Five Possible Future Work Profiles for Full-Time Academic Advisors

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Five potential work profiles for full-time academic advisors, based on the impact of technology, are proposed. The forces accelerating the impact of technology are identified, and the impact of emerging technologies on full-time advisor practice is discussed.

KEY WORDS: administration, administrative organizational systems, advising profession, advising role, professional development, technology

Relative emphasis: theory, research, practice

In his most recent work, *The World is Flat*, Friedman (2005) offered a sweeping analysis and many insights about how technology is touching and transforming, at a mind-boggling pace, industry and commerce as well as many personal interactions and social relationships in the global economy. From this broad perspective, one cannot help but reflect upon how technology will continue to change the personal and professional spheres of life. Access to a crystal ball, through which one could peer into the future to see how some elements of life may change, would be a comfort! Imagine being able to see the work that will be done in another decade; if people could predict how the ways of work might change, they might be able to prepare better for those changes or influence events for an optimal outcome. Unfortunately, such a crystal ball is unavailable.

There are other, nonmystical ways to consider the future. In this article, I use scenario planning, rather than a crystal ball, as a tool to help project how full-time academic advisors may find their future work impacted by technology. The descriptions of the way work is organized and conducted are called *work profiles*. In this article, I propose and describe five potential, future, work profiles for full-time academic advisors. These five work profiles are offered to help those in the field of academic advising consider how full-time academic advisor positions may evolve in the near future due to the influence of technology.

Faculty advisors are not included in this analysis of work profiles because a substantial portion of the faculty's time is involved with instruction, service, and research. The complexity of future issues facing the faculty advisor deserves its own treatment.

For the purpose of this article, scenario planning is used in a context described by Chermack and van der Merwe (2003, p. 447):

> Scenario planning is a technique for raising decision makers' awareness of several possible futures. The technique consists of developing internally consistent stories about the future. . . . When the scenario process is successfully implemented in an organization it provokes a strategic conversation that enables organizational learning, by shifting current assumptions in the mind of the decision maker.

I encourage all those interested in academic advising to be active participants in the decisions regarding the future work done by full-time academic advisors. I have highlighted the work-profile analyses and projections in the belief that the future direction of the advisor's role will either positively or negatively impact the delivery of academic advising to many learners. The better stakeholders understand the possible impact of advising, the better they can shape a desired future.

The five work profiles for future full-time academic advisors are identified through the thumbnail descriptions that follow:

- *Diffused work profile*: Not all uses of technology will lead to dramatic changes in how full-time academic advisors will do their work.
- *Cross-trained work profile*: Technology will be primarily used to integrate several student-service job functions on campus.
- *Professional career-track work profile*: A well-established professional career track is outlined for full-time academic advisors with advising, not administration, being the highest level.
- *Customer-support work profile*: A distinct division of labor is made for the functions of course registration, which is given primary focus, and educational planning.
- *Self-employed professionals work profile*: The nature of the academic advisors' roles predominately move external to institutional employment; advisors become self-employed or seek employment with vendors who provide the resources and means to best market their services to institutions and individuals.

The method used to create the five full-time academic-advising work profiles was predicated on two separate perspectives. The first viewpoint is based on a review of relevant literature, including articles relating how technology has affected academic advising in the past and how emerging technologies might shape it in the future. A brief overview is presented herein to provide a context for the second perspective, which is based on a four-topic matrix used to generate the five work profiles. The matrix provides a means to create the internal consistency described by Chermack and van der Merwe (2003) to produce the stories of the five unique work-profile scenarios. The four thematic topics that form the matrix are

- focusing advising on course registration or educational planning;
- perceiving academic advising as a service or as critical to institutional educational mission;
- evolving technology skills in the advising workplace; and
- adopting an organizational model for technology assimilation.

Each of these matrix themes are presented and discussed in terms of its importance to the matrix. However, the literature perspective is presented first to explain the key forces that are coalescing and accelerating the impact of technology on the full-time academic-advisor position.

Accelerating Technology Forces

Most full-time academic advisors work on campuses that have made a substantial investment in information technology (IT). With the exception of those used for course registration and E-mail, most of these technologies have not dramatically impacted the majority of full-time advisors' roles. This will change. In particular, as institutions make greater use of more technology to deliver instruction as either *blended courses*, which are partially on-line and partially at a distance or are fully on-line, the greater the need for all institutional services to off-campus learners. These new course offerings will cause a paradigm shift in the organization and delivery of advising services. Advising is on the cusp of change.

Considering the amount of investment that higher education institutions have poured into IT during the past decade, one might expect to have seen a greater impact on the way advisors do their work than has been evidenced to date. The Cost of Supporting Technology Services (COST) project was set up in 1996 with the goal of helping those in higher education assess the relationships between the cost of technology and its effectiveness. Smallen (2004) of COST reported on the results of a survey drawn from a sample of over 2,000 baccalaureate liberal arts and master's level institutions regarding costs associated with IT. Respondents from participating institutions reported that their IT investments represented between 4 and 6% of their institutional budgets. Approximately 50% of their IT budgets were for staff-related costs. The quantity of IT experts necessary to support the investment is worth noting.

The breadth of technology implementation can be seen at community colleges. Taylor (2005), from the Center for Digital Education, reported on a survey conducted with self-selected community colleges representing 44 states. These institutions reported that their technology investments covered a wide array of services to their students: the availability of on-line admission; registration; student self-service options including course management, grade viewing, and transcript ordering; technology skills development for faculty; technology support on campus; and distance education offerings that reach well beyond the campus via the Internet. Sixty-eight percent of the responding colleges have automated all or most of their intake or admissions processes for prospective students, while 39% of colleges reported that students are able to apply for admission on-line and have the ability to access, complete, and submit admission forms and post payments electronically. Seventy-three percent of responding colleges have created self-service on-line options for students to view their current class schedules, view open and cancelled classes, and add or drop courses.

Delivery of instruction is one of the fastest growing areas for IT on campus. The Sloan Consortium (2004) in its report, *Entering the Mainstream: The Quality and Extent of Online Education in the United States*, stated that there is no evidence of a plateau in on-line student enrollments. The growth rate for on-line enrollments continues to increase, and schools were predicting a 25% growth rate in students taking at least one on-line course during 2004. In its follow-up report *Growing by Degrees: Online Education in the United States 2005*, the Sloan Consortium (2005) showed the continuation of the growth of on-line instruction and offerings. For academic advising on many campuses, a growing population of learners will need to be reached by means other than face-to-face meetings.

