with the NACADA Technology in Academic Advising Commission’s informal survey of NACADA members in 2002, show an increase in the use of email, web browsers, spreadsheet and word processing software and electronic calendar software. This comparison shows that not only is information technology heavily used in academic advising, it is, and continues to be on the rise.
**Communication Tools**

**Individual Email**

Advisors overwhelmingly reported that they utilize email in their daily advising activities. As a group, advisors reported spending an average of 12.6 hours per week replying to email. An average of 5.52 hours of this time is spent reading and replying to student enquiries while the balance, 6.67 hours, is spent reading and replying to administrative email. Eighty-one percent of respondents reported that they felt that email had a positive impact on their student advising activities while 11% of respondents indicated that they felt email had a negative impact on their student advising activities. Three percent of respondents indicated that email had no noticeable impact of their advising activities. For advisors who reported that email was having a negative impact on their advising, they reported an average of 13.22 hours of email per week compared with 12.31 for the group who reported positive impacts. This small difference demonstrates how email continues to receive mixed reviews from advisors regarding its usefulness and effectiveness. As outlined in Table 12 below, the difference between those with positive opinions towards email use and those with negative opinions did not report a significant difference in the amount of time committed to email weekly. Those with negative opinions towards email use in their advising reported that they were spending an average of 1.42 hours more responding to student email than those with positive opinions towards email. An independent t-test revealed that the difference between positive and negative email perceptions was not significant when looking at overall email use \( (p = .056) \) demonstrating that the hours committed to email responses is
not a contributing factor in the overall positive or negative impact that email has for these advisors. It could be suggested that the additional burden of email at 12.6 hours per week plus advising of 17 hours per week becomes 29.6 hours per week of routine advising activities. This, combined with annual advising training, professional development, technical training and cyclical projects, leaves very little time for developmental and intrusive advising development. Advisors also reported feeling overwhelmed by email while away from the office, either on vacation or at training or other professional development opportunities. Email is pervasive and unending and can easily take over the few remaining hours in a week.

<table>
<thead>
<tr>
<th>Impact</th>
<th>Administrative Email</th>
<th>Student Email</th>
<th>Total Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Impact</td>
<td>5.34 (hours)</td>
<td>6.35 (hours)</td>
<td>12.33 (hours)</td>
</tr>
<tr>
<td>Negative Impact</td>
<td>5.32 (hours)</td>
<td>7.77 (hours)</td>
<td>13.22 (hours)</td>
</tr>
<tr>
<td>Overall</td>
<td>5.52 (hours)</td>
<td>6.67 (hours)</td>
<td>12.60 (hours)</td>
</tr>
</tbody>
</table>

Among the positive impacts reported, advisors were fond of the paper trail that email provided and also of the ability to reply on their schedule rather than that of the student. Among the negative aspects reported was the feeling that students expected instant responses and were not taking the time to do preliminary research themselves.

**Positive**

On a positive note, email permits students to get an answer right away when confronted with important issues (prog. Requirements, probation, etc.) when they are not able to get an appointment right away.

it enables me to answer simple questions quickly so that appointment slots are used for more serious or complex discussions.
Pros: it allows us to answer quick questions relatively quickly and easily. It allows us to keep a record of advice given to students (unlike phone conversations).

Quickens response time from students, and from us, so various processes happen faster. Eliminates a lot of paper as emails go directly to electronic filing system (soon).

It allows us to quickly respond to straightforward questions without students waiting to see an academic advisor, which based on our workload can sometimes take up to two weeks.

**Negative**

Students use email in advising situations that are better served by the student making an advising appointment. Explaining or answering a student question can involve a number of emails.

Has both positive and negative. Can answer more students than I can see in person – however can be hugely time-consuming. Student will send 4 and 5 emails because they are impatient, have not read the email or have misunderstood the advice given.

both positive and negative, hidden work, ease of communication, but concerns re info sent in [this] manner, increased time to advise in this manner

takes too long to answer all questions from student email and they always follow-up with more questions

Students feel free to e-mail about quite minor questions, without checking the calendar themselves to find the answer. They do not edit their e-mails for brevity. When they do not get an immediate response, they e-mail again.

**Mass Communication**

Institutions as a whole are also recognizing the power of mass communication vehicles, such as email and student listserves. Seventy-seven percent of advisors at 89% of participating institutions indicated that they personally use mass communication technologies, including listserves and mass email to communicate with students.

Advisors reported that in several cases while they did not personally use mass
communication with students, that it was a tool that was used in their advising program, often by the Department Head, Administrator or Registrar.

Institution size did not appear to be a factor in the use of mass technology. Institutions of all sizes reported using mass communication technology to communicate with students. Figure 5 below shows the distribution of institution size and mass communication use. Advisors at only a small number of participating schools, 4 out of 37, reported that they did not use mass communication to communicate with students.

Figure 4 - Institutions and Mass Communication Technology Use

Among the uses for mass communication, advisors reported using tool such as email, listserves and Web CT to inform students of upcoming events, deadlines and newsletters. Some advisors reported using communication tool such as bulk email and local intranets to reach identified sub-groups of students (at risk students, first year students, graduating students) in order to provide targeted, timely information.
Advising Functions

Technological Integration

Figure 5 indicates the level of computer integration in advising offices. Combined, over 75% of respondents indicated that their advising units have some computerized processes or are fully integrated in their information processing. This is significant when relating the use of information technology to the reduction of clerical functions and the development of intrusive advising programs. By having fully integrated computerized systems, advising administrators have quick and easy access to information that they can then use to identify trends in student academic matters and develop advising programs to suit.

Figure 5 – Level of Computer Integration in Advising Centers

Advisors were also asked to assess whether they felt that the use and availability of technology and other information systems in their unit had increased over the past 3-5
years. The majority of respondents agreed that there had been an increase in the use and availability of information technology in the past 3-5 years. This is not in itself surprising given the rapid rate of change in information technology. The question remains however; how does this impact advising and the administration of advising the centre? Nearly 10% of respondents indicated that the situation in their unit was unchanged in the past 3-5 year and nearly 5% were unsure, largely because they had not been in their units long enough to assess the rate of technological change.

Assessment

In order to fully assess how technology is impacting the delivery of advising services it is important to track and analyze the types of advising requests. Sixty-one percent of advisors responded that their office does track advising requests for statistical reporting purposes. Of that 61%, less than half reported that they have technological tools to assist in this function. These results show that fewer than 40% of advising contacts are recorded for statistical comparisons and that even when contacts are recorded the processing of related data is done manually in over 50% of cases. Assessment allows for measurement of the most common service requests and student interactions. With this detailed information on frequency, timing and nature of service demands, units can develop and adapt new technologies to assist in the advising process. Assessment is an area where technology can and should be implemented as the need for advising assessment is critical to the ongoing development of advising programs.
On Line Advising

As noted in Chapter 4, Table 3, many advising units utilize a combination of on-line, in-person and group advising mediums to convey advising information to students. Among the main functions that are available on-line is information regarding degree requirements, academic policies and procedures, and course selection. Having this information available on-line allows students to review the information on their own time, however these functions are backed up by in-person advising where necessary. Academic advising is a very personal activity where each student's situation is different. Many advising functions cannot be conducted on-line and require face to face or direct contact (telephone or email) with an academic advisor. Issues surrounding academic concessions, identifying opportunities for student success, appeals and academic record reviews are not well suited to an impersonal on-line format.

Internal Functions

From personal experience, I sought to link my own advising work with that of advisors at other institutions. In my own unit, aside from the daily advising routine, there are three main functions for which we bear the primary responsibility: bi-annual convocation, annual promotion and review of students and targeting at-risk students. Each of these functions is very labour intensive, time sensitive, manual and necessary. Advisors were polled for the purposes of comparison in these three areas. Table 13 below shows the number of respondents who indicated that their unit has some or full responsibility for these functions.
Table 13 – Key Advising Functions and Technology

<table>
<thead>
<tr>
<th>Function</th>
<th>%</th>
<th>Using technology to assist? (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>At risk students</td>
<td>97</td>
<td>58</td>
</tr>
<tr>
<td>Convocation</td>
<td>66</td>
<td>74</td>
</tr>
<tr>
<td>Promotion/Continuation</td>
<td>68</td>
<td>86</td>
</tr>
</tbody>
</table>

It is promising to note the high percentage of units that are using technology to assist in these key areas, however in large institutions, where the functions are performed for a large number of students at once, technology may not be being used as efficiently as possible and in many cases it has been reported that these functions rely on reports generated by another unit and then analyzed in advising units. This type of analysis takes time and expertise which should be located within the advising unit.

