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## Online technological delivery systems in academic advising

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## Online technological delivery systems in academic advising

### Abstract

Advancements in technology are impacting every sector in our nation, and institutions of higher education are no exception. Academic advising is one division of student affairs at colleges and universities that has benefited from past technological advancements. Making advising processes more efficient and effective has helped advisors focus on a developmental approach when working with students, which is a method endorsed by many professionals within the field.

Online and web-based services are another area of advancement, which some advising offices are currently implementing to further assist them in their objectives. The range of these services is vast and the ways in which academic advising offices can utilize them are many. The benefits are obvious; however, limiting face-to-face interactions and opportunities for relationship building may be detrimental for the advising process. Finding a balance between online resources and personal interactions is essential for advisors in maintaining good relationships with their students.

ONLINE TECHNOLOGICAL DELIVERY SYSTEMS  
IN ACADEMIC ADVISING

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Nicole Muhs

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Online Technological Delivery

Systems in Academic Advising

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### Abstract

Advancements in technology are impacting every sector in our nation, and institutions of higher education are no exception. Academic advising is one division of student affairs at colleges and universities that has benefited from past technological advancements.

Making advising processes more efficient and effective has helped advisors focus on a developmental approach when working with students, which is a method endorsed by many professionals within the field. Online and web-based services are another area of advancement, which some advising offices are currently implementing to further assist them in their objectives. The range of these services is vast and the ways in which academic advising offices can utilize them are many. The benefits are obvious; however, limiting face-to-face interactions and opportunities for relationship building may be detrimental for the advising process. Finding a balance between online resources and personal interactions is essential for advisors in maintaining good relationships with their students.

## Online Technological Delivery Systems in Academic Advising

The advent of the Internet and the World Wide Web less than a decade ago has resulted in transformations in various sectors throughout the nation (Oblinger & Katz, 2000). Business functions, governmental operations, and educational systems have been impacted by these technological advancements. The way information is collected, disseminated, and communicated has forever changed. The Web's endless capabilities have altered the expectations of today's society, which now demands faster, more flexible and efficient processes with great innovation and value (Eisler, 2002).

For the most part, colleges and universities have embraced this technology explosion, but in varying capacities (Green, 2000). As of 1999, the majority of institutions used the Internet and the World Wide Web for the sole purposes of compiling and circulating information. Higher education has been slow to utilize technology to provide advanced resources to students at significant convenience or to use this avenue as a means to support the educational experience.

Student services, particularly, is one segment of higher education that has lagged behind in the implementation of services and programs based on technology (Wagner, 2001). Increasingly, professionals in this field are beginning to reassess how the Internet and the World Wide Web can be utilized to present information and support the college student (Green, 2000). Demands are being made for more efficient and effective student services and professionals are recognizing the role technology can play in making these improvements (Haberle, 1996).

As a sector of student services, academic advising offices have begun to evaluate how technology may impact the specific services they provide. Early technological

advancements have benefited this profession, giving them the ability to more effectively work with students (McCauley, 2000). Systems such as computerized student record databases and automated degree audits, transfer course equivalencies, and student profile systems allow advisors to spend less time with redundant, time-consuming tasks. These improvements enable them to focus on a less prescriptive, more developmental approach when working with college students. Advisors are more easily able to establish mentoring relationships while focusing on the development of the whole student.

The idea of developmental advising was first proposed in the 1970s by Burns Crookston (Frost, 2000). This was a concept different from the earlier widespread method, prescriptive advising, which consisted of advisors answering specific student questions, not touching on more comprehensive academic issues. Developmental advising focuses on the importance of the advising relationship, reaching personal goals and objectives, and ongoing interaction.

Creamer & Scott (2000) conveyed that the, “developmental approach is intentional about inviting the student to discuss the setting of personal, career, and life goals rather than just the requirements of a particular course or degree” (p. 341). Academic competence, personal involvement, and developing or validating life purpose are continuums, along which advisors should aim to assist students in developing (Creamer & Scott, 2000). The National Academic Advising Association has prescribed and endorsed the developmental method and many advisors view this method as the most effective way to assist their student populations (McCauley, 2000; Frost, 2000).