Creating the paradox I address herein, concerted effort by institutions to adopt technology has had a proportionally limited impact on academic advising. Reviewing the *ACT Sixth National Survey* results as they apply to technology, Habley (2004, p. 96) concluded, “The technology revolution has not yet consistently reached advising systems.” He reached his conclusion by noting that only 2 of 10 technologies (degree audit systems and on-line registrations) used to support the work of advisors were found on more than 50% of campuses (57 and 60%, respectively) (p. 25). The only synchronous delivery technology found on over 50% of the campuses was the old, but reliable, telephone (72%), with the FAX machine being used by 35% of campuses surveyed (p. 26). Correspondingly, the only asynchronous delivery technology found on over 50% of all campuses was E-mail (85%) (p. 26).

The Western Cooperative for Educational Telecommunications (WCET) (2005) described the gap between the way student services, including academic advising, are currently configured and pointed the way they should evolve:

> Most campuses, recognizing the important role that student services play in learner success and retention, have a full range of student services in place to support their on-campus learners. Yet, many have failed to provide the same level of service to their off-campus learners who cannot come to campus. . . .The goal should be to implement student services online for as many of the on-campus and off-campus student needs as possible (that is, minimize offline services).

WCET has suggested that student services in general, and academic advising in particular, should be designed with delivery systems that minimize the need for off-line services. With more instruction moving on-line, other services must follow. To accomplish this Internet expansion, new technology must be employed to help close the technology gap, as identified by Habley (2004), in academic advising. Two topics can inform an effort to establish technology adoption for advising: the application of a model of technology applied to past and current course registration processes and the review of emerging technologies. A technology-in-advising continuum, created along a historic-future axis, will yield information about the context of the work-profile matrix.

Continuum of Technology and Advising

The campus IT environment for academic advising has steadily changed since the 1980s. As Habley (2004) and Leonard (2004) have noted, the most widely used technologies by academic advisors are the course registration system and degree audits. How these systems have evolved can be demonstrated by applying a model, developed by Davis and Botkin (1994), that illustrates a process that organizations have employed for the adoption of technology (Table 1). By applying this model to current campus environments, one can evaluate the strengths and weaknesses of one of the most widely used technologies for academic advising: the computer.

Davis and Botkin (1994) outlined four major stages through which organizations must pass as they adopt technology: data, information, knowledge, and wisdom. Most colleges and universities have passed through the data and information stages with regard to registration and student information systems and are now grappling with the knowledge stage. The wisdom stage is speculative.

In the data stage, organizations attempt to use

Table 1 Davis and Botkin’s stages of technology adoption

Stage	Underlying Technology	Technology	Campus Technology Examples
Data	Computer	Requires lots of training by a relatively select group	Early student information and registration systems
Information	Computer and telecommunications	Requires little training	Telephone and Web-based registration
Knowledge	Computer, telecommunications, and human action	Requires little or no training hence available to wider customer base	Development of Web portals, course management systems
Wisdom	Emerging	Emerging	Emerging

technology to express facts. The information stage is the arrangement of data into meaningful patterns. Knowledge is the application and productive use of information. The last stage, wisdom, is the discerning use of knowledge. This last stage has not yet been reached because available technology is unable to re-create the dimensions of affective decision making.

Each step in Davis and Botkin's (1994) model does not necessarily lead to the next. As technology has evolved, so have organizations. Each stage is identified with a technology or combination of technologies, and the expertise necessary for learning to use these technologies sequentially varies. In the data stage, cohorts of well-trained computer specialists are necessary. In the knowledge stage, access to the power of the technology is available to a wide user and customer base. As evolving computing technology is integrated with telecommunication technologies, the potential for new stages has been created and has transformed how learning occurs with the use of technology.

The use of technology for course registration in the past few decades illustrates the Davis and Botkin's (1994) stages of technology. During the data stage, registration and student information systems were created at many large institutions (Hossler, 2004). These systems were highly centralized. A group of special technicians maintained the systems, and a relatively small group of staff entered data. Usually, this latter group was housed in a central office where the advisors turned in documentation of advising transactions for processing. The resultant paper trail was initiated with completion of a triplicate document that was copied and sent to various campus offices.

The information stage is characterized by integration and access of on-campus databases. Paper flow decreased as advisors and students directly accessed the registration process. With greater access, advisors also began to have a wider array of technological tools available: degree audits, computerized transfer-course equivalencies, touch-tone/Web-based telephone registration, electronic advisor notebooks, and automated student-profile systems (McCauley, 2001).

The evolution of knowledge stage services, which could be also called the "age of the portal," in higher education is comparable to that experienced in the banking industry, which is manifested by the differences in customer experiences using automatic teller machines (ATMs) versus Web banking. With an ATM, customers are limited in the types of transactions they can perform. With Web-based banking, they can perform a wider variety of financial transactions that formerly required contact with a bank employee. At the knowledge stage, the new campus-technology environments not only include services such as on-line admissions, financial aid, course registration, and instruction, but they are all evolving with the means to place the delivery of these services into an asynchronous, integrated system.

It is interesting that, despite increased Web-based services, banks still find that they need to offer high touch services to supplement their high tech services. During the first few years of the 21st century, some financial institutions have invested in more brick and mortar offices because, while they like the on-line services, the customers never stopped going to the bank for some person-to-person transactions. *The Columbus Dispatch* reported that in central Ohio four major banks planned on building 27 new offices in 2004 and 2005 ("Cell Phones Costing Colleges," 2005). In the article, financial analyst Jerry Silva was quoted as saying, "That instead of shifting transactions from one method to another, new technology adds to the total." Increasingly sophisticated technology-based services do not replace human contact for banking customers. The results of the experience in the financial sector have implications for technology use in academic advising: The human interaction will remain critical to learners. While banking customers still need assistance with financial planning; learners will still need assistance with educational planning.

