Nontraditional Technologies in Financial Education

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Technological advances during the last few years have eclipsed the technologies of the dot com bubble era. Some of these are highly and obviously amenable to finance education applications whereas others are unlikely to find use in finance. Financial applications were a driving force in the early emergence of today's well established technologies and those technologies led to many new financial applications. A number of these relatively new technologies are examined, reviewed to identify their functionality, and finally considered for use in financial education. Those more appropriate to financial use are examined in greater detail. A survey of potential users among finance educators is conducted to assess existing knowledge, use, applicability and future potential for these new capabilities. Finally, suggestions are offered for adopting and using some of these tools.

INTRODUCTION

Numerous advances have emerged among technological capabilities related to education in recent years. Identifying suitable new technologies for research and teaching use is critical for business educators who wish to be fully effective. Here we examine which of these technologies directly relate to business and financial applications and which are not obviously connected to educational use. Although some items are clearly applicable the others require imagination to integrate with education. The rich assortment of alternatives is diverse and requires extensive knowledge to understand and employ. The array of alternatives probably exceeds the typical professor's range of knowledge. This article examines many of these alternatives and suggests applications that are suitable for immediate application or future exploration.

Many contemporary technological applications are mainstream financial tools. For example spreadsheets are indispensible tools for financial analysis. In fact a reasonable argument can be advanced to support the idea that the emergence of spreadsheets was instrumental in promoting the early growth of microcomputers. The relationship between spreadsheets and financial applications can be viewed as a two way street. The argument has been made that the dramatic and explosive growth of the swap market was facilitated by the availability of microcomputers. Swap valuation and revaluation demands the ability to rapidly recalculate and modify the assessment techniques. Such flexibility would not have been possible with the traditional forms of computer programming that prevailed before microcomputers and spreadsheets were available. From tis observation it can be seen that not only did financial needs drive the development of computers, the development of computers helped to drive financial applications.

Notions about using technology in the study of finance have long revolved around spreadsheets since they were introduced by Dan Bricklin and Bob Frankston. These tools

of the 1970's have become ubiquitous in business schools and students graduating today without pertinent spreadsheet skills are doomed to backwaters of industry. The VisiCalc program introduced by Bricklin and Frankston was rapidly replaced by Mitch Kapor's Lotus 1-2-3 when the IBM microcomputer was introduced. A number of other spreadsheet applications often interwoven with other components such as word processors, data bases, and presentation software subsequently emerged. Eventually Microsoft's Excel came to dominate today's spreadsheet market. Other Microsoft Office components enjoy similar popularity. A motivating question behind this study is, "What new technological applications are presently being developed to become the ubiquitous application of the future?"

This article first looks at the assortment of things available for consideration. Then each is analyzed for potential applications and suggestions are provided. Finally, a group of educators are surveyed to identify which of these tools have already found their way into business and financial applications, which are perceived to have potential, and which have little merit for further consideration. From these data suggestions are offered for dealing with this relatively unexplored area.

TECHNOLOGICAL APPLICATIONS REVIEWED

Nontraditional technologies examined include, but are not limited to the following logical groups. First ten items that can loosely be defined as social networking sites are addressed. Several services purport to offer social networking and several other sites offer related functionality. Popular online information sources are examined second. Third, a brief look is directed toward course management systems. The dominant system in this group with which most educators are familiar is Blackboard. Fourth, web sites that publishers have developed to accompany specific books are assessed for their use and usefulness. Fifth, some physical devices are considered for research, teaching or personal applications. The experience educators have with physical devices is considered. Sixth, the impact technologies produce is obviously important and some questions are posed about that effect. Seventh, the reaction observed to technologies is considered. Finally, the open ended question about identifying additional items is presented. Although the list of items addressed is extensive, it is not exhaustive nor can all of its components be examined in depth. Furthermore, this assortment of technologies has no common bond beyond being relatively new ideas that remain to be more fully explored. The following elaboration offers modest insights to many of the suggested technologies with a pedagogical focus.