With developmental advising being a goal for most advisors, assessing how technology affects this approach is essential. Currently, academic advising offices have



begun to utilize the Internet and the World Wide Web when developing and enhancing the services they provide (Sotto, 2000). These processes often make the advising experience more efficient, but can technology be beneficial in an area of student services, in which effectiveness is believed to lie in relationships and ongoing interaction? This is a main concern professionals must keep in mind when looking to what online technological delivery systems they wish to provide.

### Habits and Behaviors of the Current College Student

When looking at the habits and behaviors of the 20<sup>th</sup> and 21<sup>st</sup> century college student, it rapidly becomes apparent how necessary it is for institutions of higher education to have online, easily accessible resources. Today's college students have had access to the World Wide Web since they were in middle school (Katz & Oblinger, 2000). Forty-three percent of all households in the United States operated at least one personal computer at home in 1998. In addition, one in four U.S households reported using on-line services regularly. It is projected that home Internet access will likely reach all college-bound students in the U.S. before the year 2010 (Katz & Oblinger, 2000).

In particular, college students are frequent users of the Internet and report that it has enhanced their education (Pew Internet, 2002). In a study done by Pew Internet and the American Life Project (2002), 86% of college students reported having gone online, compared with 59% of the general population. Eighty-five percent of these students own their own computer, and two-thirds use at least two email addresses. The majority of college students (72%) report checking these e-mail addresses at least once a day.

These students also state that Internet use has become a major part of their educational experience. They use it to communicate with classmates and professors. The

Internet also enables them to access library resources and to do research. Seventy-three percent of college students report using the Internet more than the library and more than half (58%) has used email to discuss or find out a grade from a professor. The authors concluded that, “In short, the Web has become an informational cornerstone for [the students]” (p. 19).

These statistics reveal that the majority of today’s college population uses the Internet, enjoys its functions, and finds that it is helpful to them educationally and socially. Having academic advising resources available on-line is likely to be appreciated and utilized by students at today’s colleges and universities. Knowing the student population’s comfort level with technology will be helpful for professionals implementing online systems.

The following section includes examples of Internet technologies utilized by some academic advising offices across the nation. Steele, Leonard, Haberle, & Lipschultz (n.d.) contend that knowing a little about the various technological applications available will help advisors get new ideas and make informed decisions when implementing technology in their respective offices.

#### Academic Advising Office Web Pages

Developing an academic advising office web page is one way professionals can centralize various online services for their students. Each institution will choose to create the site in its own way, adding either numerous services or a limited amount. The following types of web tools are examples of resources that can be made available to college students through an academic advising office website.

## Hypothetical Degree Audits

Degree audits have been in use extensively at colleges and universities for the past decade, and were first developed at Purdue University in the early 1960s (McCauley, 2000). This system's capabilities include matching degree-program requirements with completed coursework, allowing students and advisors to take a systematic approach when developing an academic plan. McCauley (2000) declared that a degree audit system that is developed and implemented properly should be able to reduce the number of clerical duties an advisor would need to do on a daily basis. The system should be accurate, complete, and timely, which increases both advisor and advisee confidence in the advising enterprise.

Some institutions of higher education have allowed students online access to their degree audit. Having online systems that include up-to-the-minute information is essential for academic advisors. In a survey of its members in the fall of 2002, NACADA reported 57.88% of institutions had degree audits available to advisors on-line (NACADA Technology, 2000). The on-line availability for students was 45.30%.

One example of the capability of an on-line degree audit system is the ability to produce hypothetical degree audits (McCauley, 2000). Hypothetical degree audits, sometimes called the "major-shopping" feature because they enable students to "shop" by viewing multiple degree audits that would outline curricular information in majors they are curious about but haven't declared. Students can look at these curricular options and see what coursework would be necessary for completion of various majors. This can be very beneficial for deciding students or students unhappy in their current major pursuit. Not only can students view possible majors options, they can examine minor, certificate,

or specialization areas as well. McCauley (2000) declared that having this diversified feature is necessary in order for degree audits to be of vital support for academic advising professionals.