The final, and conceptual, stage in Davis and Botkin's (1994) model is called *wisdom*. Current technology does not produce results that call users to employ intuition, emotion, and nonrational processes. Who currently helps students process the human considerations in relationship to academic and career issues within a rich, campus, technological environment? The assistance should be given by all advisors. Indeed, well-trained people at financial institutions that offer technology-based services are still needed to work directly with their customers.

Emerging Technologies

Many advisors find themselves working at institutions where technology is used for course registration and degree audits; that is, the institutions fall somewhere between the information or knowledge stages of the Davis and Botkin (1994) model. When not face-to-face with students, advisors at these institutions communicate with their advisees by the telephone or the Internet. This scenario may soon be changing for many advisors. In the coming decade, several emerging technologies could radically change the way advisors work and interact with students.

Some of the most impressive emerging technologies will offer better means than are currently available for communicating with students individually and collectively. They also allow advisors to monitor requests for specific information and on-line behavior. These new technologies stand to have significant impact on all four of the topics selected to form the work-profile matrix. The identification of these technologies is highly speculative because the path of technology adoption is littered with the remains of the "next killer app" and "essential technologies" that failed after 18 months. However, a few of the promising technologies may significantly impact the four topics of the matrix. (See Table 2 for a listing of institutions employing some of these emergent technologies.)

Perhaps no technology will change advising more than the wireless video phone[1] of the future. While they will not replace the laptop and desktop computers, the wireless video phone will supplement them by providing students with complete access to their academic advisors through a hand-held device. These phones will have larger storage capacities than personal computers have now.[2] The phones' video capabilities will permit users to see and talk to one another through a streaming video process that interacts with collaborative software systems hosted by institutions. Collaborative software creates a rich environment for virtual classrooms and on-line meetings. White boards and other communication tools, which can be used with one or many learners, will allow advisors to hold interactive meetings with advisees via their video phones.

In the near future, students may be required to purchase video phones from an institution-approved vendor. The reason for movement toward this policy is two faceted. First, many residential campuses have begun to lose substantial sums of money on their privately operated land-based phone systems.[3] In 2005, each of two Ohio institutions reported losses of almost $1 million as students used private wireless phones for long-distance calls rather than the institutions' phone systems ("Cell Phones Costing Colleges," 2005; "Cell Phone Use is Factor. . . ," 2005). Due to this trend, institutions may make agreements with wireless phone vendors in much the same way that they have agreed to contract for official soft drinks for their universities and athletic gear for their sports teams. These selected phone companies will not only provide phone service, but they will also provide wireless broadband access for the entire campus.

Second, the multipurpose capabilities of the wireless video phones will increase the institutions' ability to acquire student data that could be converted to information and knowledge. For example, phones can be used as audience response keypads in course response systems (CRS).[4] CRS software permits the adaptation of presentation software, such as Power Point, to be interactive so instructors can solicit students' reactions and responses during a lesson and have these instantly recorded and presented to the entire class. These data in turn can be saved and stored in the institution's collaborative learning environment (CLE)

[1] A more scholarly discussion of this topic is found in Anderson and Blackwood (2004). Prior to my article going to print, new developments were announced. The new mobile devices are fitted with a small screen and limited memory and bandwidth (see Mobi Systems at www.mobi-systems.com/). They are ready in 2006. The new domain name is called "mobi." This new format will encourage organizations and Web site designers to create Web pages for mobile devices. In 2005, CNN reported this story with an in-depth description: www.cnn.com/2005/TECH/internet/07/11/phones.web.reut/.

[2] This assumption is extrapolated from the basis of Moore's law: "The empirical observation that at our rate of technological development, the complexity of an integrated circuit, with respect to minimum component cost will double in about 24 months." A more detailed discussion of its implication and its predictive accuracy can be found at http://en.wikipedia.org/wiki/Moore's_law.

[3] Whether this is a short-term market adjustment or a long-term trend can certainly be debated.

[4] Educators can evaluate the collective understanding of the entire class or that of an individual student at the point of instruction. In addition, postclassroom reporting is available via reports ranging from graded tests to demographic data and work group results. Examples of vendors offering this technology are listed in Table 2.

Table 2 Summary of key Web sites identified in this article

Technology Categories	URL (Web Address)
Examples of 24×7 advising	
• Boston College	• www.bc.edu/schools/cas/services/students/advising/
• Eleanor Roosevelt College	• http://provost.ucsd.edu/roosevelt/academics/index.shtml
Examples of collaborative software	
• Elluminate	• www.wanadu.com/new/site/index.html
• EDT Learning	• www.edtlearning.com/
Course response systems	
• TurningPoint	• www.turningtechnologies.com/
• Wiley	• http://he-cda.wiley.com/WileyCDA/Section/id-103701.html
Examples of organizations offering services to students in new ways	
• Smarthinking	• www.smarthinking.com
• National College Access Network	• www.collegeaccess.org/NCAN/
Examples of organizations with professional technology standards and assessments	
• CompTIA	• www.comptia.org/
• ICDL	• www.acs.org.au/icdl/
Mobi Technology	
• Mobile Systems	• www.mobi-systems.com/
• American Registry -.MOBI Domain Search	• www.americaregistry.com/domains/domains-mobi.htm

Note. These Web sites were chosen to represent points addressed in the article and do not represent an endorsement of products or services. All were retrieved July 24, 2006.

system.[5] Through this method, students' attendance and participation in courses can be monitored at the instructional level. It could potentially provide a stream of data for full-time academic advisors.

With a CLE system, advisors could receive instant notices of student attendance and performance. Intervention policies, such as instant video-mail (V-mail) messages sent to students who may have missed three class sessions, can be developed from such information. Likewise, other messages of concern, support, or encouragement could be sent as they pertain to assignments. Unlike those working today, future advisors will be able to assist immediately those students identified for intervention and direct them to the campus services that can help them with their problems or concerns.

Student-tracking capabilities will also improve in other ways. Through CLE systems, a substantially greater range of student and institutional data will be stored in the future than it is today, and these data will be complimented with improved analytical tools that permit their conversion into information and knowledge. These student-tracking capabilities will allow for monitoring the progress of individual students or cohorts. For example, after instructors have posted grades, academic advisors will easily be able to learn the performance of all first-time first-year students on a specific examination.