**Institutional use of Technology**

Table 14 below outlines the on line availability of key institutional services. These data were collapsed from individual responses and represents the general situation in each institution and shows whether technological tools are available to specific groups. For example, Institutional directories are available to both advisors and students in all cases, however Exam Schedules were only available to both groups in 95% of cases and to students alone in 3% of cases. In cases where a particular service was available in one advising unit but was not offered in another within the same institution, it was included in institutional availability for the purpose of comparison. In order to provide the best service to both students and advisors it is important that advisors have the appropriate tools. In many cases it is important for advisors to have access to student exam schedules and transcripts. Gaps are occurring where technological tools that can contribute
positively to the advising function, such as degree audits, are not institutionally available.

These gaps represent opportunities for development.

Table 14 – Online Availability of Institutional Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Students</th>
<th>Advisors</th>
<th>Both</th>
<th>Neither/Not Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional directory</td>
<td>-</td>
<td>-</td>
<td>100%</td>
<td>-</td>
</tr>
<tr>
<td>University calendar</td>
<td>3%</td>
<td>-</td>
<td>97%</td>
<td>-</td>
</tr>
<tr>
<td>Course Schedules</td>
<td>3%</td>
<td>-</td>
<td>97%</td>
<td>-</td>
</tr>
<tr>
<td>Exam Schedule</td>
<td>3%</td>
<td>-</td>
<td>95%</td>
<td>3%</td>
</tr>
<tr>
<td>Academic advising information</td>
<td>3%</td>
<td>-</td>
<td>95%</td>
<td>3%</td>
</tr>
<tr>
<td>Course Registration</td>
<td>8%</td>
<td>-</td>
<td>89%</td>
<td>-</td>
</tr>
<tr>
<td>Transcripts/Grades</td>
<td>6%</td>
<td>-</td>
<td>89%</td>
<td>-</td>
</tr>
<tr>
<td>Financial Aid/Scholarship Information</td>
<td>14%</td>
<td>-</td>
<td>86%</td>
<td>-</td>
</tr>
<tr>
<td>View transfer credit</td>
<td>8%</td>
<td>14%</td>
<td>76%</td>
<td>3%</td>
</tr>
<tr>
<td>Interactive forms</td>
<td>11%</td>
<td>-</td>
<td>73%</td>
<td>16%</td>
</tr>
<tr>
<td>Student ID photos</td>
<td>17%</td>
<td>6%</td>
<td>9%</td>
<td>69%</td>
</tr>
<tr>
<td>Web advisor</td>
<td>3%</td>
<td>-</td>
<td>31%</td>
<td>67%</td>
</tr>
<tr>
<td>Academic appeals</td>
<td>19%</td>
<td>-</td>
<td>42%</td>
<td>39%</td>
</tr>
<tr>
<td>Textbook ordering</td>
<td>26%</td>
<td>21%</td>
<td>18%</td>
<td>35%</td>
</tr>
<tr>
<td>Degree Audits</td>
<td>3%</td>
<td>22%</td>
<td>41%</td>
<td>35%</td>
</tr>
<tr>
<td>Appointment Scheduling</td>
<td>3%</td>
<td>36%</td>
<td>28%</td>
<td>33%</td>
</tr>
<tr>
<td>GPA Calculators</td>
<td>8%</td>
<td>14%</td>
<td>56%</td>
<td>22%</td>
</tr>
<tr>
<td>Letter of permission</td>
<td>19%</td>
<td>8%</td>
<td>51%</td>
<td>22%</td>
</tr>
<tr>
<td>Withdrawal requests</td>
<td>22%</td>
<td>3%</td>
<td>54%</td>
<td>22%</td>
</tr>
<tr>
<td>Specialization Change</td>
<td>17%</td>
<td>20%</td>
<td>43%</td>
<td>20%</td>
</tr>
<tr>
<td>Enrolment/Course management</td>
<td>3%</td>
<td>19%</td>
<td>61%</td>
<td>17%</td>
</tr>
<tr>
<td>Graduation Applications</td>
<td>30%</td>
<td>24%</td>
<td>35%</td>
<td>11%</td>
</tr>
<tr>
<td>Address/email change</td>
<td>28%</td>
<td>-</td>
<td>64%</td>
<td>8%</td>
</tr>
<tr>
<td>Personal course schedule</td>
<td>35%</td>
<td>30%</td>
<td>59%</td>
<td>3%</td>
</tr>
<tr>
<td>PIN change</td>
<td>57%</td>
<td>5%</td>
<td>38%</td>
<td>-</td>
</tr>
</tbody>
</table>

Personal student data such as course and exam schedules are also widely available to students and staff, however, this is not the case at all institutions. Some services such as on-line forms, financial aid information, academic appeals, address and PIN changes are available to both groups. However, in some cases these functions are only available to students. Institutions appear to be moving toward more student self service for many functions, both routine (address change and directories) and complex (course registration
and transcripts). The result of increased self service can be felt in the service areas that once housed these functions with staff moving away from these routine functions.

Many services received mixed results in that they were available to either students, or staff, or both or were not available. Sixty-six percent of institutions reported that they did not have Web Advisor, an interactive on-line advising tool, and 68% of institutions reported that they did not have student ID photos available on-line. Web Advisor, a software package, assists in the advising process by allowing students access to personal advising information though a central log-in system which is linked to their student record. This and other similar software records advising appointments, and uses 'push technology'† to direct timely information to students. While these are not services which will make or break an advising system, they are tools that can enhance the advising process as more students self-service, reducing prescriptive advising contacts and freeing time for advisors to focus on more developmental and complex issues.

Summary

In this section the use and integration of technology in academic advising was addressed. It was found that while advisors are generally technologically fluent, they do not pursue technological training to the same level that they do advising training or professional development. The outcome of this shortfall in training and support is that technological integration is not complete or is not used to its full efficiency.

† Push technology refers to an internet content delivery system where information is delivered from an internet site to a user based on a set of predetermined filters. Push technology differs from the traditional Pull Technology which relies on the user to request information manually from a server.
http://en.wikipedia.org/wiki/Push_technology
Information technology is being used in advising centers in a variety of ways. Many information based functions are available on-line and advisors are wide users of email and mass communication avenue. Email, however, appears to be both a blessing and a curse with many advisors commenting on the amount of time email requires and the quality of requests being sent via email. Students, it appears, substitute research for quick answers seemingly available via email. This places additional strain on already stretched advising time. Many advisors commented however that they appreciate the paper trail associated with email and that by addressing simple questions via email that they have more time for in-depth advising in-person.

Assessment of the use of technology is not widespread across institutions and is an area that could use improvements. Advising centers, as with other student services, are called on to provide measurable results to continue funding or to request additional resources. Assessment of advising contacts and effectiveness of on-line advising resources is important in this area and also for ongoing total quality improvement.

Institutions are using technology in new and innovative ways as more functions are moved to a student, self service model. Student service staff is no longer spending time doing manual data entry for course selection or address and personal data changes. Full campus integration of information technology will see interconnectedness between all university functions from admission to housing, finance, advising, and library services.
Support and Development

Technology use in Advising

Advisors were asked how much the use of information technology has impacted the delivery of student advising services in their unit. Table 15 below summarizes the findings. It is clear that the use of information technology is having an impact on advising units as 92% of respondents feel that the use of information technology was somewhat impacting services or is impacting services to a great extent.

Table 15 – Impact of Information Technology on Service Delivery

<table>
<thead>
<tr>
<th>Impact level</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>To a great extent</td>
<td>47</td>
<td>45</td>
</tr>
<tr>
<td>Somewhat</td>
<td>46</td>
<td>44</td>
</tr>
<tr>
<td>Very little</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>No impact</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

One advisor, commenting on the impact of information technology on advising, noted that “the introduction of IT in our area has enabled us to continue providing good service to our students in a period where enrolment increased by 50%, and staff increased by about 10%.” This is a case where technology appears to be serving its mandate, to provide service while reducing manual burdens. Other advisors commented on the increased ability to service more students in less time, as well as the ability to prioritize more efficiently and deal with requests in a timely manner. Other advisors however, reported that technology has “increased the work load: and that the expectation of instantaneous answers remains a problem.” In one case an advisor reported that their
"unit doesn’t make nearly as much use of technology as it could. [The] current strategy largely amounts to putting hand-outs on the web.” In both of these cases, poor implementation, training and strategizing on the use and goals of technology may be leading to inefficient use of technology which results in an increased workload as advisors seek a work-around to the technology. Inadequate vision, implementation and support contribute to an on-line advising program that serves neither students nor advisors. Academic advisors are not web developers and web developers are not academic advisors. Consultation, collaboration and support are required to integrate technology into advising in a way that serves all its intended users. Only 15 advising units reported that they had one or more technical staff members on staff in their advising units.