COMMENTS ON APPLICATION FUNCTIONALITIES

Social networking sites

Blogs Continuing dissemination of information is made possible through blogs. Current material and interpretations of it is readily possible through this device. Commonly the material is centered about a common and sustained theme. Contributions are possible from multiple as well as individual participants. A number of these have been integrated with travel experiences. Bloglines is one of the dominant hosting sites for blogs. It employs a variety of techniques to aid the search for relevant material

including links to random blogs and rapidly changing images with tags that can be accessed with a simple click.

Second life This ingenious creation captured the imagination of countless users who employ it for entertainment and personal gain. Avatars are created and managed by users in a simulated environment that attempts to duplicate numerous real world situations. Some university courses have been built around the use of this technology.

Linkedin A network of professional relationships is interconnected through this site. Members use it to identify job opportunities, candidates for employment, solutions to problems and business opportunities.

Del.icio.us This device enables the socialization of many Internet applications. Users are able to structure information and access to it allowing them multiple access portals and the functional capabilities of incorporating the involvement of others. Networking through this device enables users to greatly expand access to knowledge.

MySpace A popular site where participants, typically young adults, share personal information and interests. Much of it is for entertainment, but educational applications exist.

YouTube One of the most popular devices among college students is mostly used for entertainment. However, this device can be used as a powerful educational tool. It offers instruction and information that can easily be created and accessed. A vast and growing body of material is easily searchable for useful applications. Extensive educational applications of YouTube already exist, and growth is likely.

FaceBook This site describes itself as a social utility for connecting people with each other. It has been operational since 2004. Over 100 million users, many on college campuses take advantage of this site to assist them in connecting with others. Participants can join networks based upon their school, city, workplace or region.

Wikis These are powerful devices that allow groups of people to interactively work on projects to develop unified results. Groups researching a common topic are able to employ wikis to facilitate knowledge sharing. They typically provide an historical record of progress in developing a finished product. The technology effectively provides an online word processor that can be accessed remotely by different users. These devices have already found extensive applications in education.

Google docs The ubiquitous Google search engine is so easy to use and wildly popular that often users barely scratch the surface of its functional capabilities. The site has become an incredibly powerful advertising medium that is highly profitable to its owners. The Google docs functionality is quite new but holds promise for incredible future use. A better understanding of its capabilities greatly assists educators.

Twitter In addition to being a social networking site, Twitter characterizes itself as a micro-blogging service. Brief posts can be rapidly shared. Some large businesses use the service to provide product

information to customers. Some university departments employ the service to communicate with students and even presidential candidates disseminate information over Twitter.

Information source services

Several long standing information sources have incorporated online access to enhance usage. Some of these enjoy considerable success such as the *Wall Street Journal* online and *Barron's* online. These popular variations of the longstanding paper versions that provides similar information takes advantage of functional capabilities that are impossible in a paper version of a newspaper. Real time information is provided about markets and interactive components allow for more extensive interactions than are possible in traditional formats. The functional capability allowing readers to send articles to others allows the publisher to continually assess reader interests. EDGAR emerged as a growing number of companies found it beneficial to file reports online and that information thus became readily available online. Many exchange web sites have been constructed to promote activity for these exchanges and thereby offer educational material and useful data online. Motley Fool is a popular web site that systematically provides users with insights and data relevant to investment practices. It is highly popular and provides highly regarded information. Yahoo finance similarly provides access to extensive information about business. Finally, the technique of using RSS feeds to identify new information as it selectively appears allows people to keep up to date with certain announcements and disclosures in a timely manner.

Course management systems

Education specific systems have been developed to facilitate communication among students and educators at all levels. Notable among these devices is Blackboard, a highly popular and relatively easy to use system that has captured much of the market. WebCT, a similar system to Blackboard accomplishes many of the same functionalities and was acquired by Blackboard some time ago. An open access system known as Moodle was developed by Martin Dougiamas to accomplish similar functionality to Blackboard. It has realized extensive worldwide acceptance due to its flexibility and free cost. A new attempt by several universities to duplicate the work of Moodle and extend its functionality is known as Sakai. It is quite new and little can be said about its success in accomplishing its purpose. There are also some proprietary and less frequently used systems available including CourseWork and Angel.