An example of the hypothetical degree audit is Northwestern University's "What-If" Degree Progress function (Office of the Registrar, n.d.). Students can see how the classes they are currently enrolled in and have completed would fulfill the degree requirements of other university majors and minors. Their campus portal system, CAESAR, generates a simulated degree audit for the particular student based on his or her academic record and the alternate program of choice. This process will not permanently change the student's record and may take several minutes in order to be completed.

#### Curriculum Guides and Handbooks

Many academic advising office web sites link to curriculum and program information. In particular, core/general education requirements are usually listed. The advising process normally includes a comprehensive explanation to students about these specific requirements and their fit in a student's academic plan. Wagner (2001) stated that having this type of information available on-line will give the student more responsibility and control in the process of advising. In addition, it would enable the advisor to spend more time with the student discussing developmental issues rather than answering basic, routine questions. These informational links are one other tool that can assist advisors in taking a developmental advising approach with their students.

On-line student/course handbooks or catalogs may be included as well, which can display information particular to a certain college or university. Institutional guidelines

and policies are examples of the types of information often included in these sources.

Other information such as drop/add dates and other important institutional dates to observe sometimes are included as well.

These online curriculum guides and handbooks/catalogs give students, faculty, and advisors access to the most up-to-date and correct information available (Krauth & Carbajal, 1999). This can eliminate mistakes and also increase confidence in the choices students make and the advice that is given. Having this large amount of information in one easy-to-access location is a major benefit as well.

North Dakota State University developed an online listing of the institution's general education requirements and specifications (Registration and Records, 2003). The categories of their general education program are listed and links are provided allowing students to quickly ascertain what coursework satisfies each particular category. The academic advisement center homepage at Weber State University lists recommended classes for exploring specific majors in addition to general education information (Academic Advisement Center, 2003). Details about various university policies are also included. The steps to declaring a major or applying for graduation are examples of policies outlined. A link is also provided to explore the current and previous years' catalogs.

### Frequently Asked Questions

In addition to including curriculum guides and handbooks, adding a frequently asked questions (FAQ) section to a website can ensure the transmittal of correct and pertinent information. Academic advisors often spend a portion of their time answering the same questions repeatedly (Wagner, 2001). Listing these important questions and

answers on a FAQ site saves time for staff members and gives students access to correct information they are seeking. One of the unique benefits of a FAQ page is that a student can access these answers at any time of the day or night and he or she will not have to wait for a response (Steele, The Ohio Learning Network, & Carter, n.d.).

The University of Colorado at Boulder has an extensive FAQ section (Ralphie's Info Center, n.d.). Ralphie the buffalo is used to answer questions and provide an interactive website for both prospective and current students. A FAQ list has been generated encompassing numerous university topic areas including, academics, advising, activities, admissions, campus services, and much more. If an answer cannot be found on this list, a student may pose a specific question to Ralphie and the answer will be posted within a week or less on the site. If a student wishes, he or she may leave an e-mail address where the answer will be sent to as soon as possible.

A FAQ list encompassing strictly academic advising information can be found at the advising web site for Franklin College of Arts & Sciences at the University of Georgia (Franklin College, n.d.). A vast list of questions geared toward prospective students is provided. These questions and responses detail the advising experience and other academic concerns. Examples of questions include; "What is academic advising?" and "How will I know who my academic advisor is?"

### Miscellaneous Informational Links

Where most academic advising web sites differ in appearance is in the additional informational pages linked to the main web site. There are common needs among the majority of students at each particular college or university. However, there are other populations with different concerns and questions. Making other resources available for

these special populations or for self-help can make a web site more comprehensive and effective (Wagner, 2001). Information on career decision making, study skills, choosing a major, etc. may be included to administer a more holistic advising experience.

Links to other college or university sites might also prove to be helpful. For instance, access to the web sites for the career center, student activities, student support services, intramurals, and/or academic departments may be included. This again establishes a more comprehensive and connected site, meeting the needs of a larger number of students.