Impact on advising

Advisors were asked whether the use of student self-directed/self-care technology and on-line services had an impact on the nature of one on one advising. Forty-one percent of respondents indicated that they felt that technology was changing the nature of one on one academic advising, while 22% responded that they did not feel that technology and student self-service functions were changing their face to face advising activities. Neither of these statistics point clearly to whether or not technology is changing the nature of one on one advising when the number of advisors who are unsure of the impact of technology in advising is considered. Thirty-seven percent of respondents indicated that they were unsure whether or not student directed/self care technology and on-line services were changing the nature of one on one academic
advising. One advisor commented that “[technology] enhances [advising] because students have greater access to the information they need and therefore come into their advising appointments more prepared (ideally).” Another advisor commented that “one-on-one [advising] is a social interaction [and] so can create a relationship. If on-line systems deal with all the positive academic advising problems, then the one-on-one advising deals mainly with negative problems.” The idea that the use of technology can impact student advising so that advisors only deal with negative situations is problematic as academic advisors can suffer burnout similar to counsellors and other care professionals who deal with intensive and demanding situations on a daily basis.

Other issues can arise with regard to the use of technology, lack of user expertise, misuse of information/technology and overcoming barriers of student responsibility and faith in technology. Many advisors wrote that students still sought advising to confirm information found on-line, either due to a need for reassurance, general mistrust of electronic information or simply the desire to connect with a person. Other advisors found that technology became a burden as students misused it. One advisor wrote that “while I would have thought that access to technology would increase a student’s independence, it can also create students who have become more electronically dependent through email” and another commented that “students do not see themselves as being responsible for their own progress towards their degrees. Having on-line services are useful for them but they still do not accept ownership of their own course selection etc.”

Having technology available cannot replace face-to-face service, as there is still an elusive element of user access. In many cases, there is a general assumption that
students are technologically savvy and have easy access to the internet and technological tools. Unfortunately, even though institutions are moving forward to create wireless networked campuses with accessible workstations in libraries and computer labs, there are still students for whom technology is a mystery. For these students, it must be asked whether increasing technology and technological services puts them at a disadvantage over their technically literate peers.

Many advisors did indicate that technology was having a positive impact on their in person advising as students were more prepared when they sought advising, and that by allowing students to access information for themselves, that they had more time to focus developmentally with students. One advisor summed it up nicely when he/she wrote, “I’d like to believe that access to much of the necessary information online will free up time for advisors to engage in developmental advising, and in establishing that relationship lead to the success and retention of students.” It is this desire to engage in developmental advising that needs to be supported through the development of technological tools.

Institutional and Unit Support

When asked to rate the level of support for information technology development advisors had moderate to high opinions of support. Table 16 below outlines the level of support for information technology within institutions and units specifically.

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Moderate</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional Support</td>
<td>37%</td>
<td>46%</td>
<td>16%</td>
</tr>
<tr>
<td>Unit Support</td>
<td>38%</td>
<td>44%</td>
<td>15%</td>
</tr>
</tbody>
</table>
The majority of advisors showed consistency between the levels of support institutionally and at the unit level for information technology development. In 82-83% of cases there was reported to be moderate to high levels of support for information technology development. Surprisingly there remains around 15% of respondents who feel that the support level for IT development is low. This is an area that needs improvement, as collaboration and support are necessary at all levels for full integration of technological resources.

Institutional Planning

Institutional support for technology integration is a key factor in the success of integrating technology into advising programs and development of new advising models. Without institutional support and integration of advising tools into pre-existing student databases, the connections between advising and technology cannot be realised to their full potential; to relieve manual burdens on staff and develop new models of academic advising programs.

Just over half of all respondents indicated that there was a working group or committee at their institution that was responsible for discussing, recommending and/or implementing of information technology resources that supported academic advising. Twenty-three percent of respondents indicated that there was no central working group that was dedicated to the integration of advising and technology while another 27% were unsure if such a working group existed.
Of the 51% of respondents who indicated that a working group existed, 81% indicated that their unit was involved in the development of advising technologies at the institutional level. Thirty-five percent of respondents who indicated that there was no centralized working group at their institution, or were unsure, indicated that their unit was involved at a centralized level in the development of advising technologies. This would seem to indicate that some institutional planning in this area is done on an *ad hoc* basis rather than through a coordinated and centralized approach. In all, 59% of respondents indicated that their unit was involved in the planning of advising technologies at the institutional level, while 33% of respondents indicated that their unit was not involved in planning at the institutional level.

*Satisfaction with Resources*

When polled on the level of satisfaction of technological resources available in their unit, 55% of respondents were satisfied or very satisfied with the level of acquisitions, support, software and training available to them. Surprisingly, 18% of respondents indicated that they were dissatisfied or very dissatisfied with the level of technological resources available in their unit. This result of nearly 20% of respondents indicates that this is an area of weakness that should be addressed by administrators in advising units to ensure that not only are resources available, but that support and training programs are also available. Even the 27% of respondents who indicated that they were neutral on the subject could improve their satisfaction level through greater support and resource availability.
Following-up on the question of how much computer integration is occurring in advising centers, participants were asked to assess the impact that computer integration has on reducing the manual burden on support staff. Nearly one quarter of respondents, 23%, indicated that there was little to no reduction of manual burdens on support staff in their units. Contrasting that was 32% of respondents indicating that there was much or a great deal of reduction of manual tasks in their units. As seen in Figure 6 below, nearly 20% of respondents who indicated that they have seen an increase in the use and availability of information technology in their unit also reported that they found little or no decrease in the manual burden that computer integration has achieved for the support staff within their units. It is not possible to determine whether the impact on the manual burden, great or small, is positive or negative. It is possible that the growth of information technology has resulted in an increase in manual burdens in some situations.

Figure 6 – Growth in Information Technology and Impact on Manual Burden
Specific Opinions

Survey participants were polled on their opinions about a number of general statements regarding the use of technology in academic advising and its impact on the delivery of services. Table 17 below outlines the results of these questions. Advisors overwhelmingly felt that the use of technology supports the needs of advising staff and students, although they felt more strongly about technology supporting the needs of staff rather than the needs of students. This is likely a needs based result. Academic advisors are in positions where they are sought out as students need information. This information must be readily available in order for advisors to advise accurately and efficiently. Advisors felt strongly that advising technology improves the delivery of academic advising, however, they had mixed feelings over whether or not the use of technology increases the quality of time spent in one on one advising or whether technology enables opportunities for the development of intervention based advising programs. Twenty-four percent of advisors disagreed with the statement that the use and development of technology in academic advising improves the quality of one on one advising indicating that they do not feel that technology itself has a direct impact on their one on one relationship with students. Advisors agreed that technology improves student access to information and that new technology increases the need for training and professional development activities. The majority of advisors agreed that technology improved the delivery of advising services.
Table 17 – Opinions on statements on technology

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree/Agree</th>
<th>Neutral</th>
<th>Disagree/Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The use and development of academic advising technology supports the needs of advising staff.</td>
<td>91%</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td>The use and development of academic advising technology supports the needs of students.</td>
<td>89%</td>
<td>11%</td>
<td>0%</td>
</tr>
<tr>
<td>Technology increases the need for ongoing training and professional development activities.</td>
<td>88%</td>
<td>10%</td>
<td>2%</td>
</tr>
<tr>
<td>The use and development of academic advising technology improves student access to information.</td>
<td>88%</td>
<td>10%</td>
<td>3%</td>
</tr>
<tr>
<td>The use and development of academic advising technology improves the delivery of academic advising.</td>
<td>83%</td>
<td>15%</td>
<td>2%</td>
</tr>
<tr>
<td>The use of information technology enables opportunities for developmental of intervention advising programs.</td>
<td>69%</td>
<td>27%</td>
<td>13%</td>
</tr>
<tr>
<td>The use and development of technology increases the quality of time spent in one on one advising with students.</td>
<td>63%</td>
<td>22%</td>
<td>24%</td>
</tr>
<tr>
<td>The University administration does not recognize the importance of technology in academic advising.</td>
<td>28%</td>
<td>25%</td>
<td>45%</td>
</tr>
</tbody>
</table>

Summary

This chapter was devoted to the discussion of advisors perceptions on the impact of technology on their role as academic advisors. Advisors were asked to rate the impact of information technology on the delivery of service in their unit. Ninety-two percent of advisors felt that information technology had impacted service delivery somewhat or a great deal. This demonstrates that information technology has a large role to play in the development of advising services and delivery models. Many advisors, however, reported that although information technology is having a large impact on the delivery of service within their units, that it was not being used to its fullest potential.