Textbook web sites

These sites have been created by publishers to support and attract users of specific textbooks. Typically they are closely tied to the content of books and sometimes they provide interactive material including practice quizzes for students. Additionally, they may include material specifically targeted at professors teaching relevant classes.

Physical devices

Kindle book readers were recently introduced by Amazon.com to provide an electronic version of some available books. Although there is a limited supply of material available on Kindle books, the technology seems to be better accepted than earlier attempts to accomplish this purpose. This electronic book delivery device is growing in popularity. Multiple books can be contained within a relatively small and portable bundle. Thus a student can conceivably replace a stack of books with one smaller device. Additional functionality is also possible with this delivery mechanism. Blackberry wireless e-mail devices expand the capabilities of mobile phones and hand held devices rather successfully. A considerable number of business applications exist and many educators are adopting the technology. Note book computers have become ubiquitous and few educators function without full support of one in present applications. The number of skeptics who shun the use of computers in education is dwindling and applications are growing. Tablet computers have failed to make much of an inroad to education despite their functional capability of providing interactive presentations that take advantage of immediate flexibility. Mobile phones have primarily found use on a personal level, but recently a number of universities have taken a new approach to them. Whereas access to them had been banned during class, now some universities require faculty and/or students to keep them connected during class to potentially receive emergency messages about problems on campus. Video cameras have long been used to record lectures and are becoming useful for creating short educational briefings about mini topics. With iPods and Podcasts the functional capability of distributing audio in streaming form allows the easy dissemination of information according to the discretion of a user's time frame. Lessons and relevant information can be created and easily stored for ready access from any Internet connected computer. This technology greatly aids the usefulness of asynchronous delivery of material.

Impact of technologies

The impact of electronic spreadsheets that were first introduced over a quarter century ago is beyond imagination. They have gone from nonexistent to essential over that period. Today's new technologies are emerging at an incredible rate, but so far it is unclear if the next 1-2-3 is on the verge of discovery.

Reaction to technologies

Students have long been on the frontier in accepting new technologies. In fact the speculation has been made that we are in the first era in the history of the world wherein we no longer go to elders for wisdom, but rather often seek it among youth when technology is involved. The question of how educators react to these new functionalities remains to be examined.

Other ideas and technological applications

A variety of lesser known and more specialized technologies are also touched upon with this study. Survey monkey was used for collecting

some of the data. Group feedback is readily achieved through this application. Questionnaires can be easily developed, disseminated, collected and the material provided is readily amenable for further analysis. This device is easy to use and either free or of minimal cost.

Personal data assistants are finally becoming useful. These tools allow users technological access without formidable devices. Tiny, hand held devices are able to access the Internet often from remote locations without physical connections. Podcasts of lectures are quite amenable to this technology. TeacherTube is an online video system that has been developed largely for primary and secondary teacher applications. The system is relatively new and is modeled upon the YouTube mechanism with a focus on education. The potential of monitoring material placed on this system gives it some beneficial features over YouTube. SchoolTube is another online video system similar to TeacherTube, it focuses on creations from students. Again the audience is largely primary and secondary students. Often the focus of users is the notion of communication and information delivery.

Spacetime is one of the relatively new variants of search engines recently introduced to upgrade the hunt for relevant material. Its primary feature is an attempt to deliver material in a three dimensional format that goes directly to the sources of information rather than providing mere text interpretations. Rather than text only returns as provided by Google, Spacetime delivers images of the retrieved information pages.

Mahalo.com is a web directory that employs bespoke result sets for popular search terms. Human editors develop the results provided by the search engine as categorized information. The Ask.com system is a search engine variant that attempts to deliver answers to questions. Initially it intended to provide natural language interactions with users. Mediasite is a commercially available system that enables users to combine feeds from lectures and graphic material in an integrated fashion without disrupting traditional classroom activities. The system is expensive but extensively developed.