The academic advisement center's site at Weber State University is a good example of a homepage including many additional informational links (Academic Advisement Center, 2003). Within the realm of academics, sites are provided to aid the student in "choosing and using a major." Also provided are a grade point average calculator and a course schedule planner. Additional links point out other on-line student resources such as financial aid, academic support services, orientation, parking information, and campus maps.

### Interactive Features

Other features may be included on a web site that allow the student either real-time or time-delayed interaction with an academic advisor. Electronic mail (e-mail) is an asynchronous example of advisor-advisee contact that may be utilized and linked to the site. In NACADA's 2002 survey, 97.07% of polled advisors claimed that e-mail is used on a regular basis in their role as an advisor. In a survey of college students, 72% were frequently looking for e-mail, checking at least once a day (Pew Internet, 2002).

E-mail is a way for advisors to communicate with students and respond to their

questions and concerns. Lipschultz (2002) called for a systematic approach in responding to student e-mail requests and in the development of e-mail technology to enhance the advising enterprise. Confronting concerns about timely responses, overload, and loss of face-to-face contact should be systematic and not reactive. Some problems surrounding the use of e-mail include lack of non-verbal cues, discussion of confidential information, and overload.

There are possible solutions to these problems such as using feeling words in a message to minimize the effect of limited non-verbal cues. Confidentiality issues are normally minimal, but by using the university directory and referring suspicious messages to a phone or face-to-face meetings, the concern should be further minimized. Tackling the issue of overload may be more difficult, but Lipschultz (2002) recommends tracking the receipt of e-mails and perhaps blocking out a specific portion of the day to make responses. In times of extreme overload an advisor could respond and ask the student to come in to set up a face-to-face appointment. Creating template responses may be another method in combating overload of e-mail messages (Steele et al., n.d.).

Some colleges and universities have set up a virtual advisor system as another response to the need for communication between advisor and advisee. This system is similar to e-mail, in that a question is posed by the student and sent to the advisor. This is also an asynchronous system in that the discussion is not taking place in real time. Virtual advisor websites often place a disclosure statement letting students know when their question will be answered. This gives the student some idea of when a response will be given, which can be an advantage over e-mail communication.

The “virtual advisor” at North Carolina State University is an example of this



application (NC State, n.d.). The student accesses the advising home page and then selects the virtual advisor link. The student identifies his or her e-mail address, phone number, topic of concern, and declared major area. An open text field is made available for students to type in their specific concern. Once they are finished with the form, the submit button is pushed and the message is sent to an advisor.

Pima County Community College District has taken this application one step further by developing an interactive video advising (IVA) system (Pima County, n.d.). This synchronous system allows the student and the advisor to communicate through an internet-based desktop videoconferencing system. Files can be shared from their computers and they can also see one another. The student needs to have an Internet connection, the correct software and hardware, and an appointment set up in order to participate in the process. IVA can eliminate some of the set-backs that occur with most on-line academic advising delivery systems. The lack of face-to-face contact in the advising process can be seen as detrimental by many within this profession (Steele et al., n.d.). Interactive video advising can bring more intimate contact into the technological advising process.

Chat is another synchronous method of communicating on-line during the advising process. Many virtual colleges and institutions have implemented this method as a way of communicating with their distance learners. Weber State University is an example of a campus that offers students the ability to chat with an advisor live (Weber State, 2003). The student must identify himself or herself and the nature of the question. The message is then submitted and the advisor is then able to respond. Before the student accesses this system, a notice is available to let the student know if an advisor is available

or not at that time.

UCLA also has an advising chat-room open to students (L & S Counseling, n.d.). The counseling assistants of the College of Letters and Sciences (L & S) host the discussions. The assistants recommend asking general questions, such as how to add extra units to a study list, when to drop a course, and where to find a listing of courses that satisfy a general education requirement. These counseling assistants are graduate students trained to advise L & S undergraduates on general policy, academic, and program concerns. Students not within this department are advised to contact their own specific undergraduate advising unit. A disclaimer is also provided to notify students that this service is not meant to be a replacement for meeting with a college advisor one-on-one. Some tips and chat-room etiquette are included in the FAQ section describing this service.