The impact that information technology can have affects both students and advisors in university settings. Many advisors reported that they felt that information
technology directed at student directed or self-care technology was changing the nature of their one on one advising. Advisors commented that students had more access to information and are therefore better prepared when they seek advising, however others felt that students were not fully trusting of the information available on-line, and sought advising to confirm information they had already received.

Advisors were quite optimistic in their assessment of support for information technology, reporting very high rates of institutional and unit support for the development of information technology resources. This is tempered by the level of involvement by advising units in institutional planning with regard to information technologies. Nearly half of respondents indicated that there was no centralized working group for the development of information technology with regard to academic advising. Also, less than half of respondents indicated that their unit was involved institutionally in this development. Academic advisors did not report using web development software routinely, however, their professional expertise, input and collaboration is key to developing information systems and technologies that support the mission of academic advising and student services as a whole.

Resources are another key issue in the effectiveness of information technology in academic advising. Nearly 20% of respondents indicated that they were dissatisfied with the level of technological resources, hardware, software and support, available in their unit. This represents a large number of academic advisors and is an area that should be reviewed and addressed by institutions and advising units. Only 56% of respondents indicated that they were satisfied or very satisfied with resources. This further supports
the contention that there is a gap in resources that must be addressed in order to improve
the levels of manual reduction for advisors and support staff in advising centers.

Overall it does not appear that information technology is having a significant
impact on day to day advising. Advisors were polled on several statements related to
technology and advising and were largely supportive of the development of information
technology. However they were not overwhelmingly convinced that the development of
such has a noticeable impact on face to face advising.
CHAPTER 7: SUMMARY, CONCLUSIONS & RECOMMENDATIONS

Introduction

The inspiration for this study arose from my professional experience as an academic advisor. Advisors are inundated on a daily, weekly, monthly and annual basis with questions, processes and organisational changes that challenge our capability to manage. As technology improves and is increasingly layered into the advising process it brings with it both benefits and drawbacks. On one hand, students, staff and advisors have greater access to information and communication tools; on the other hand, this wealth of information places pressure on advising to do more and provide both better and more pro-active service to students. Technology, however, is not always implemented strategically. End-user input is often lacking during the design phase and the tasks that technology has been designed to assist are still being done manually as a result of inherent glitches or lack of user buy-in to the programs. Often, the old way is seen as easier and faster than adapting to new systems. The goal of this research study was to investigate the link between information technology and academic advising at Canadian universities. The outcomes of this survey of undergraduate advisors across Canada gives insight of how and what technology is used and its impact on advising practice and models.

The survey was structured in six sections which linked the two key research questions. The survey sought to seek answers to first of these research questions; what is the current status regarding the use of information technology at Canadian, English speaking, four-year research universities? and addressed issues such as
• How is information technology being used?
• Is the use of information technology increasing?
• Are institutions using information technology strategically?
• How to institutions and advising centres plan for, integrate and support technology in advising?
• Are manual tasks being replaced by technology?

The second key research question at the heart of this study; what are the perspective and opinions of academic advisors regarding the role of information technology in the advising process? seeks to unveil the opinions of advisors toward the application of technology in day to day advising and the development of advising models. This area included specific sub questions including
  • How do advisors see the value of information technology?
  • What kind of information technology background and training do advisors have/need?

A total of 37 institutions and 105 advisors were surveyed with responses received from nine Canadian provinces. The survey received a response rate of 33% and included respondents who identified themselves as Professional Advisors, Advising Administrators or Administrative Heads. Responses were also received from a small number of Registrars, Faculty members, Student Development Officers and other student service professionals with a role in academic advising. These advisors reported a long history of advising experience with an average of 10.33 years of experience and a sum of
1,034 years of advising experience between them. This depth of experience places them in a good position to comment on the past, present and future of academic advising and the use of information technology in practice. The recommendations that follow are not specific to any particular advising model or institution, these recommendations can be adapted to meet the needs of individual institutions.

Current Situation

Technology Usage

Respondents reported unanimously that they used computers in their daily advising activities and over 80% of respondents indicated that the availability and use of information technology had increased in their units over the past three to five years. Information technology is being used by advisors to communicate with students, individually via email, or en-masse via listserves and other tools such as static and interactive web sites. Information technology is also relied on to store, retrieve and manage student data as well as to manage the daily administrative functions of advising centres. While information technology use is widespread, there is evidence of gaps where information technology could be implemented with greater efficiency. Seventy five percent of respondents indicated that their unit had some computerised processes or were fully integrated in their information processing but only 37% felt that the level of computer integration within their unit was reducing the manual burden on support staff. Manual processes such as filing, degree audit and statistical assessment was often reported to be a tedious task for many advisors and advising units, costing considerable time, effort and resources. Advising units need to strategically analyse not only what
services are provided but how they are provided and how than can be provided more efficiently or assisted by technology. A thorough evaluation of the services offered by student services department begins with a review of the mission and mandate of the unit. With a clear mission and establishment of roles, it is then possible to review the functions and processes offered in light of the unit mission and goal. Process reviews must be designed to identify gaps in processes and assist in pinpointing where technology can assist and optimize opportunities for advancement.

*On-line Tools*

Advisors reported that general advising information including general information about degree requirements and academic and institutional policies was available on-line to students. Many commented that their web-sites were information based and repeated static information found in other publications. Other key advising functions such as assisting with course selection and major choice, appeals and special learning opportunities were predominantly available in 20 to 30 minute in-person advising sessions. A strategic initiative to develop student advising web-sites from the student perspective is necessary to move forward in the development of this key area. Advisors reported that students were not informing themselves by using on-line information, before seeking advising. By redeveloping technological tools, such as information based web sites, with student input ensures that these tools will be clear, efficient and user friendly.

Institutionally a number of self-service functions are increasingly available on-line. Students are no longer required to line up to meet professors, register for classes or
pay tuition. These functions, even textbook ordering are becoming increasingly available on-line, however technical advising tools such as Web Advisor, an interactive on-line advising tool, and degree audits were not widespread. Development of self-care tools for students would greatly assist in reducing the time spent in prescriptive advising and allowing more time for the development of holistic advising relationship building which is the cornerstone of developmental advising models. Self-care benefits the advising process as students arrive more informed at appointments and are more open to discussions that go beyond simple course selection, into areas such as academic growth, special learning opportunities and career development.

Communication

Email is one of the most prolific information technology tools in use by advisors. On average, a total of 12.6 hours per week was dedicated to reading and replying to email. This is just over one-third of a standard work week and, when combined with the average hours of advising, 17 hours per week, places a significant burden on the time of advisors and reduces opportunities for development of new advising models, professional development or technical training. Advisors most often reported that they felt email had a positive impact on their advising activities as it was possible to communicate with students in different places at different times, with more detailed information, and a record of the advice given could easily be stored electronically or manually. Advisors also commented on the positive ability of email to serve as an ice-breaker for students who might not otherwise reach out for assistance.
A small number of advisors, 11%, felt email had a negative impact on their advising. These advisors cited reasons such as overwhelming volume, poorly thought out enquiries, unrealistic expectations of response time and a general failure by students to research their own answers before emailing, as reasons for their negative perceptions of the use of email. While many advisors felt that email was a positive tool in their advising, however they also noted that the volume of requests could be, at times, overwhelming. Providing accessible, intuitive and trustworthy on-line tools to students could serve to decrease the volume of email reaching advisors and improve the quality of questions from students as they would have easy access to the answers to routine questions. Advisors would also have another tool in their collection that could be used as a first point of contact for students, in order to empower their personal research and decision making.