Turnitin helps with plagiarism detection which is accomplished with this software package by comparing student reports with a huge database of previously submitted student reports.

BUSINESS AND FINANCE EDUCATION APPLICATIONS

Some of these technologies are obviously amenable to business and financial applications and are immediately adapted to use. Other technologies have ambiguous applicability and may take longer to be applied or they may never find such applications. The characteristics of these alternate technologies are analyzed to understand this progression. A big challenge in employing these technologies is the need to understand them. First one must know something exists, then what it does, and finally how to use it. Only then is it possible to understand the technology's applicability to a field. A dramatic change has occurred as technology emerges in an explosive fashion. There are

so many alternatives to consider that educators may be overwhelmed with necessary research.

Since few professors have adequate time to research the assortment of available technologies it is hard for them to use them properly. Thus, many professors find their students better prepared and skilled in using newer technologies. It consequently is important to identify just what educators know and how they use that knowledge. Finally, it is necessary to identify technologies worthy of the considerable effort required for mastery.

Crovitz argues that wikis and other open source applications have the potential to dramatically alter the ways governments operate. He notes that within Second Life the "State Department now has an embassy." (Crovitz) Furthermore, a number of universities have created a presence within Second Life.

SURVEY DESIGN

A survey intended to gather relevant information about current and near-term applications of emerging technologies was distributed. First the survey attempted to assess the respondents' attitude toward emerging technologies. It then included questions about: "What technological tools are employed for teaching research and personal use?" Online information sources were compared for their relative use. Traditional course management systems were also considered. Although these systems are fairly entrenched in academic environments not all educators have embraced them. Textbook web sites have emerged for a number of popular books. The experience of educators with these systems was reviewed. Emerging hardware devices potentially useful in education were considered for research, teaching and personal applications. The survey then addressed the impact of using newer technologies along several dimensions including learning, enthusiasm, ease, material retention and assessment. Student reactions to these technologies were considered next. Finally, an open ended request was offered to solicit ideas and technologies that might have been missed in the bulk of the survey.

SURVEY RESULTS

The primary results sought in this study are the identification and suggestion of suitable new technologies for financial education. What new things are available about which educators should be aware? Before educators can apply these new devices they must become aware of their existence. Then operational knowledge is needed to understand functional capabilities. Finally, specific financial applications must emerge. The rapidity with which these things have emerged in recent years makes suitable use of them a challenge. Meeting that challenge should be a goal of every good educator.

The survey was designed to extract relevant information without excessively burdening participants. It was sent to 131 people, 24 started the survey, all of them completed the survey, 10 people selected the option to not participate and 97 either ignored the request or it was intercepted and not delivered by their e-mail program. So the overall response rate was 18.3%. Since all starters completed the survey, the implication would be that responding to the survey did not offend anybody, but the request for their participation could have been improved. Survey content is categorized into nine questions. Some of them have multiple parts to extract different dimensions of

complex ideas. Some brief comments follow regarding the responses obtained for each question

The first question attempts to identify the general attitude of participants to incorporating new technologies into their teaching. It asks "How would you classify your approach to technology?" The dominant response (54.2%) was that of adopting proven technologies. Equal numbers of people reported that they either "Strive to find relevant new technologies" or are simply "Early adopters of new technologies." Only one person said they were "Reluctant to adopt technologies." Finally, nobody indicated that they "Avoid new technologies." Thus, it seems reasonable to conclude that participants have a reasonable interest in adding worthy technologies to their teaching portfolio.

