

Designing Distance Delivery for Finance

Arlyn R. Rubash, Bradley University

Finance professors must learn the functional capabilities of distance delivery technology and understand their use in the emerging new context to benefit fully from the mechanisms available. Programs and courses employing distance delivery now abound. Corporations, universities, colleges and trade schools have joined the bandwagon to benefit from this promising technology. As educators and course developers adopt distance delivery, new mindsets must appear. When technology dramatically changes, the well-understood, long employed existing methodologies suddenly become obsolete. History is replete with examples of people persisting in the use of outdated methodologies. Typically, these anachronisms disappear as better understanding prevails.

INTRODUCTION

One of the greatest revolutions in the history of education is underway. The significance of this revolution remains to be seen. A common joke among educators for years began with the question, "If a person were to fall asleep in the middle ages and remain asleep for hundreds of years until the present, what profession if any would he still be able to practice?" The answer of course was he should best have been a professor; he could then take his chalk and a board and continue educating people with exactly the same techniques employed in his earlier life. Few other, if any, professions in the modern world persisted with the same tools for so long. The educational revolution is now changing the answer to that question. Presently we are so close to the revolution that we experience difficulty separating the forest from the trees. In his prefatory comments to *the Prince* Machiavelli explains to Lorenzo the Magnificent the credentials that he, Machiavelli, possesses for advising a ruler.¹ Machiavelli notes that when an artist paints a mountain, he descends into the plane below it and when he paints a valley he ascends a nearby hill. Only then can the artist fully see his objective. Thus Machiavelli, a commoner, is well positioned to advise a ruler because he has a full view of the ruler's position. We are now in the midst of this educational revolution so it may take a long time before we reach a vantage point from which we can see everything that is happening.

This paper deals with a number of practices that it lumps under the term "distance delivery." In fact an extensive assortment of names has emerged to describe practices covered here. Names such as computer aided delivery, Internet delivery, CD delivery, interactive teaching, Blackboard system use, multi-media courses and others are common. Rather than differentiating among these practices I attempt to address the grand strategy of educating students with newer technological developments. The focus then is on practices that can and do bridge gaps between distinctly different techniques.

A number of potential objectives could be set forth in designing distance delivery courses. Likely objectives include saving money, extending offerings, remaining competitive, reducing effort, introducing creativity and improving quality. All of these potential objectives

have considerable merit. However, the scope of this paper is largely limited to the objectives of introducing creativity and improving quality.

The industrial revolution was an earlier era of rapid and dramatic changes. Elements from the past persisted in that revolution until suitable replacements were found. The builders of the world's first iron bridge across the Severn Gorge in Shropshire, England constructed it in 1779 with the technology previously employed for building wooden bridges. Many segments are joined with slots and pegs reminiscent of the devices woodworkers might use in their craft. Their choice of iron as a building material stemmed from the overabundance of iron and the absence of wood in the bridge's immediate vicinity. The technology employed in the construction was that previously developed for wooden bridge construction. Constructing this iron bridge was a seminal event in the industrial revolution. It took years before the technological advantages of this new material, iron, were appropriately integrated into bridge construction. Even Stonehenge, the mysterious circle in England, shows that the builders were skilled craftsmen already comfortable in working with an earlier material, wood. The adjacent sides of vertical stones appear to have been tongue and grooved. The lintels were held in place by simple mortise tenoned joints, just as you would expect for wooden joints. As technology of building with stones progressed new methodologies such as mortar joints were developed and adopted to accomplish these functions in better ways

Impediments to the adoption of new technologies are not limited to antiquity. Recent examples include such things as the automated delivery of banking services. "The first ATM was located inside a bank and was available only during banking hours. Bankers viewed this technological innovation as an automated teller. Real innovation did not occur until ATMs were placed outside banks and in malls, grocery stores, and airports, available twenty-four hours a day."² In relatively few years a dramatic adaptation of this technology has emerged. The design and installation of ATMs continue to evolve as thieves creatively develop new ways to rob them.

We can reasonably expect that early adopters of distance delivery will be inclined to employ the same technology used in previous traditional applications. We may be effectively "joining segments with slots and pegs." For example, a simple device such as hypertext inclusions is often absent from material delivered electronically. That is a relatively simple technological device possible with electronic text that is impossible with printed text. On the other hand perhaps even the mechanics of including hypertext into documents as done today persists from our precedent of text delivery in books and other printed media. Despite the incredible speed of transition into the new electronic age, it remains difficult to project what the most suitable applications will be. Perhaps the appropriate assortment of technology remains to be developed.