Students will also be able to enter their own data. For example, they will be able to identify their reasons for attending college: developing a specific competency for employment, exploring if col-

[5] CLE is substituted for the more commonly used course management system or learning management system to emphasize the importance of collaboration and sharing in on-line learning systems. These systems not only support on-line courses but also include links to portals, E-portfolios, on-line communities, institutional repositories, research groups, libraries, student information systems, and live on-line classrooms. The use of the term CLE is found in the literature of the Sakai project (www.sakaiproject.org/), which is a community-source software-development effort to design, build, and deploy a new CLE for higher education.

lege is a match for them, taking courses for transfer, or obtaining a certificate or a degree. Students can easily change their intent, which will also trigger messages to be sent to an advisor. Such clear and timely identification of the students' educational goals will assist in programmatic evaluation and assessment.

Academic advisors could be among those on campus pushing the application of specific technology to learning in higher education. They will develop skills while manipulating data using complex tools in new software. They will create information and knowledge about the students they serve and their access and understanding of new communication technologies. The development of advisor technology savvy will parallel a similar evolution of faculty understanding and employment of technology. Lohmann (2005, p. 27) recently proposed:

> The University will need to develop a professional class of tenured faculty who forge a second career for themselves in teaching and technology as they work with specialists in the cognitive science of learning, software development and the like.

With students and advisors interacting through video connections, verbal and nonverbal cues become clear even when advising is done at a distance. Data and information found on the Web will be shared more easily and with more timeliness. Advisors and students can text message and E- or V-mail each other while viewing curricular requirements and degree audits. Imagine a future where advisor and advisee review the results of the learner's Sims© X results, the interactive career exploration simulation game,[6] on a wireless phone connection!

Face-to-face advising will not disappear. However, with the increased need to meet students who take a significant portion of their instruction at a distance, the value of communication technologies will also increase.

Four Components of the Matrix

The synopsis of how technologies have and may shape the way the full-time advisor works helps provide a context for the four topics of a work-profile matrix. These topics are selected to provide the consistency for the stories of those work profiles described by Chermack and van der Merwe (2003).

Advising: Course Registration or Educational Planning?

To generate a well-defined profile, one must make the distinction between the advising task of course registration and that of educational planning. In this regard, Winston, Miller, Ender, and Grites (1984, p. 542) expressed an important point of view:

> Academic advising can be understood best and more easily re-conceptualized if the process of academic advising and the scheduling of classes and registration are separated. Class scheduling should not be confused with educational planning. Developmental academic advising becomes a more realistic goal when separated from class scheduling because advising can then go on all during the academic year, not just during the few weeks prior to registration each new term.

Because the majority of academic advisors has used technology mostly to address the course registration process, the distinction drawn by Winston et al. is important; however, they are not stating that registration and educational planning are separate processes: Both are important and have aspects that are interrelated. By directing the emphasis on the differences between registration and educational planning, advisors can appreciate the gains and losses caused by technology focused mostly on the course registration process and can understand how a redirection of technology on educational and career planning may impact advisors in the future.

Evolving Technology Skills for Academic Advisors

New sets of skills for academic advisors will be required in the future. The acquisition of such skills will be enhanced with emerging communication technologies that can help advisors better address educational planning than do current innovations. Two economists, Levy and Murnane (2004), explained how technology affects work via the *sub-*

[6] The Sims is a very popular role-playing simulation game (http://thesims.ea.com/us/). A current version of Sims is set on a college campus. The idea that role-playing simulation games can be modified to more realistically represent career decision making and permit players to experiment with different lifestyles and career roles might best be reflected in the game Second Life (http://secondlife.com/). The gaming industry is currently a larger financial industry than the movie industry, and people spend more time playing games than they do watching movies (Beck & Wade, 2004). This technology has not been explored to determine how it can benefit academic advising.

stitution and *complemented* principles. A specific, definable, work task that is assumed by technology or less expensive labor is defined by the substitution principle, which Levy (as cited in Wessel, 2004) described as follows: "If you can describe a job precisely, or write rules for doing it, it's unlikely to survive. Either we'll program a computer to do it, or we'll teach a foreigner to do it." Instead of a substitute for high cost labor, technology can also be used to add value, efficiency, or productivity to a work task. Technology that raises the importance of a task is explained by the complemented principle. In emphasizing the importance of technology used to complement existing processes, Levy and Murnane (2004, p.10) stated, "Good jobs will increasingly require expert thinking and complex communication and will rely on technology to assist with these efforts."

Computers cannot make affective decisions, and Levy and Murnane (2004, pp. 15–30) suggested that they never will. In their analysis of how work is being affected by technology, Levy and Murnane identified five types of work:

1. Expert thinking involves problem solving in which there are no rule-based solutions.
2. Complex communication is characterized by humans interacting to acquire information, to explain it, or to persuade others of its implications for action.
3. Routine cognitive tasks are menial and well described by logical rules.
4. Routine manual tasks are physical and directed by rules.
5. Nonroutine manual tasks are physical jobs that cannot be characterized by predetermined rules because they are completed ad hoc by workers with specific optical and fine muscle skills.

Based on their analysis of job losses and gains in the U.S. economy from 1980 to 1998, Levy and Murnane (2004, p. 51) stated that expert thinking and complex communication work, which is completed through technology, is increasing more rapidly than projected by the U.S. Department of Labor's *Dictionary of Occupational Titles*. Correspondingly, jobs relying on routine cognitive tasks and routine manual tasks are decreasing more rapidly than projected.

Levy and Murnane's (2004) conclusions imply that advising jobs related directly to routine cognitive tasks, such as course registration, will increasingly be assumed by technological processes. Correspondingly, skills and knowledge that evolve and are used to assist with educational and career planning, because they draw extensively on affect, could be increasingly employed by advisors. As Levy and Murnane (p. 59) observed, expert thinkers "may process information from words, tone of voice, touch, taste or other sources. The common thread of the expert is the ability to recognize patterns that others do not see." New communication technologies, such as the video phone, accentuate and complement the possibilities for advising, which is comprised of expert thinking and complex communication tasks.