The second question addresses a number of sites that might be classified as social networking sites. Such sites are locations where people may indirectly interact with others whom they know or those with some commonality of interest. Ten different items were listed. Google docs were reportedly used by seven people regularly for research and 4 people regularly for teaching. An additional eight people reported occasional use of Google docs. Thus, on the surface this site appears to be the dominant alternative listed. However, only five people reported regularly using wikis in their teaching and research. Since the functionality of Google docs is much the same as wikis, it is possible that some people confused other Google applications with Google docs. Blogs found a handful of people using them for teaching, research and personal interest, but most people (58%) claimed they never used blogs. Second life has been reported to have a number of pedagogic applications, but 87% of the respondents either never used the site or were unaware of it. Del.icio.us, a site that might enhance web research was reportedly used regularly for research by one person and almost 96% reported they were unaware of this site or never used it. YouTube was reportedly used occasionally or regularly for teaching by 58.3% of the respondents. Numerous instructional videos have been made available through this site. Some of the more frivolous sites such as Twitter found most people (95.8%) either having never used it or being unaware of its existence. In many ways Twitter is a generalized instant messaging service without specific direction. An additional site not mentioned in the survey, Twine, was mentioned as being used by one participant.

The third question addressed several of the more traditional sources of information and one methodology for targeting access to relevant information. The *Wall Street Journal Online* was the overwhelming favorite site for information. Second in popularity was Yahoo finance and third was EDGAR. Nearly half the respondents report using RSS feeds. These allow users to track new postings on the Internet that may be relevant to their interest. Most however, 52.2% report never using RSS feeds. A number of people report using other similar sources of information through an open ended request. Two report Bloomberg, Reuters, and Morning star and one mention is made of CBS Marketwatch, NY Times.com, Value line, Business week, Finance lab, Abi-inform, MSN.moneycentral.com, quicken.com and CNBC.com.

The fourth question deals with the assortment of course management systems available. It asks "What has been your experience with each of these course management systems?" The most commonly used system is Blackboard with 79.2% of the respondents using it. Slightly less than half of the users consider it to be excellent and the rest think it is just adequate. The only other course management system with a reasonable number of

respondents was WebCT. It has fewer total users, and a couple of them rate it as poor. However, since WebCT was purchased by Blackboard its future, and Blackboard's, remains unclear. Moodle, and Angel have but three reported users among them. Sakai, and CourseWork have no reported users and CourseWork is being superseded by Sakai, so its future is irrelevant. However, Sakai is being promoted as an open-source course management system by a number of large universities so it is possible that something will emerge for it. A couple of other proprietary systems were also mentioned. It is possible that these are actually variants of some other open-source systems.

Question five asks "Have you employed the pedagogical aspects of a textbook website?" Over half the respondents report occasionally referring students to these sites. Just over one quarter of the respondents regularly assign these sites. 18.2% of the respondents say they have examined these web sites but not found any suitable. Some other disparaging remarks were made about textbook websites.

The sixth question addresses the use of physical devices. Items addressed are Kindle books, Blackberries, Notebook computers, Tablet computers, Mobile phones, Video cameras and the iPod. Notebook computers constitute the overwhelming choice for every application. Blackberries, Tablets, Mobile phones, and video cameras are used across the assortment of applications addressed, research, teaching and personal use. Kindle books and iPods find only personal use with 58.3% using the iPod but only one person reporting any use of Kindle books.

Question seven addresses results of using technologies. It asks "What is the impact of using newer technologies?" It scales the user responses from strongly agree to strongly disagree regarding several dimensions. Most people seem positively disposed toward belief that students learn more. 37.5% agree with this notion and 16.7% strongly agree with it. Nobody strongly disagrees. Over half of the respondents agree that enthusiasm for material improves. The mode regarding the teaching being easier dimension is neutral with the distribution from strongly agree to strongly disagree being nearly symmetric. The idea that material retention improves similarly has a mode of neutral with a modest skew supporting agreement. Finally, a neutral response is the mode for "Performance assessment is better."

Question eight asks "What student reaction have you observed to your use of new technologies?" The most frequent answer is that "Students readily adapt to new technologies enthusiastically." A close second response was that "Students adapt to new technologies slowly." A reluctance to adopt and inexperience with this concept found only one taker. Several personal experience observations were shared. Among these were that "Students hate video classes" "Students resist using new technologies for work rather than play" and perhaps quite profoundly "Mixed, if the new technology works with absolutely no kinks (seldom) or if I fully understand the technology before using (also seldom because time consuming), students adapt quickly. However, if the technology or my knowledge of it is not almost perfect, students become very easily frustrated." The final implication clearly is that extensive preparation is required before any new technology is introduced.