Those developing distance delivery classes soon must navigate an important crossroads opening avenues to great opportunities. The newness of the technology has accommodated meager expectations among practitioners to date. Russell identified an enormous number of studies dealing with distance delivery that show such courses merely seeking to be as good as traditional classes.³ Clearly for the true benefits of distance delivery to be realized, designers need to move beyond that level. Many newly available functional capabilities must be incorporated into the distance delivery mechanism.

One beneficial aspect of distance delivery is that it can better accommodate individuality. In a traditional classroom setting, a professor is constrained to focusing on the typical or average student. Thus students differing from the norm are slighted in one way or another. Either the class is pitched too high for them and they are lost, or they are bored by trivia that they already

understand. With a well designed distance delivery course, each participant can select his or her pace and direct attention to satisfy individual needs. In the future more attention must be directed toward achieving higher goals. Courses delivered at a distance need to excel beyond those delivered in traditional forms. Twigg⁴ addresses this issue of moving beyond the modest goal of achieving "no significant difference" with distance delivery.

The complexity of education makes studying distance delivery a challenge. Simplistic analyses of changes typically strive to observe system changes on a *ceteris paribus* basis. In reality the notion of holding all other parameters constant while changing one to observe its isolated effect is generally unrealistic and inappropriate. The suitable approach is to make adjustments *mutatis mutandis*. That is "with appropriate adjustments made." Use of this approach allows for the effect of changing each variable to be examined with all other variables adjusted to its new optimum level accommodating the change in the target variable. In simplistic systems *mutatis mutandis* may be achievable. In real educational systems its achievement may be impractical. An alternate heuristic of arbitrary adjustments may allow the approach of suitable adjustments. That approach is followed in this study.

AUDIENCE

Distance delivery class members encompass virtually all educational audiences. Full time students can readily adapt to this approach. Working students find distance delivery exceptionally beneficial. They are able to participate at varied times and locations of their choosing when the material is available in an asynchronous fashion. Students who are traveling for work or play can also take advantage of the flexibility available through distance delivery. Handicapped students who face exceptional challenges in reaching classes on a schedule at fixed locations benefit greatly from the flexibility of obtaining material through distance delivery. Even students with physical location constraints can benefit from the widespread availability of Internet access. Courses originating from far away locations can be accessed and taken virtually anywhere in the world. A final audience for whom distance delivery of classes is beneficial consists of remedial students. Often people need some body of knowledge to prepare people for a greater experience. Notably, people without undergraduate business education often take graduate business courses. To prepare them for graduate study in a new field some remedial coverage is important. Accelerated courses serve for this purpose. Distance delivery works particularly well for such needs.

Another area of finance presents unusual problems for educators. High-level officers and board members often need to understand the character of risk management with derivative instruments. Often these senior people have little quantitative experience with using derivatives. Consequently, they rely inordinately upon the skills of other, often junior officers. Developing the necessary high-level skill in this area thus presents an awkward challenge. Generally, the people knowledgeable in the field are considerably younger than these executives are. Thus, it is often difficult for such managers to seek education from these younger people. The use of distance delivery allows senior managers to gain adequate proficiency in this area of growing importance without being embarrassed about certain limitations in their backgrounds. There have been instances wherein organizations have lost considerable sums due to such ignorance. Some even found themselves mired in bankruptcy because managers failed to understand derivatives. Perhaps if the officers at Barings Bank had developed a better understanding of derivatives, they might have exercised better control.

CONTENT

The historic course content development approach has been for a professor to review the topic and select a body of knowledge that a student should master. The professor assembles the body of knowledge into a logical sequence and presents it to students through text and article reading, lectures, case studies, problems to solve, video clips and other means such as opportunities for student research. All course participants proceed through the content in the same sequence and at the same pace. Periodic assessments throughout this procedure evaluate progress. Presumably, at the termination of the course all continuing participants obtain a final assessment of their work. The potential for improving on this paradigm through distance delivery is great. An initial assessment should be able to identify individual strengths and weaknesses in a topical area. Then individually direct students toward suitable tasks for their own needs. Strong areas can be slighted and weak areas emphasized. Ultimately, it might be possible to guide each student through a body of knowledge to a suitable level of understanding. By stressing individual needs all course participants can be elevated to a satisfactory level. Efficiency is gained by eliminating time historically spent dealing with material that is already understood.