When he reported a decline of required student contact with advisors for class scheduling and registration, Habley (2004, p. 37) may have detected an aspect of the substitution principle trend. Between 1998 and 2003, the percentages of 2-year public, 4-year public, and 4-year private institutions in which some or all departments required advisees to meet with their faculty advisor before scheduling classes and authorizing registration declined from 95 to 89%, 94 to 92%, and 99 to 98%, respectively. In addition, these institutions reported having an increase in the number of departments in which such contact requirements were not mandated. One might speculate that with less time required by advisors to help with course registration, more time might be available for educational planning. A key barrier to the latter growth may well be the limited quality of communication tools advisors use for both synchronous and asynchronous interactions with students not seated in front of them for an advising session.

The currently popular on-line communication tools (E-mail, chat, instant messaging, etc.) are currently used to exchange bits of information. Because they are mostly keyboard based and often time consuming, these computer technologies do not encourage a meaningful dialogue between learner and advisor. Better communication tools will allow advisors to maximize their expert thinking and complex communication skills, which will translate into more interactive educational and career planning with students located at a distance. At a minimum, the new communication tools will expand the repertoire of tools advisors can use to address better their students' various learning styles.

Will institutions be motivated to invest in the emerging technologies and communication systems for improved educational planning? Current survey results do not inspire hope. According to mean scores on the 2003 A*CT Survey of Academic Advising* (Habley, 2004, p. 84), three goals most closely associated with developmental advising were regarded as among those least successfully achieved for most students at the responding institutions: a) assisting students with decision-making skills; b) assisting students with self-understanding and self-acceptance; and c) assisting students with life goals by relating interests, skills, abilities, and values to the world of work and higher education. Advisors would have difficulty engaging in any educational and career planning where these developmental goals did not receive priority. To meet important educational and career planning goals, advisors must use expert thinking and complex communication skills, and at institutions where these goals are not valued, the technologies needed to implement these skills are unlikely to be sought.

Advising: A Service or Essential to the Institutional Mission?

Several explanations may be offered as reasons why the technology revolution has been slower to impact academic advising than it has on other aspects of education. Habley (2004, p. 94) concluded that academic advising is still perceived as a service rather than as essential to the institutional mission. This valuation of academic advising could influence campus leaders in their decisions regarding technology investments. Therefore, the definition of academic advising is important in understanding the four critical perspectives used to shape the proposed work profiles.

The use of the latest technology for advising has been hampered because while instruction has been delivered in synchronous ways, the demand to serve students in asynchronous ways is not judged to be mission critical. However, technology has more recently been invested in instruction, and therefore can its impact on academic advising, as with the admission and course registration processes, be far behind? Perhaps the time has arrived when the technology will help academic advisors more effectively facilitate student development and institutional missions.

Technology and Institutional Culture

If the history of on-campus adoption of technology is a guide to future innovation patterns, then one can predict that the technology revolution will not equally affect advising at all institutions. Scenario planning can be used to imagine a future in 5, 10, or 15 years hence and to consider questions one might ask if any of the possible futures become a reality (Bell & Stewart, 2004, p. 2). Prediction itself is not the point of scenario planning, which is undertaken to help decision makers balance their short- and long-term thinking.

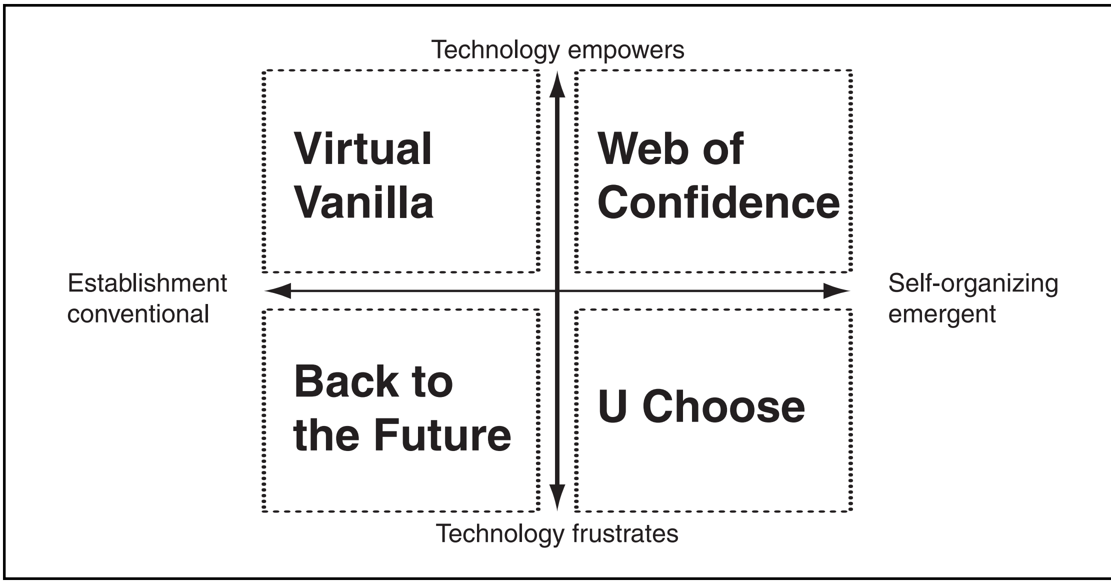
The Scottish Enterprise organization offers an example of scenario planning and technology. In 2003, it began asking experts from a variety of institutional backgrounds from around the world about the role of technology in society in the coming decade. The participants created a framework for discussing the impact of technology and attempted to answer how it might develop and impact learners, education systems, corporations, and governments (eLearninternational, 2004).

The researchers' numerous discussions and data refinements reduced the issues to two clusters of uncertainty, which were further characterized by continua with distinct poles (Bell et al., 2004). The first cluster regarded sources of power, influence, and new ideas. Two manners of attaining the characteristics described in this cluster were dichotomized: a) the established, conventional, institutionalized, and centralized approaches and b) the emergent, self-organized, diffused, and decentralized approaches. The second cluster addressed the role of technology in society. The issues associated with this cluster were a) either technology empowers with high acceptance, enjoys widespread adoption, aligns with human needs, and is driven by society, or b) technology is met with partial acceptance, is only partially adopted, frustrates users, runs counter to needs, and is driven by technology's own needs. These two cluster continua intersect on horizontal and vertical axes forming four scenarios. The four scenarios are referred to as *back to the future*, *U choose*, *virtual vanilla*, and *web of confidence* (see Figure 1).