Institutionally, universities reported the wide-spread use of mass communications tools such as listserves and mass email systems. This provides a central mechanism to communicate with students on issues from any number of university departments. The ease of communication, however, can have a negative effect without a clear campus-wide communication plan as students are inundated with institutional email, feel overwhelmed and begin to view these communications, however well intended, as spam.

Functions

Cyclical functions of the advising office, including the assessment of student eligibility to reenroll in their studies, graduation confirmation and the advisement of students at risk of failure were found to have mixed levels of information technology
integration. In 75% of cases, technology was used to generate results for the graduation process and 86% to determine continuation and promotion eligibility. Only 58% of advisors reported using technology to assist in the process of identifying students at-risk, despite 97% of respondents indicating that their unit was responsible for this function. These results indicate that much of the work to identify graduates and students at risk is still being done manually. At large institutions this becomes, by order of scale, a time consuming and labour intensive process. If student success is to be measured in terms of academic performance, grade point averages and institutional retention and convocation rates, this is an area that should see an increased use of technological tools such as GPA calculators and electronic grade books. Technology, however cannot pinpoint the qualitative indicators of student success or failure; however, these indicators often have a reciprocal impact on student academic success which can be measured and reported using information technology. Students with learning disabilities, transition issues or those facing acute personal situations may not meet the traditional definition of being academically at-risk; however, the negative influence of their situations may be reflected in their academic standing and be measurable as part of an intervention program.

Assessment

The advisors surveyed reported low usage and availability of statistical analysis tools. Advisors also reported low rates of advising assessment and even lower rates of the use of information technology in assessment. Assessment is a key area that needs improvement as assessment of advising services, functions, technology and students will provide a clearer picture of the needs of students, staff and will assist in the development
of technologies to address those needs. To this end, advising units need specific types of expertise. Expertise in the theories, models and the development of advising relationships as well as technical and statistical expertise would allow a unit to conduct assessment projects to identify and strategically plan for improvement of services, both technological and developmental. This expertise is also necessary to ensure the voices of advisors and advising units is heard at the institutional level.

**Planning**

To assess the level of influence that advisors and advising units have on the development of information technology institution wide, advisors were asked to comment on the institutional approach to technological innovation. Overall, the level of support for the development of information technology was high at both the institutional and unit level. Only half of respondents reported that there was a centralised working group responsible for the development of new student service and academic advising technologies, however 59% of respondents indicated that their unit was involved at an institutional level either through a centralised committee or on an *ad hoc* basis. These two areas, the development of advising technologies and the participation of advising units in those committees, need improvement.

Academic advisors are not experts on how to develop technology in academic advising; however, they are experts on the practice of academic advising. This expertise is not only necessary, it is essential for the development of information technology at an institutional level. A centralised working group or committee with student service professionals, such as academic advisors, from across the institution is necessary to
ensure consistency in application of practices and to ensure that the end user needs, whether they are students, or staff, are taken into account in development. Systems designed by computer experts without sustained assessment, input and integration within advising units and student services will rarely meet the needs of end users.

**Perceptions of Advisors**

**Value of Information Technology**

Advisors in this study were surveyed for their opinions on several areas of information technology and integration. Of these advisors, 75% reported that the use of information technology has impacted the delivery of student advising services in their unit. Comments such as, “our on-line registration and degree audit systems are very easy to access and use, but do not replace the one-on-one interaction with an individual,” and “it allows for greater speed and volume of information content, therefore increased contact with students” further illustrate this point.

Two thirds of respondents reported that improved access to information technology was reducing the time spent manually processing paperwork and was providing more time for working with students developmentally and holistically. Access to information was reported to impact the way advisors worked with students in several ways including increasingly referring students to on-line resources and improving accuracy of in-person advising. However, some advisors felt that information technology had hidden problems including increasing the volume of student requests as on-line information sites grow in volume and complexity and, in some cases, an increase in
administrative work as new systems are slowly integrated, resulting in repetition of information between old and new systems.

When asked to comment on technology and academic advising, respondents generally agreed that technology improves student access to information and that the use and development of advising technology supports the needs of students. However, they had mixed feelings on the impact of advising technology and developmental advising and the role that technology can play in the development of intervention programs. These mixed feelings indicate a need for further development of not only new technology, but new communication and training models to encourage advisors to develop new connections between advising and technology.

Advisor Training

In order to become academic advisors, the norm reported was generally a Bachelor's degree, indicating that it is the experience and knowledge of university life gained throughout the educational process that is a necessary requirement for successful academic advising. To develop and maintain the highest quality student services available, institutions and advising units must ensure that their representatives are provided the tools necessary to most effectively perform in their roles. A comprehensive advising training program that is based in academic advising theory and student development theory is necessary. Once a foundation for advising has been established, it can be shared campus wide and even serve as a model to other institutions. A training program, based in theory, will necessarily encompass many practical elements such as legal obligations and risks, Freedom of Information and Protection of Privacy and
institutional missions, goals and climates. At present at Canadian institutions, there are very few academic programs in higher education and fewer still in student services and academic advising. Individual institutions must work both independently and collaboratively with their peers to create training programs that will prepare advisors and other student service professionals for the future and reduce the reliance on ad hoc training programs that leave advisors in individual institutions and units not prepared for the depth and variety of student needs that developmental and intrusive advising models require.

Technical Training

Although 92% of advisors in this survey rated their computer knowledge at or above average, training was found to be a weak link in advising units. Academic advisors did not report high levels of technical training at the beginning of their advising positions, nor did they report high levels of ongoing training and professional development. Only one quarter of respondents indicated that they had received any formal technical training when they began advising and only half of respondents pursued any type of ongoing technical training during the past year. As institutions are called on to improve and adapt to innovate technological applications, the expectation that administrative staff be experienced in these areas is logical. Surprisingly, 8% of advisors rated their technical knowledge as below average, further highlighting the need for training. Advisors were also asked to rate their level of satisfaction with technical resources available to them in their unit. While most advisors were satisfied with the available resources, nearly 20% of advisors were reported being dissatisfied or very
dissatisfied with resource availability including hardware, software, training and support. Less than half of respondents indicated that there was technical staff employed within their unit. Including a technical expert within the advising unit will provide infrastructure support and training which will benefit all advising unit staff as new technologies will be developed with the input of the advising unit and access to training and resources will be improved.

A key function of an advisor’s role is the success and retention of students. In developing retention goals, an institution may target academically at-risk students for advising, workshops and other academic success initiatives. Unfortunately, many institutions may not be equipped to target students in the early stages of risk and are only able to follow-up after the moment of crisis and the student has left the institution. For pre-emptive intervention initiatives to be successful two things must occur at the development stage. First, advisors must have the theoretical background in student development theory for successful academic advising. Second, advisors must have the know-how and tools to access and analyze the data necessary to identify students at risk and to use the information effectively.

Academic advisors need formal training on the key technical applications and advising theories to which they are exposed and to which they are expected to use in their positions. This training is, by necessity, two-fold. First, centralized training on common, university-wide applications such as student information and registration systems and second, advising specific training on theories, resources and software applications most commonly used in advising. While most advisors come into their positions with some technical training and experience, linkages between information technology applications
and academic advising theory will ensure that academic advisors have the best training and tools available when advising students. Advisors should not be expected to become web developers through training; however, they should be trained to use technology effectively to reduce the amount of time spent processing manual paperwork and enable the redirection of time savings to developing new, developmental advising programs.

**Recommendations for Practice – Summary of Points**

- Review the mission and mandate of student services to assess the function and efficiency of services.
- Through process streamlining and assessment strategically analyze what services and processes are offered with a goal of generating efficiency through technological innovation and development.
- Create a campus wide communication plan and policies to ensure that communication with students is contextual, appropriate, necessary and meeting the needs of both students and units.
- Create static and interactive on-line tools for students that deliver key information in a format that is accessible, logical and consistent to reduce the number of unnecessary advising contacts and communications.
- Identify and develop technical programs to use available information strategically to identify students at risk and intervene at key times during the school year rather than after the crisis point.
• Focus on developmental approaches to advising and dedicate time for advisors to work with academically at-risk students which will positively impact overall institutional retention rates.