Question nine is relatively open ended. It asks "What are your recommendations for the use of technology in higher education? Please especially note things that may have been missed in earlier questions." Half of the respondents offered suggestions. Notable ones included "Newer technologies are not a substitute for quality teacher-student

personal interaction. At best, they supplement it; at worst they replace it with an uncaring, impersonal machine that shortchanges the student. Overall, I think most of them are highly overrated." "Should be technology fitting a need rather than a search for a use of the technology" and "I think simulations that allow students to experience real decision making is an important venue." Finally, perhaps one of the most apt comments was "Students are accustomed to technology and expect profs to use it."

CONCLUSIONS

If this review and survey were considered to be a search for the next 1-2-3 it would need to admit that the objective has not yet been realized. However, a number of emerging technologies have been identified, reviewed, and examined to assess their acceptance and use. By their own description the respondents were predisposed to employing newer technologies in their teaching. They expressed highly varied usage of social networking alternatives. Although Google docs received generally higher reported usage in research and teaching it is not clear that respondents all knew what they were addressing. Specifically, Google docs employ much of the functionality of wikis and most respondents claimed only occasional use or no use of wikis. Perhaps, other Google applications were being considered in these responses. Of course the potential for Google docs is substantial and this may simply be an indication of early acceptance. Blogs find the next most frequent use, but even they are not used by the majority of respondents. Wikis have considerable potential for academic applications and are only being explored by a handful of respondents. Although Del.icio.us has considerable potential for directing people to information, only one respondent indicated use of it for research. Finally, YouTube has been employed by several people for its excellent teaching capability.

The dominant information source remains the *Wall Street Journal* online with Yahoo finance being a close second. EDGAR is the other notable location for obtaining information. Usage of the various other sources is sporadic. Surprisingly, RSS feeds to assist with information gathering find modest use among only half of the respondents. The potential and understanding of using this technology needs more time to develop. Blackboard dominates the available course management systems. Most respondents consider it adequate or excellent. WebCT whose future may be in doubt is the only other alternative with much following. Open source system Moodle seems to be missing the market with only two users. The remaining alternatives are either too new or more nearly proprietary.

Text book web sites find few adherents with several disparaging remarks made about their quality. Clearly this is an area wherein publishers need improvement.
Of the pedagogical devices identified notebook computers overwhelm the alternatives. Other items enjoy sporadic and limited applications.

Perception of the impact produced by these technologies indicates a generally positive but not overwhelmingly positive response. Most people think that students learn more with a considerable fraction being neutral on the effect technology has on learning. Similarly most people think technology improves the enthusiasm for material covered. The effect of technology on the ease of teaching is dominantly considered to be neutral with about even numbers feeling it is easier on one hand and not easier on the other. Similar distributions are observed for material retention and performance assessment.

Student reaction to newer technologies is generally perceived to be enthusiastic with a secondary group considering the acceptance to be slow. Several insightful observations were noted about the student reaction with one particularly prescient observation that the professor must know the technology intimately before introducing it to students. Often that is difficult to achieve and any limitation in the professor's knowledge produces highly negative reactions by students.

Finally, it was noted that "Students are accustomed to technology and expect professors to use it." But, technologies should not be considered a substitute for quality teaching. If it is employed professors need understanding to avoid subjecting students to an uncaring, impersonal machine that short changes them.

At this point it seems presumptuous to claim that the next 1-2-3 has been found. It may already exist, but if so, its identity remains elusive. On the other hand several technologies are making inroads to the academic community and are likely to provide substantial gains. Notable among these is the wiki concept and related open source functionality.