The four scenarios offered by the Edinburgh scholars help frame the important issues that must be addressed when considering technology development and academic advising on campuses. However, two major reservations should be used when turning to the Edinburgh scenarios for this purpose: The scenarios were developed for those looking at education in a large societal context not at the institutional level, and the initial focus is on the broad issue of technology and education not on technology applied to a specific area within higher education, such as academic advising. Despite these possible limitations, the scenarios provide a useful model for generating insights about future advising and technology.

Back to the future. An institution that fits in the original definition of the back-to- the-future quadrant does not embrace the use of technology. In its purest form, such a stance might seem quaint and an impossibility in today's world. However, if char-

Figure 1 Edinburgh scenarios



Note. From Bell, M., Graeme, M., & Clark, T. (n.d.). *Engaging in the future of elearning: A scenarios-based approach*. Retrieved July 31, 2006, from www.scottish-enterprise.com/publications/the_future_of_elearning1.doc.

acterization of this quadrant is changed to include those institutions in which technology is employed for administrative systems but not for instruction, the quadrant will not be empty.

Stakeholders at some institutions do not believe that providing instruction at a distance is central to the educational mission of their university. They believe that face-to-face instruction is superior to asynchronous instruction. Some may be concerned that the digitalization of instruction threatens faculty ownership of courses (Noble, 1998, 1999). Hence, the technology infrastructure is limited to student information systems and does not include course management systems. According to the Sloan Consortium (2004) survey, private liberal arts colleges may be the most likely to fit in the back-to-the-future quadrant.

At institutions depicted by the back-to-the-future scenario, efforts to change technology policies or implement new technology training are difficult to undertake. Because of strongly centralized decision making by those who generally disapprove of nontraditional venues of instruction and services, advising at back-to-the-future institutions will continue via personal contacts, and advisors will not utilize telecommunication enhancements or course management technologies.

U choose. Institutions that do not embrace the use of technology but will allow self-starters to experiment with it are in the U choose quadrant. Those with limited centralized technology infrastructure but where individual on-campus units have created or adopted complex technological systems are described by this scenario. At U choose institutions, technology systems tend to be poorly integrated or not integrated at all.

U choose institutions may be the result of the prevailing financial model. Performance-based budgeting models (also described as “responsibility-centered management”) are premised on individual units assuming the costs of their expenses (Kirp, 2003; Nelson & Watt, 1999). Personnel in specific units who see advantages in adopting technologies to support their programs may invest in them, but those in other units either may not see such advantages or could not afford them. At the institutional level, the change of technology policies or implementation of new technology training will appear as squares on a patch-work quilt with great differences found in the amount of technology adopted by different on-campus units. Therefore, the level to which technology is adopted for use by academic advising will be determined in an ad hoc fashion.

Virtual vanilla. In the virtual vanilla quadrant, institutions embrace the use of technology through a centralized and systems approach. The technology is primarily used to provide preexisting instruction and services by replicating, as closely as possible, traditional methods. It is not used to radically transform the classic delivery system. These institutions embrace both synchronous and asynchronous learning, and the corresponding services are provided to students. Virtual vanilla institutions may be committed to providing 24 × 7 advising services to students as well as portal technology for student services (see Table 2).

Institutions in the virtual vanilla quadrant have well-developed infrastructures. However, individual and unit experimentation is discouraged because integration with existing centralized systems is a primary concern. Technology policies and training address the needs defined by the centralized systems. Advisors at virtual vanilla institutions will focus on personal contacts and will use technology to reach and serve students through integrated systems that are controlled through a consultative, institutional process.

Web of confidence. Technology in web-of-confidence institutions is embraced for its ability to liberate individuals. At the institutional level, the technology infrastructures are well developed and experimentation is encouraged so that learners are reached in multiple environments. The use of technology for advising is focused on replacing older, traditional work processes by redesigning them within the context of extensive, transformative changes made to internal- and external-institutional educational offerings and services. These advising innovations follow a general pattern of movement from teaching- to learning-centered approaches. The use of portal technologies for student services is well established.

These transformations could extend to include such radical ideas as having degrees replaced by educational passports (Levine, 2000). The passport would allow students in all seasons of life to shop around and complete educational goals that best meet their immediate needs. Upon successful completion of a content area, students get their passports "stamped." In this futuristic world, much of the students' achievements are carried in an electronic portfolio. Advisors would help students seek out the content that best meets their needs as well as provide access to necessary assessments.

At web-of-confidence institutions, advising services develop independent of any specific institutional setting. It may be contracted out by institutions in much the same way tutoring services are now available through vendors such as Smarthinking (Table 2). Institutions would contract with advising service vendors and link them to their technology infrastructures so that advising services could be offered to students. Only those institutions that had integrated, sophisticated, technology infrastructures could participate. This approach may be appealing to stakeholders at institutions seeking to serve specific distance learners or to complement existing services with 24 × 7 delivery.

Independent advising vendors could also target individual students. In this case, advisors would help students find the best educational match, and they may be particularly useful for learners who have a variety of educational credits and seek a certificate or degree to highlight their achievements.

Future Work Profiles for Full-Time Academic Advisors

The major components used to construct the five work profiles are

- whether the primary focus for academic advising is directed toward course registration or educational planning;
- primary work skills sets, as defined by Levy and Murnane (2004);
- whether academic advising is considered a service or essential to the institutional mission; and
- the primary campus technology culture, as defined by the Edinburgh scenarios.

The five work profiles described are summarized in Table 3.

Diffused-Work Profile

Not all uses of technology will lead to a dramatic improvement in the working condition of full-time academic advisors. The diffused-work profile is characterized by impact of technologies that will, at best, be neutral. In this profile, full-time advising positions are characterized by constantly changing and ill-defined roles for the academic advisor or advising. In part, this state of advising is the result of stakeholders considering advising as a service rather than as central to the institution's educational mission. Those holding such a view accept administration policies in which labor of full-time advisors is applied to a wide array of institutional issues, concerns, or problems that can fall within the scope of academic advising and the broader area of student affairs. This work profile is consistent with institutions that have not made a significant technology investment for advising.