• Develop on-line advising tools such as degree audit and web advising to reduce the purely prescriptive elements from one-on-one advising to enable relationship building and discussion of non-linear issues such as career advising, program selection, learning opportunities and intervention activities.

• Invest in technological systems to assist with general office functioning such as filing, forms, convocation, year end assessment, etc..

• Hire specialised personnel to manage technical infrastructure and participate in the assessment of advising tools, development and training.

• Include end-users, students, staff and advisors, in all technological development.

• Develop and require training programs for advisors at the beginning of their positions and commit to ongoing training to ensure that advisors are comfortable with changes in advising technologies and are able to fully utilize available tools.

• Provide training programs for students, staff and advisors when new on-line services are introduced.

• Provide avenues for input by advisors, staff and students at the unit and institutional level to ensure that new technologies will meet the needs of end users.
• Create an institution wide working committee to develop information technology specific to student services that includes representation from advising units, registrarial services, support staff and information technology development groups.

• Survey and meet with students to ensure their expectations and needs of advising and technology are taken into consideration.

**Impact on Practice**

Efficiency and effectiveness are key to an integrated approach to information technology in academic advising. Once key functions have been moved to on-line systems, ongoing training and development for academic advisors and other staff is integral to the success of new efficiency building models. Academic advisors who have developed a formative knowledge base and have begun to apply their knowledge to their advising roles will begin to move to the next level where they can take initiative in their positions and create new methods and models for approaching their tasks. Advisors will then be able to articulate and interpret their role to others, becoming the next generation of advising trainers and contributing to the field of expertise nationally and internationally. A technologically literate staff will benefit the advising process as students have access to informed advisors who can quickly and efficiently advise with accuracy and confidence. Institutions are naturally one step behind students and this quantum curve of technological literacy will never be closed, however with careful planning, it can be reduced.
Collaboration between institutions, within institutions centrally and with other advising units on the same campus is another effective use of time and energy when developing and integrating new advising technologies. Redundancy and repetitiveness can result when advising units, and advisors within the same unit, attempt to reinvent the wheel each time a problem arises. A systematic and collaborative approach to a problem in one area may result in positive outcomes for another unit, however without communication, campus wide integration is impossible. While taking a collaborative approach to developing institutional systems, at the unit level it is integral to move paper functions to on-line systems in order to reduce the manual burden on staff. Filing for over 10,000 students is a manual chore that can be eliminated by streamlining advising processes and moving to electronic recordkeeping. Integrated email packages that record correspondence seamlessly should be developed and academic advisors should be encouraged to put forward recommendations for elimination of paper processes which support institutional and global sustainability goals. As institutions move forward with technological integration, advising units need to participate in the development of new technological tools and work with technological experts as systems are developing to ensure that their needs are built into the new systems.

Further Study

Academic advisors are only one part of the advising process. Students as the clients of academic advisors are another key element in the development of advising technology. Ultimately academic advising is designed to support the needs of students. The development of advising technology cannot be done in isolation from students.
Advisors, while having different uses for technology, are student service providers. By providing accurate, easy access to information students can self-advise and improve the quality of advising contacts by reducing the repetitive, easily accessed questions. One theme that permeated the comments of advisors was the reduced independence, ability or willingness of students to seek out their own answers and their increasing reliance on advisors. Even with web-based technological tools, it cannot be assumed that students, however technologically gifted, will embrace the tools available and self manage their own programs. Students seeking advising have a set of expectations that cannot be managed by technology alone, they still require one on one advising. Advising units and institutions must be cognizant of the needs of students when developing applications that are geared toward student self-care.

Likewise, future studies of technology should include another key group, front line student service and advising staff. Academic advisors are only one part of the advising team. This study surveyed academic advisors in their use of technology, the impact of technology on their direct relationships with students and how technology impacted the development of advising programs. Student service staff perform a wide range of administrative functions that go above and beyond the requests of students. The input from student service staff is invaluable when developing service models that include items such as email requests, switchboard use and staffing levels once information technology is integrated. Future studies on the impact of technology on staff and students would be beneficial to any information technology program.

Future studies of academic advising, either advisors, administrators, staff or students, should be targeted a particular times of year. For advising units, it is important
to implement any surveys during slower periods in the advising unit. This study was conducted at the height of the advising busy period and both the response rate and comments from non-responders indicated that the timing was not optimal. The optimal time for surveying advising units are the low periods in October/November or February/March. For students, surveys should be targeted at times when they are engaged in the advising process but are not overwhelmed academically. These periods include the beginning of the academic term and during the registration periods.

**Summary**

The purpose of this study was to identify key technologies in use in academic advising and identify the impact that information technology is having on the delivery of academic advising services and the development of advising theory in Canadian universities. Information technology including email, web-sites, degree audit, web-advising, student information databases and other self-service applications was assessed through a survey of advisors. This assessment of information technology tools in use is important in determining the effectiveness of technology to meet advising objectives and identify future development opportunities.

The premise for this study was that the use of technology in academic advising is increasing and is having an impact on the delivery of advising services by reducing the manual burden of information assimilation and dissemination. This reduction in manual burdens would necessarily result in advisors being able to spend more time extending the developmental and holistic model of academic advising which focuses on the students’ exploration of life and vocational goals. The ability of technology to bring about a
paradigm shift in academic advising and moving the delivery of advising services from a widely prescriptive model to developmental and interventionist models of advising is the focus of these results, incorporating the prescriptive academic program choice and course scheduling, into an intrusive model where institutional goals for student success and retention are central.

Data analysis shows that while technology use is widespread across Canadian advising centres, the goals, use and perceptions of technology are varied. Many functions which could be managed efficiently by technology are still being done manually and that implementation of information technology has not generally been done in conjunction with an institutional retention plan or advising model in mind.

The outcomes of this study can assist advising centres in developing objectives for the use of information technology specific to their student populations, increase efficiency in advising centre, improve the advisor-student relationship and improve overall student satisfaction and outcomes through efficient and strategic use of information and advising models. An understanding of current and future developments of student centered technologies will benefit students and institutions through improvements in the delivery of service.

By focusing efforts into improvements in key areas, institutions and advising units can work together to implement sound and effective information technology resources that will benefit staff and students. An efficient model of academic advising and student services can emerge where advisors are able to work pre-emptively with students in their academic programs which, in turn, will have a positive result in institutional recruitment policies and retention rates as well as student satisfaction. Students often remark that
they feel as though they are simply numbers within the system. Inevitably, the first question students are asked when seeking advising is ‘what is your student number?’ Technology can assist many advising functions, accurately plan a program of study, store data and provide information for analysis, of success trends; however it cannot form relationships that lead to informed decision making. Although each student may be categorized by number, each number is different. Institutions and advising must ensure these differences are addressed through development of both information technology and in-person advising.
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INSTITUTIONS SURVEYED

British Columbia

Simon Fraser University
Thompson Rivers University
University of British Columbia
University of Northern British Columbia
University of Victoria

Alberta

University of Alberta
University of Calgary
University of Lethbridge

Saskatchewan

University of Regina
University of Saskatchewan

Manitoba

University of Brandon
University of Manitoba
University of Winnipeg

Ontario

Brock University
Carleton University
Lakehead University
Laurentian University
McMaster University
Nipissing University
Queen's University
Trent University
University of Guelph
University of Ottawa
University of Toronto
University of Waterloo
University of Western Ontario
University of Windsor
Wilfred Laurier University
York University

Quebec

Bishop's University
Concordia University
McGill University

Newfoundland

Memorial University of Newfoundland

Nova Scotia

Acadia University
Dalhousie University
Mount Saint Vincent University
Saint Mary's University
St. Francis Xavier University

New Brunswick

Mount Allison University
St. Thomas University
University of New Brunswick

Prince Edward Island

University of Prince Edward Island
Dear Colleague,

I am an Academic Advisor in the Faculty of Arts and a Masters candidate in Higher Education and am at the University of British Columbia. For my Masters thesis I am conducting a study entitled "Adapting Technology to the Delivery of Academic Advising Services". This is a study on the development and impact of academic advising technologies in the delivery of advising services conducted nationally at peer Canadian universities. You are invited to participate in this study to assist in identifying key technologies in use and pinpoint areas for future development of technology in academic advising. Your participation is greatly appreciated. The results of the study will help to create a summary of current practices and best uses of technology in academic advising.