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APPENDIX

Technology use in business education

1. How would you classify your approach to technology?		
	Response Percent	Response Count
Strive to find relevant new technologies	20.8%	5
Early adopter of new technologies encountered	20.8%	5
Adopter of proven technologies	54.2%	13
Reluctant adopter of technologies	4.2%	1
Avoid new technologies	0.0%	0

2. What has been your experience with each social networking site listed below?						
	Regular research use	Regular teaching use	Occasional use	Never used	Unaware of this item	Response Count
Blogs	16.7% (4)	4.2% (1)	20.8% (5)	**58.3% (14)**	4.2% (1)	24
Second life	0.0% (0)	0.0% (0)	13.0% (3)	**69.6% (16)**	17.4% (4)	23
Linkedin	0.0% (0)	4.2% (1)	33.3% (8)	**41.7% (10)**	20.8% (5)	24
Del.icio.us	4.2% (1)	0.0% (0)	0.0% (0)	45.8% (11)	**50.0% (12)**	24
MySpace	0.0% (0)	0.0% (0)	33.3% (8)	**62.5% (15)**	4.2% (1)	24
YouTube	0.0% (0)	12.5% (3)	**45.8% (11)**	33.3% (8)	8.3% (2)	24
FaceBook	8.3% (2)	0.0% (0)	41.7% (10)	**50.0% (12)**	0.0% (0)	24
Wikis	8.3% (2)	12.5% (3)	**41.7% (10)**	37.5% (9)	8.3% (2)	24
Google docs	30.4% (7)	17.4% (4)	**34.8% (8)**	17.4% (4)	8.7% (2)	23
Twitter	0.0% (0)	0.0% (0)	4.2% (1)	**62.5% (15)**	33.3% (8)	24

Comments:
Other networking site suggested: Twine
I am a traditional teacher. I consider this one to be frivolous for my classes

3. Which of the following services do you use in your teaching and research?					
	Regularly	**Sometimes**	**Rarely**	**Never**	**Response Count**
Wall Street Journal online	**43.5% (10)**	**43.5% (10)**	8.7% (2)	4.3% (1)	23
Barron's online	17.4% (4)	26.1% (6)	21.7% (5)	**34.8% (8)**	23
EDGAR	26.1% (6)	**43.5% (10)**	0.0% (0)	30.4% (7)	23
Exchange web sites	17.4% (4)	**39.1% (9)**	13.0% (3)	30.4% (7)	23
Motley fool	8.7% (2)	**39.1% (9)**	17.4% (4)	34.8% (8)	23
Yahoo finance	**34.8% (8)**	**34.8% (8)**	13.0% (3)	17.4% (4)	23
RSS feeds	4.3% (1)	26.1% (6)	17.4% (4)	**52.2% (12)**	23

Other service used (please specify)
Bloomberg
msn.moneycentral.com, quicken.com, morngingstar.com, reuters.com, cnbc.com
Abi-inform
Finance lab has multiple data bases
value line , business week, yahoo finance(graphs quotes)
Bloomberg, Reuters, morning star
NYTimes.com
CBS Marketwatch

4. What has been your experience with each of these course management systems?					
	It is excellent	**It is adequate**	**It is poor**	**I have seldom or never used it**	**Response Count**
Blackboard	37.5% (9)	**41.7% (10)**	0.0% (0)	20.8% (5)	24
WebCT	20.8% (5)	16.7% (4)	8.3% (2)	**54.2% (13)**	24
Moodle	4.2% (1)	4.2% (1)	0.0% (0)	**91.7% (22)**	24
Sakai	0.0% (0)	0.0% (0)	0.0% (0)	**100.0% (24)**	24
CourseWork	0.0% (0)	0.0% (0)	0.0% (0)	**100.0% (24)**	24
Angel	0.0% (0)	4.2% (1)	0.0% (0)	**95.8% (23)**	24

Other course management system (please specify)
webtyco
McGraw-Hill Pageout

5. Have you employed the pedagogical aspects of a textbook website?		
	Response Percent	**Response Count**
Yes, I regularly assign these sites	27.3%	6
Yes, I occasionally refer students to these sites	**54.5%**	12
I have examined these web sites but not found any suitable	18.2%	4
I am not familiar with any such web sites	0.0%	0

Please elaborate on your experience

I use my own textbooks which do not use such gimmickry.