Table 3 Advising work-profile matrix

	Advising Work Profiles				
Matrix Components	Diffused	Cross Trained	Professional Career Track	Customer Support	Self-employed Professionals
Focusing advising on course registration or educational planning	Both	Both	Educational planning	Course registration	Educational planning
Perceiving academic advising as a service or as critical to institutional educational mission	Service	Service	Educational mission	Service	Either
Evolving technology skills in the advising workplace	Routine cognitive tasks Expert thinking Complex communication	Routine cognitive tasks Expert thinking Complex communication	Expert thinking Complex communication	Routine cognitive tasks Complex communication	Expert Thinking Complex communication
Adopting an organizational model for technology assimilation	Back to the Future U Choose	U Choose Virtual Vanilla	U Choose Virtual Vanilla	U Choose Virtual Vanilla	Web of Choice

The back-to-the-future (modified to include institutions that use minimal technology) or the U choose quadrants best describe organizational structures that support the diffused-work profile. At these institutions, technology is generally acceptable for administrative purposes but is not valued for educational planning. Advisors are often frustrated using incompatible or dated technology systems to bridge gaps in the advising process; that is, they find themselves generating PDFs of hand-marked paper copies of curriculum bingo sheets and sending them as E-mail attachments. Because of a lack of an articulated academic-advising mission coupled with hesitancy to use technology, full-time advisors may want to engage in expert thinking and complex communication skills but find much of their work time dedicated to routine cognitive tasks directed to making the advising system work.

Cross-Trained Work Profile

A lack of institutional effort or desire to place academic advising at the core of the institutional mission is characteristic of both the diffused and the cross-trained work profiles. However, academic advisors with a cross-trained work profile are expected to embrace the use of technology but not necessarily for academic advising. The administration makes a conscious attempt to use technology to integrate academic advising and student service functions. Technology is viewed as a way of applying the full-time academic advisor's labor to the ebb and flow of institutional needs. With robust student information systems, full-time academic advisors are seen as excellent candidates to be cross trained for work in financial aid, admissions, and so forth as members of a full-service model. This work profile would most likely develop in virtual vanilla or U choose institutions.

At a professional level, full-time academic advisors might be able to enjoy both expert thinking and complex communication skills in their jobs. However, the attention to advising could greatly diminish because it is only one service to be provided by the cross-trained staff.

Professional Career-Track Work Profile

Through a well-established professional career track for full-time academic advisors, a position in administration is not necessarily the apex of the hierarchy. While a tenure track may be identified with this work profile, recent trends in higher education lessen the likelihood of this option becoming prevalent (Nelson & Watt, 1999).

Like a cross-trained profile, a professional career-track profile would most likely develop in the virtual vanilla or U choose institution. However, unlike cross-trained profiles, a professional career track could be found in institutions that would place academic advising at the core of the institutional mission. Because their expert thinking and complex communication skills, which have been demonstrated to advance the institutional mission, are appreciated by the stakeholders, professionals enjoy the financial investment of their institutions. Their skills are valued because the career track professionals combine advising knowledge and skills with technology knowledge and skills. In some cases, skill levels in these areas are assessed via a professional certification process, which is designed to ensure competencies in the areas of expert knowledge and complex communication skills.

Customer-Support Work Profile

Unlike the other work profiles, the customer-support work profile is characterized by a distinct division of labor between course registration and educational planning. In this work profile, the full-time advising position is relegated to course registration while faculty or peer advisors address educational planning. Several variations can be seen with this approach, but in each, technology is used to connect full-time advisors with students to address issues primarily related to course registration. Because they focus on course registration, the advisor's primary skill set regards routine cognitive tasks. However, to ask students probing and clarifying questions about course registration, the advisor will also need some complex communication skills and various communication technologies.

The key motivation for administrators to support this work profile is institutional cost savings. With students having access to course registration systems and with fewer institutions requiring at least some of the students to make appointments for academic advising before registration (Habley, 2004), a centralization of these services reduces institutional costs in several ways. For instance, vendors external to an institution can provide course registrations, and outsourcing reduces health care and retirement costs. Advisors could be located anywhere: in offices on campus, in their own homes, or even overseas (Friedman, 2005).

As an alternative, in-house call centers could be created in institutions. They could be staffed with part-time employees who are paid as adjunct faculty. While such an approach would generate concerns similar to those regarding use of adjunct faculty in other functions, such an approach has a long history in higher education (Nelson & Watt, 1999). The customer-support work profile would most likely develop in virtual vanilla or U choose institutions because a strong technology infrastructure would be necessary to deliver data and information to call centers.

Self-employed Professionals Work Profile

Where self-employed professional profiles are seen, the nature of the academic advisor role moves external to institutional employment. That is, advisors become self-employed or seek employment with vendors who provide resources and means to best market their services. Models of vendors such as Smarthinking or new organizations, such as the National College Access Network (Table 2), are examples of organizations utilizing self-employed professionals. Unlike the customer support profile, the self-employed professional profile is characterized by a focus on expert knowledge and complex communication skills rather than routine cognitive tasks.

The self-employed work profile must be predicated by a major shift of a critical mass of educational providers from content-centered to competency-based learning. Evidence for new ways to reach learners, develop and deliver content, and provide necessary support services is extensive (Latchem & Hanna, 2001; O'Banion, 1997). Similar to those with professional career-track profiles, individuals identified as self-employed professionals will need to possess well-developed technical skills because most of their transactions with learners will occur in a technology-enhanced environment.

The self-employed professional profile would most likely develop in a web-of-choice institution, which is distinguished by individuals who use technology to acquire the specific products and services they need. As a result, future academic advisors could be assisting those lifelong learners seeking educational opportunities throughout their life spans. The advisor may help a learner assess postsecondary options during high school and later help this same advisee find certification options. At some point, the advisor may help the learner use his or her diverse educational experiences to attain a degree or engage in modules of specific content for personal or professional growth. In short, the self-employed professional advisor is a coach who assists the learner considering new educational opportunities. She or he will use appropriate technologies to communicate with advisees as well as to organize and store relevant information. Institutions might hire the services of these academic advisors to supplement their existing staff or to work specifically with selected populations of students. Using hires with this work profile, institutions can attract highly qualified advisors while avoiding some long-term personnel costs.

Discussion

In *A Scandal in Bohemia*, Holmes says to Watson: "You see, but you do not observe. The distinction is clear." In this instance, Holmes was describing the power of ideas and how new ideas can help people interpret and make meaning of phenomena that would otherwise go undetected. Some of the ideas, such as the evolution of student information systems or the way different campus cultures might adapt technology, are conceptual models. Much insight would be gained by a more detailed analysis of these models as they apply to full-time academic advisors' roles in the future.