Consistent with the technological theme of this project, the survey will be conducted on-line via a secured Internet site. Each participant will receive a unique identifier number, which is necessary to begin the study. Identifier numbers are used for statistical purposes only. Your participation is completely voluntary and your completion of the survey will be taken as your consent to participate in the study.

You will receive a follow-up email in the next week containing the link to the survey site and identifier number. The survey is easy to complete, simply use the check boxes and pull down selections to answer the questions. Also, there is room for additional comments. At the end of each page, please click advance to move on to the next survey component. The survey should only take 15-20 minutes to complete.

At the end of the survey you will be asked if you are willing to participate in a follow-up interview to further refine the survey results. This contact information will be stored separately from the survey results. Arrangements for the interview will be made at your convenience and may take place via telephone or in-person. The interview will take approximately 30 minutes and will be tape-recorded.
All responses to the on-line survey and follow-up interviews are confidential and are only accessible to the researcher and research supervisor. Results are intended for publication only within the thesis; however additional journal articles may be completed if the study results are found to have wider ranging implications for academic advising nationally and internationally. Participation in the study is completely voluntary and you may choose to withdraw at any time. There are no known risks to your participation in this study.* A summary of findings will be sent to all participants.

If you have any questions regarding this study, please feel free to contact me or my research supervisor, Dr. Lesley Andres for more information.

Thank you in advance for your valuable contribution to this study.

Sincerely,

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Academic Advisor, Faculty of Arts
MA Candidate, Faculty of Education
University of British Columbia
Buchanan A201, 1866 Main Mall
Vancouver, BC V6T 1Z1
Phone: 604-822-1614
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Department of Educational Studies
Faculty of Education
University of British Columbia
Vancouver, BC V6T 1Z1
Phone: 604-822-4943
Fax: 604-822-4244
E-mail:

ED/

* If you have any concerns about your rights as a research subject in this project, please contact the Office of Research Services at the University of British Columbia at 604-822-8598.
ADVISOR CHARACTERISTICS

1) What is your primary role at your current institution?
   - [ ] Professional Advisor
   - [ ] Student Development Officer
   - [ ] Faculty Member
   - [ ] Advising Administrator
   - [ ] Counselor
   - [ ] Administrative Head (Dean/Associate/Assistant Dean)
   - [ ] Registrar/Assistant Registrar
   - [ ] Other

2) Please provide your current job title:

   __________________________________________

3) How long have you been employed in your current position?

   __________________________________________

4) Do you perform academic advising in your current position?
   - [ ] Yes (see question 5 below)
   - [ ] No

5) How long have you been involved in academic advising?

   __________________________________________

6) How many hours per week do you spend advising students?

   __________________________________________

7) How many students do you advise per week?

   __________________________________________

8) What Faculty, School or Department do you represent?
   - [ ] Arts (including Humanities, Social Sciences and Fine Arts)
   - [ ] Science (including Physical and Life Sciences)
   - [ ] Registrarial/Student Services
   - [ ] Other (see question 8.a. below)

8.a. If 'Other' selected above, please indicate what Faculty, School or Department you represent:

   __________________________________________
9) Do you use computers and information technology in your current position?
   • Yes
   • No

10) Did you receive any formal advising or technical training when you began academic advising? (see question 10.a. below)

<table>
<thead>
<tr>
<th>Advising Training</th>
<th>Yes</th>
<th>No</th>
<th>Informal Only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
</tr>
<tr>
<td>Technical Training</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
</tr>
</tbody>
</table>

10.a. Please describe the length and type of any advising or technical training received.

__________________________________________________________________________________
__________________________________________________________________________________

11) Please rate your own level of knowledge with regard to the use and application of computers and information technology.
   • Excellent
   • Above Average
   • Average
   • Below Average
   • Extremely Poor

12) Do you engage in ongoing professional development, technical or advising training?
   • Yes
   • No

13) How much time have you spent in advising or technical training activities during the past year?

<table>
<thead>
<tr>
<th>Time</th>
<th>Advising Training</th>
<th>Technical Training</th>
<th>Professional Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 days</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
</tr>
<tr>
<td>1/2 day</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
</tr>
<tr>
<td>1 day</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
</tr>
<tr>
<td>2 days</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
</tr>
<tr>
<td>3 days</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
</tr>
<tr>
<td>4+ days</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
</tr>
</tbody>
</table>
TECHNOLOGY CHARACTERISTICS

14) Over the past 3-5 years, has the use and availability of technology and other information systems in your unit increased?

- Yes
- No
- Unsure

15) In your current position, what technological hardware do you have access to within your unit and to what degree do you utilize it?

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Daily</th>
<th>Weekly</th>
<th>Monthly</th>
<th>Infrequently</th>
<th>Do Not Have</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop computer – PC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desktop computer – MAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laptop computer – PC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laptop computer – MAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data projector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pocket PC/PDA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Web cam</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistive devices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (see question 15.a. below)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15.a. Please describe any other technological hardware that you have access to within your unit.

16) In your current position, which productivity software do you have access to within your unit and to what degree do you utilize it?

<table>
<thead>
<tr>
<th>Software</th>
<th>Daily</th>
<th>Weekly</th>
<th>Monthly</th>
<th>Infrequently</th>
<th>Do Not Have</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word processing software</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spreadsheet software</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presentation software</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Database software</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic calendar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voice recognition software</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Web development software</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graphics software</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statistical software</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (see question 16.a. below)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
16.a. Please describe any other productivity software that you have access to within your unit.

17) In your current position, which communication and information management systems do you have access to within your unit and to what degree do you utilize them?

<table>
<thead>
<tr>
<th></th>
<th>Daily</th>
<th>Weekly</th>
<th>Monthly</th>
<th>Infrequently</th>
<th>Do Not Have</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>Instant messaging</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>List serves</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>Internet browser</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>Interactive Forms</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>SIS systems</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>Degree audit</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>Web advisor</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>Electronic filing systems</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>Electronic Record Transfer</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
<tr>
<td>Other (see question 17.a. below)</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
<td>☐ 5</td>
</tr>
</tbody>
</table>

17.a. Please describe any other communication or information management technology that you have access to within your unit.

18) Do you use mass communication technologies to communicate with your entire student population (or portions) simultaneously? (i.e. broadcast messages, timed email notices, list serves)

☐ 1 Yes (see question 18.a. below)

☐ 2 No

18.a. Please describe how you use technology to communicate with your student population.
19) How many hours per week do you spend reading and replying to email. (approximately)

________________________ administrative email
________________________ student email
________________________ total email

20) Do you feel that email has positive or negative impacts on your student advising activities and workflow?

☐ 1. Positive impacts (see question 20.a. below)
☐ 2. Negative impacts (see question 20.a. below)
☐ 3. No noticeable impact
☐ 4. Do not use email in student advising

20.a. Please describe how email impacts your student advising activities and workflow.

________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________

UNIT CHARACTERISTICS

21) Please indicate the number of staff who perform academic advising on a part-time or full-time basis in your unit.

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of PT/FT Advisors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Members</td>
<td></td>
</tr>
<tr>
<td>Professional Advisors</td>
<td></td>
</tr>
<tr>
<td>Peer (Student) Advisors</td>
<td></td>
</tr>
<tr>
<td>Other: ______________________</td>
<td></td>
</tr>
<tr>
<td>Total number of advisors in your unit.</td>
<td>__</td>
</tr>
</tbody>
</table>

22) Please estimate the number of undergraduate advisees assigned to each advisor in your unit.

________________________________________________________________________________________
23) Please indicate the number of support staff employed on a full-time or part-time basis in your advising unit.

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of PT/FT Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secretarial</td>
<td></td>
</tr>
<tr>
<td>Clerical</td>
<td></td>
</tr>
<tr>
<td>Technical</td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

Total number of support staff in your unit.

24) Please indicate all the ways students access individualised advising services.

- 1 Individually by appointment only Appointment length: ___________ (minutes)
- 2 Individually by drop-in only Appointment length: ___________ (minutes)
- 3 We do not offer individualised advising services

25) Does your unit offer group advising sessions?

- 1 Yes (see question 25.a. below)
- 2 No

25.a. Please describe the group advising sessions that your unit offers.

___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________

26) Which of the following advising information is provided to students on-line, in-person or in group advising sessions? (check all that apply)

<table>
<thead>
<tr>
<th>Explain degree requirements</th>
<th>On-Line</th>
<th>In-Person</th>
<th>Group Sessions</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assist with selection of major program</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assist with course selection and/or scheduling of courses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify and explain special learning opportunities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explain academic policies and procedures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer credit review</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letter of permission request</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic concession</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career Advising</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic Appeals</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
27) Which of the following services are currently available on-line to your students and/or advisors?