Melander (2002) of Penn State University stated that one method in becoming a more student-centered adviser could be to conduct one-on-one chat sessions with individual advisees or to assist groups of students by establishing open chat rooms. College students who are Internet users are twice as likely to use instant messaging on any given day when being compared to an average Internet user (Pew Internet, 2002). Instant messaging is a similar concept to chat rooms, so this could indicate that college students may be very responsive to the ability to get information via this type of interface.

### Campus Portals

In addition to college or university web sites, campus portals are a way to centralize numerous institutional resources and services on-line (Eisler, 2001). Eisler (2001) defined campus portals as a "single integrated point for useful and comprehensive

access to information, people, and processes” (p. 2). These systems are customizable and allow for varied levels of university system integration.

Certain trends in today’s higher educational environments lend to the necessity and benefit of campus portals (Eisler, 2001). There is an increase in the number of non-traditional, part-time, and distance-learning students. Students are also more likely to work in addition to attending classes, and some may work over an average of 30 hours per week. Finding new and more effective ways to communicate with these students is of interest to many colleges and universities.

A single web page may not have the capabilities to address the needs of today’s college student population. A campus portal can create opportunities for individuals to retrieve both external and internal information. Eisler (2001) stated that, “combining the function of both Internet resources and Intranet-based data in an interface that the user configures to his or her personal preferences can create a strong, powerful, and valuable learning tool” (p. 2).

Some statistics have recently shown that students do use portals on a frequent basis. After the implementation of new portal web site at the University of Minnesota in 1997, it initially received 13,000 hits per month (Kvavik & Handberg, 2000). Currently at this institution, there are more than 13 million hits per month, and more than three million pages of information have been downloaded by students and staff. At UCLA, nearly 97% of the undergraduates visit their portal at least once a week (Stoner, 2000). At Gettysburg College, 80% of the campus community logs on to the portal system every day, and most say they couldn’t do without it.

Of interest to academic advising professionals is how they can use this campus

technology to benefit and enhance the process of advising. Some colleges and universities may simply link their office website to the portal. Others may include many of the academic advising functions right at that sight. For example, the University of Northern Iowa has a campus portal titled, MyUNiverse (University of Northern Iowa, 2003). Advising services linked to the interface include a section labeled Planning My Academic Career. Registration tools, planning tools, forms and requests, and other resources are included. Links to web registration, closed/available class search, academic calendar, liberal arts core, hypothetical degree audits, graduation applications and transfer equivalencies for Iowa community colleges are some examples of resources available to students at this site. The university's academic advising web site is accessible from this location as well.

Pennsylvania State University is among the first institutions of higher education to implement a portal system designed exclusively for the purpose of managing academic advising duties (Brown, n.d.). At Penn State members realized that much of academic advisors' time was being spent completing simple, routine tasks. They were not able to spend as much time as they would like taking a more developmental approach with their students. In 1994, they came up with a way in which technology could assist them in remedying this situation. The Comprehensive Academic Advising and Information System (CAAIS) was developed and was put into place to "supplement student-advisor relationships and to engage students in informed educational planning" (p. 3) (Brown, n.d.). CAAIS has since been renamed and redesigned as eLion (Penn State, 2003).

Functions of this system include allowing students to drop a class, track degree requirements, and view transcripts (Brown, n.d.). Advisors comment on the consistency

and reliability of the system. Jim Levin, director of academic advising in Pennsylvania State's Eberly College of Science, said "Since academic advising is not concrete, students often end up getting conflicting opinions. With advice, that's valuable. But if the question is about a university policy, you want accuracy and consistency" (p. 5). Gary Hile, Penn State's CAAIS (eLion) development team coach affirmed that "by using CAAIS (eLion), students can become more aware of their interests and abilities, cognizant of educational opportunities, and able to make choices based upon their knowledge. The routine type of low-level advising is being removed and students are talking to advisors about much more complex issues" (p. 7).