One could easily challenge the assumption that technology use in academic advising can only lead to limited gains because academic advising is a teaching and learning activity of human interaction. If at the wisdom stage, as defined by Davis and Botkin (2004), technology could economically perform many of the higher order skills associated with advising, such as expert thinking and complex communication, a sixth potential work profile for the future of full-time academic advisors would emerge: obsolescence. I believe that the arguments made by Levy and Murnane (2004) are most compelling: Computer and telecommunication technologies are very good at performing some tasks and not others. Those other tasks, expert thinking and complex communication skills, must be the focus of full-time advisors because they will be at the heart of the advisors' value to their institutions and learners. With much having been written about developmental advising during the past 30 years, the theoretical framework for showing the relationship between it and emerging, workplace, technology skills currently begs for greater examination.

The advisor's role in an information and knowledge rich environment is another area I did not fully explore in this article. If advisors had instantaneous access to mountains of data, information, and knowledge about almost every aspect of students' college experience, new ethical questions would emerge. If a student (or a cohort of students) performs poorly on an assignment or fails to attend class, advisors could contact him or her immediately. However, should they? In an effort to retain students, perhaps institutions will expect advisors to police behavior that might threaten student success and ultimately the institution's bottom line. In the process, the distinction between supporting students and encouraging personal responsibility may become murkier. Therefore, the more compelling questions regard the role full-time academic advisors will have in answering ethical issues associated with technology use.

Few may have the voice to raise and articulate ethical questions regarding the future use of technology. If, as Habley (2004) suggested, advising on many campuses has not been touched by the technological revolution, academic advisors may find themselves in a reactive mode to technology change and adoption. Rather than taking proactive leadership roles in discussing the ways emerging technologies could assist with the advising process, advisors may find themselves reacting to decisions made by others about how emerging technologies will be used for advising.

One way for advisors to develop better understanding of technology is to require them to maintain minimum levels of competency. Advisors could acquire the necessary credentials through individual institutions or through a national licensure standard. Those interested in this approach can look at the standards suggested by The International Computer Driver License or the Computer Technology Industrial Association, which are examples of two organizations that have developed professional standards for technology competency and the means for assessing it.

Considering the five proposed work profiles, one should be wary of the belief that technology will automatically liberate advisors from doing the mundane and repetitive aspects of their work so that they can engage in the much needed and personally satisfying aspects of educational and career planning. The five work profiles are distinguished by the various degrees to which expert thinking and complex communication skills are incorporated. Time freed by technology being applied to course registration does not necessarily translate into more time available for educational and career planning. To capitalize on emerging technologies, full-time academic advisors will need to be efficacious and support campus partners that direct technological potential toward desired goals.

Some stakeholders may assume a prominent role in discussions about use of technology and academic advising. The private, for-profit sector of higher education is embracing distance learning more rapidly than are the private, nonprofit, or public sectors (Blumenstyk, 2005). These for-profit institutions are currently wrestling with issues related to the provision of academic advising. The solutions they reach may establish preferences for particular work profiles stated or unstated in this article. Work profiles that the private, for-profit sector finds effective may affect those adopted by the other two sectors because they will have been tested in application.

Finally, the work profiles described here have implications for how the National Academic Advising Association (NACADA) defines itself and the composition of its membership. Despite many current differences in advising environments, technology may currently be used with more homogeneity now that it will in the future. As technology is adopted by some institutions and not others, distinctions between full-time advisors may be based on the degree to which technology is used in their daily work. Each technology-defined group may develop its own perspectives and language on advising. As a result, some practices may prove incomprehensible to those outside specific subgroups of technologically savvy individuals. NACADA leaders will be challenged to recognize the contributions of subgroup members and help maintain the focus on multiple approaches that improve the delivery of academic advising.

Many ideas presented here were left unexplored or undeveloped; they need closer examination. However, advisors can take some actions that will benefit them as technology plays a larger role in the development of their work environment. As Holmes also said to Watson in *A Scandal in Bohemia*, "It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts." Three more ways to obtain perspective are presented.

Historical perspective. In this article, I have proposed five possible work profiles for full-time academic advisors, and I have shown how work functions can be arranged, as mitigated by selected variables, into some recognizable patterns. In researching literature to prepare this article, I uncovered writings that address the general history and roots of academic advising (Frost, 2000; Gordon, 1992) and the evolution of policies and organizational structures that have shaped one institution's path (Gordon, 2004), but I found nothing about the reasons full-time academic advisors were initially hired to work in higher education, nor could I find a description of their earliest work. The field of academic advising would benefit from documented oral histories of those full-time academic advisors who pioneered their positions at postsecondary institutions. The reasons advising positions were created and the ways in which advisors performed their work would offer valuable perspective when assessing where advisors were, are, and will be. In particular, acquiring descriptions of work performed before the use of computers and during the initial stages of this revolutionary technology may expand the knowledge about the impact of technology on the full-time academic-advisor position.

Assessment. Work done in the assessment of academic advising leads to better understanding of the nexus of useful technology and human interaction. Since the turn of the century, many calls and efforts have been made to draw all involved in the field of academic advising to value and implement assessment (Light, 2004). By engaging in assessment, advisors may be able to shape the work profile their institution adopts in the future.

Advisor training. Full-time academic advisors need to make a concerted effort to understand emerging technologies that could be applied to their work. Integrated with assessment efforts, their advice to campus decision makers regarding the adoption and application of technology for advising could be both critical and valued.

Conclusion

Without the benefit of a crystal ball, the effort to project and describe work profiles for full-time academic-advising positions is impossible and is not undertaken in this article. Rather, I have sought to stimulate discussions about how technology may affect the future of full-time academic advising professionals and to introduce new perspectives on the topic. Scenario planning can help decision makers balance short- and long-term thinking. To that end, I wrote this article to encourage full-time academic advisors to be active participants in the decisions regarding their future work profiles. I suggest the steps highlighted because I believe that the direction of the full-time advisor will either positively or negatively impact the delivery of academic advising to all learners. The better advisors understand the impact of technology, the better they can shape the future for themselves and their advisees.

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