This question is vague and I don't understand what you are trying to get at. No time to waste

Whatever additional resource that is helpful I try to use

Most are not very good

6. What has been your pedagogical experience with the following devices?					
	Research use	**Teaching use**	**Personal use**	**Never used**	**Response Count**
Kindle books	0.0% (0)	0.0% (0)	4.2% (1)	**95.8% (23)**	24
Blackberry	8.3% (2)	4.2% (1)	29.2% (7)	**70.8% (17)**	24
Notebook computer	**73.9% (17)**	65.2% (15)	56.5% (13)	13.0% (3)	23
Tablet computer	17.4% (4)	30.4% (7)	30.4% (7)	**56.5% (13)**	23
Mobile phone	12.5% (3)	8.3% (2)	**87.5% (21)**	16.7% (4)	24
Video camera	4.3% (1)	30.4% (7)	**52.2% (12)**	34.8% (8)	23
iPod	0.0% (0)	0.0% (0)	**58.3% (14)**	45.8% (11)	24

7. What is the impact of using newer technologies?								
	Strongly agree	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**	**Not applicable**	**Rating Average**	**Response Count**
Students learn more	16.7% (4)	**37.5% (9)**	33.3% (8)	12.5% (3)	0.0% (0)	0.0% (0)	2.42	24
Enthusiasm for material improves	12.5% (3)	**54.2% (13)**	25.0% (6)	8.3% (2)	0.0% (0)	0.0% (0)	2.29	24
Teaching is easier	16.7% (4)	12.5% (3)	**45.8% (11)**	12.5% (3)	12.5% (3)	0.0% (0)	2.92	24
Material retention improves	12.5% (3)	25.0% (6)	**33.3% (8)**	25.0% (6)	0.0% (0)	4.2% (1)	2.74	24
Performance assessment is better	12.5% (3)	25.0% (6)	**41.7% (10)**	12.5% (3)	0.0% (0)	8.3% (2)	2.59	24

8. What student reaction have you observed to your use of new technologies?		
	Response Percent	**Response Count**
Students readily adapt to new technologies enthusiastically	**41.7%**	10
Students adapt to new technologies slowly	37.5%	9
Students often resent the need to learn new technologies	4.2%	1
I have little experience with introducing new technologies	0.0%	0
My experience with new technologies has been	16.7%	4

My experience with new technologies has been:

it depends on the student

Sometimes new things help. Notebook computer is an essential on my research. I use the notebook to send an e-mail, send a homework problem, etc... I cannot teach some classes with the video facility. Students hate video classes. It is hard to learn with a TV screen. We have no choice because we have distant campuses to cover.

Students resist using new technologies for work rather than play.

Mixed. If the new technology works with absolutely no kinks (seldom) or if I fully understand the technology before using (also seldom because time consuming), students adapt quickly. However, if the technology or my knowledge of it is not almost perfect, students become very easily frustrated.

9. What are your recommendations for the use of technology in higher education? Please especially note things that may have been missed in earlier questions.
Newer technologies are not a substitute for quality teacher-student personal interaction. At best, they supplement it; at worst they replace it with an uncaring, impersonal machine that shortchanges the student. Overall, I think most of them are highly overrated.
Use what one is comfortable with.
Integrate as much web 2.0 as possible
Students are accustomed to technology and expect profs to use it.
In investment, students have no access to financial information on line. It is much easier to look up value line survey manual on line from home rather than from a library. Some students pay money and buy investment analysis from a commercial source. I have to watch students who have money to do so; copy analysts reports and submit them as their own works. I have an investment analysis course to teach. I have to watch closely. Graphics are very good. In old days, we could not use graphs that much. We can access investment info from yahoo finance, cnn finance info, etc...
Formal training for faculty
Should be technology fitting a need rather than a search for a use of the technology.
have more resources readily available!
I think simulations that allow students to experience real decision making is an important venue.
I think simulations are great -- have been using one for the last 15 years, and it just gets better and better.