A critical aspect of eLion is that it is an expert-based system. Penn State's website declares that eLion "is an expert-based, empirically-grounded advising system that is delivered by the latest technologies" (p. 1) (Penn State, 2002). Expert systems are computer programs that model the thought process of an expert (White, 1990). They are the third major area of artificial intelligence and in the past took many years and resources to develop and implement. With the advancements of technology in the last decade or so, establishing a system such as this is conceivable for most universities.

eLion has various functions that it can perform as an expert-based system (Brown, n.d.). For instance, a student can drop a class by accessing the eLion interface. The system will automatically notify the student of the consequences of this action. For some students, dropping below a certain number of credit hours will affect their financial aid packages or insurance benefits. By having access to all the academic and personal data available on a particular student this integrated system can make suggestions and give advice that is pertinent to each individual student. Having the knowledge of

university policies will also ensure the system's ability to present critical information correctly and applicable to Penn State.

The functions of eLion vary in rates of usage by university advisors (Penn State, 2002). In the month of February, 2002, the web view of degree audits was the most accessed portion of the system with a percentage rate of 22.4%. The next most used application was the ability to view transcripts (18%) followed by viewing degree audits in real time (15.1%) and academic summaries (14.5%). Seven hundred and twenty nine different advisors accessed eLion during that month.

### Implications

The ability of technological delivery systems to enhance the advising process is apparent (Steele & Carter, n.d.; Wagner, 2002; & Eisler, 2002). Melander (n.d.) opined that to be a student-centered advisor one should not "merely pass on information or advice; rather, become focused on coaching the student toward the development of attitudes, skills, and behaviors as a learner, decision maker, and community participant ..." (p. 2). Focusing on deeper developmental issues and engaging the student outlines a successful advising experience and falls in line with the developmental advising approach prescribed by many within the field. On-line technological delivery systems can assist in this process and ensure the enterprise is more efficient and effective.

Nevertheless, the question arises about the establishment and sustainability of an advisor-advisee relationship simply through on-line communication and delivery. What are the limitations of an on-line relationship versus one that is face-to-face? Eisler (2002) argued, "it is difficult to believe this process can or should replace the interaction with faculty and professional advisors that help shape a student's future" (p. 4). Likewise,

Melander (n.d.) declared "...the developmental needs and action paths of the learner are best diagnosed and planned in face-to-face advisor-advisee conversations" (p. 4).

Creating a balance between the efficiency of technological advancements and the effectiveness of quality one-on-one interactions is imperative (Steele et. al., n.d.).

Technology is a tool that should not replace the advising experience, but enhance it. All the benefits of online services cannot replace the effects of interactions and relationship building that occurs during face-to-face advising.

Additionally, institutions may need to assess how their student population reacts to the implementation of technological systems. Do students appreciate the change in processes or do the changes result in problems? How are students impacted by technological systems? Do they experience a loss in face-to-face time with advisors? Or do their advising appointments take on a developmental character? Schools may have to go beyond looking at only numerical data and begin to evaluate students' perceptions of technology on a deeper level. Individual and focus group interviews with students may be needed. Undertaking longitudinal assessment projects to gain this perspective may be necessary. Developing and executing these systems is an expensive, time-consuming task. Not knowing how students will react to the changes could end up being a critical issue for a college or university.

NACADA Technology (n.d.) lists several other issues and concerns facing academic advising professionals in regards to technology. These include advisor training/development, identifying "best practices" models, data warehousing, and fear of advisor obsolescence through technology. Other questions from the commission include, how can document integrity in advising using technology be ensured, how do advisors

receive technical support, and how are web applications integrated with student information systems?

### Conclusion

Technology is here to stay and advancements seem to appear daily. The benefits of technological systems are obvious, as processes become faster, more efficient, and more capable. Any sector in our nation which does not embrace these changes may face the prospect of being “left behind”. This realization has set in for institutions of higher education in the last few years. The opportunities that technology may bring appear to be endless.

As student affairs professionals, particularly academic advisors, begin to think about implementing technology in their offices, many issues and questions arise. As they strive to achieve their goal of assisting students in growth and development, one cannot help but question how these advanced systems factor into this process. Assessing the advantages and disadvantages, as well as having an understanding of the institution’s student population will assist in making decisions about what types of on-line technological delivery systems should be implemented and how they are developed.



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