<table>
<thead>
<tr>
<th>Service</th>
<th>Students</th>
<th>Advisors</th>
<th>Neither</th>
<th>Not Institutionally Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Schedules</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Course Registration</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Transcripts/Grades</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>View transfer credit</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>GPA Calculators</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Degree Audits</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Graduation Applications</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Specialisation Change</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Personal course schedule</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Exam Schedule</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Address/email change</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>PIN change</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Student ID Photos</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Appointment Scheduling</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Financial Aid/Scholarship Information</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Textbook Ordering</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>University Calendar</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Academic Advising Information</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Interactive Forms</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Web Advisor</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Letter of Permission</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Withdrawal Requests</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Academic Appeals</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Enrolment/Course Management</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Institutional Directory</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
<tr>
<td>Other:</td>
<td>☐ 1</td>
<td>☐ 2</td>
<td>☐ 3</td>
<td>☐ 4</td>
</tr>
</tbody>
</table>

28) Is your unit responsible for reviewing student records for promotion and continuation purposes?

☐ 1 Yes (see question 28.a. below)

☐ 2 No
28.a. If your unit is responsible for reviewing student records for promotion and continuation purposes, do you have a technical program to assist? (i.e. computer generated reports, SIS data, etc.)

Yes (see question 28.b. below)

No

28.b. Please describe any technological programs used to assist with student promotion and continuation processing.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

29) Is your unit responsible for determining whether students have met all degree program requirements in order to graduate?

Yes (see question 29.a. below)

No

29.a. If your unit is responsible for determining whether students have met all degree requirements in order to graduate, do you have a technical program to assist? (i.e. computer generated reports, degree audit, etc.)

Yes (see question 29.b. below)

No

29.b. Please describe any technological programs used to assist with student graduation processing.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

30) Does your unit track student advising requests for statistical or other purposes? (i.e., academic concession, program planning, appeals etc.)

Yes (see question 30.a. below)

No

30.a. If your unit tracks student advising requests for statistical or other purposes, do you have a technical program to assist?

Yes (see question 30.b. below)

No

30.b. Please describe any technical programs used to track student advising enquiries.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
31) If your unit tracks student advising requests, has there been a measurable change in the nature of student requests over the past 3 to 5 years?

- Yes (see questions 31.a. below)
- No
- Unsure

31.a. Please describe any changes your unit has observed with regard to student advising requests over the past 3-5 years.

- -

32) Do you feel that the availability of on-line student services and information is impacting student advising requests?

- Yes (see questions 32.a. below)
- No
- Unsure

32.a. Please describe how the availability of on-line student services and information is impacting student advising requests.

- -

ADVISING CHARACTERISTICS

33) How much has the use of information technology impacted the delivery of student advising services in your unit? (see question 33.a. below)

- To a great extent
- Somewhat
- Very little
- No impact

33.a. Please describe how the use of information technology has or has not impacted the delivery of student advising services in your unit.

- -
34) Does improved access to information reduce the time you spend manually processing paperwork and provide more time for working developmentally and holistically with students?

- 1. Yes (see question 34.a. below)
- 2. No
- 3. Unsure

34.a. Please describe how access to information effects the way you advise students on a one on one basis.

_________________________________________________________________________________________________________________________________________________________________________________

_________________________________________________________________________________________________________________________________________________________________________________

35) For the following statements about technology and academic advising, please select the extent to which you agree or disagree.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. The use and development of academic advising technology improves student access to information.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b. The use and development of academic advising technology supports the needs of students.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>c. The use and development of academic advising technology supports the needs of advising staff.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>d. The University administration does not recognise the importance of technology in academic advising.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>e. The use and development of academic advising technology improves the delivery of academic advising.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>f. The use and development of technology increases the quality of time spent in one on one advising with students.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>g. Technology increases the need for ongoing training and professional development activities.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>h. The use of information technology enables opportunities for the development of intervention advising programs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

36) Does your unit work with academically at-risk students?

- 1. Yes (see question 36.a. below)
- 2. No

36.a. Do you have a technical program to assist you in identifying students at-risk?

- 1. Yes (see question 36.b. below)
- 2. No
36.b. If your unit does target academically at-risk students, please describe how these students are identified and targeted.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

37) Do you feel that student directed/self care technology and on-line services are changing the nature of one on one academic advising?

☐ 1 Yes (see question 37.a. below)
☐ 2 No
☐ 3 Unsure

37.a. Please describe how you feel student directed/self care technology and on-line services is changing one on one academic advising.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

38) Please describe any impact you feel technological development activities in academic advising have on your student population?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

DEVELOPMENT CHARACTERISTICS

39) Is there a working group or committee at your institution that is responsible for the discussion, recommendation and/or implementation of technological resources that support academic advising? (i.e. student information systems, degree audit programs, web site development)

☐ 1 Yes
☐ 2 No
☐ 3 Unsure

40) Is your unit involved at an institutional level in the development of technologies to support academic advising? (i.e. student information systems, degree audit programs, web site development)

☐ 1 Yes
☐ 2 No
☐ 3 Not applicable
41) How would you rate the support for information technology development both within your unit and within your institution?

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Moderate</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional support</td>
<td>□₁</td>
<td>□₂</td>
<td>□₃</td>
</tr>
<tr>
<td>Unit support</td>
<td>□₁</td>
<td>□₂</td>
<td>□₃</td>
</tr>
</tbody>
</table>

42) Please indicate your level of satisfaction with the technological resources (acquisitions, support, software, training) available in your unit.

- □₁ Very satisfied
- □₂ Satisfied
- □₃ Neutral
- □₄ Dissatisfied
- □₅ Very dissatisfied

43) Please indicate the level of integration of computer assisted processing within your unit. (i.e. appointment booking, on-line forms, registration, degree audit, etc.)

- □₁ No computer assisted processes
- □₂ Few computerised assisted processes
- □₃ Several computerised processes
- □₄ Fully integrated information processing

44) How much does the level of computer integration within your unit reduce the manual burden on support staff?

- □₁ A Great Deal
- □₂ Much
- □₃ Somewhat
- □₄ Little
- □₅ None

45) Please describe any impact you feel technological development activities in academic advising have on staff in your unit/institution?
DEMOGRAPHIC/INSTITUTIONAL CHARACTERISTICS

46) Age

[ ] 1. Under 21
[ ] 2. 21-30
[ ] 3. 31-40
[ ] 4. 41-50
[ ] 5. 51-60
[ ] 6. 61-65
[ ] 7. Over 65

47) Gender

[ ] 1. Male
[ ] 2. Female

48) Please select your highest academic credential.

[ ] 1. High School Diploma
[ ] 2. Post-Secondary Certificate/Diploma
[ ] 3. Bachelors Degree
[ ] 4. Post-Graduate Certificate/Diploma
[ ] 5. Masters Degree
[ ] 6. Doctorate Degree
[ ] 7. Other (see question 48.a. below)

48.a. If 'Other' selected above, please describe.

______________________________________________________________________________

49) Please identify your province/institution.

______________________________________________________________________________

50) What is the total population of your institution? (Please include undergraduate, graduate, distance, full-time and part-time students)

[ ] 1. Less than 1,000
[ ] 2. 1,000-2,499
[ ] 3. 2,500-4,999
[ ] 4. 5,000-9,999
[ ] 5. 10,000-19,999
[ ] 6. More than 20,000
What is the total undergraduate population at your institution? (Please include distance, full-time and part-time students)

- Less than 1,000
- 1,000-2,499
- 2,500-4,999
- 5,000-9,999
- 10,000-19,999
- More than 20,000

What is the total undergraduate population served by your advising unit? (Please include distance, full-time and part-time students)

- Less than 1,000
- 1,000-2,499
- 2,500-4,999
- 5,000-9,999
- 10,000-19,999
- More than 20,000

What is the total number of faculty and staff employed at your institution?

- Less than 100
- 100-500
- 500-1,000
- 1,001-1,500
- 1,501-2,000
- 2,001-3,000
- More than 3,000

Please feel free to add any additional comments you may have about the use of technology and academic advising.

Thank you for taking the time to complete this survey. Your input is invaluable.