The preliminary assessment can also identify the student's learning style. Afterward select the structure of presentations and material most suited to that student to enhance his or her individual experience.

Reading

The time-honored approach to learning has been reading. Traditional textbooks can accompany a distance delivery class just as they do ordinary classes. Additionally, as screen displays improve it becomes more practicable to read text displayed on a computer screen. Although it is not an integral part of distance delivery, hypertext incorporated into electronically delivered material enhances its usefulness. The functional capability of finding greater topical depth on a subject through an Internet connection can enhance reading, but caution is necessary to prevent this practice from becoming a distraction.

Lectures

Second only to reading for imparting new knowledge is the lecture. During the era before books and printed material were readily available, certain individuals lectured to groups of others about the content of a diverse assortment of books. The modern lecture simply offers another dimension to the presentation of material. In addition to the punctuation and diacritics employed to convey meaning around words in text, a lecture includes volume adjustments, timing, tone, emphasis and various other enhancements to restructure and shape that meaning. An excellent lecture can convey substantial amounts of meaning that would be difficult if possible through reading.

Problem Solving

Certain disciplines, including finance, involve a considerable fraction of quantitative problem solving. The range of complexity extends from extremely simple to highly complicated

procedures. Frequently final answers are relatively simplistic. Preliminary steps may include addition, subtraction, multiplication, division, exponentiation and operations that are more sophisticated. However, that final answer is often a mere number. Miniscule rounding differences in answers confound automation of the evaluation process. The need for precision in automated pattern recognition makes identifying correct quantitative answers difficult. A simple resolution is to structure the question in multiple-choice format. Incorrect answers are more readily apparent to the student when his or her answer does not match a listed alternative. Including "none of the above" as an option, helps alleviate this problem. However, this option can be counterproductive to the learning process by diverting students from returning to the problem to find a correct solution among alternatives. Another resolution is to calculate the result reached according to as many of the mistaken procedures as possible. If all of the answers reached by erroneous sequences are included as alternatives, the student error is apparent to the system before it is apparent to the student. By including explanations of what error would cause a user to reach a particular wrong answer, you can guide the student to a better understanding of the concept.

In numerous disciplines besides finance, the ability to solve problems is crucial. Contrive distance delivery experiences to foster that skill. Perhaps the major way to accomplish that purpose is to provide practice at the task. Well-designed problems can be delivered to students by distance as readily as through a traditional class. Case studies are often used in traditional classes with problem solving components. Often cases involve group work and in class presentations. Adapting case studies to distance delivery can be challenging. In particular, an asynchronous course structure does not presently lend itself to such presentations. Video clips and other multimedia devices may prove useful in these applications. Perhaps this is a fertile area for great enhancements.

Research

Research opportunities have changed dramatically with today's pervasive use of the Internet. Relatively few years ago, there was a great scarcity of available information. Students doing research had to spend considerable time in the library finding and ordering sources of information. Typically, there was a delay of days or weeks before receiving the information. The replacement for that paradigm is a plethora of information at the student researcher's fingertips. Rather than struggling to locate useful information in a wilderness, today's student receives vast quantities of information that flood his or her computer and need to be analyzed and organized. Now the student's greatest problem is separating the "wheat from the chaff." Furthermore, considerable material that may be relevant to a research project is not electronically available on the Internet. Students must be encouraged to employ the older traditional searches to capture such material. Eventually, all useful material may be encoded and accessible electronically, but meanwhile, the search task is complicated.

SUSTAINING INTEREST

A feature of education that persists from the earliest traditional classes to the latest distance delivered courses is the need to keep participants interested and involved. In traditional courses, three basic steps are involved. First, encouraging students to prepare for class, then to attend class and third, encouraging full attention during attendance. Various ruses such as giving

credit for homework, attendance or penalties for absences address the first two of these problems. Professors delivering material in a manner that stimulates participants addresses the third. Interposing the Internet between student and professor produces new challenges. Students taking a distance delivered course find attendance easier as they are able to attend at their leisure. Delivering instructional materials asynchronously by Internet eliminates timing and location problems. The immediate feedback a professor obtains from blank stares or quizzical looks on student faces is missing with asynchronous delivery. To replace these missing elements a distance delivered course needs to contain a stimulating design and some explicit feedback mechanism. In many instances, students who would be reluctant to ask a question in class find the anonymity of communicating with instructors by e-mail a preferred alternative to class discussion. Perhaps this phenomenon will help lead to a large class of well educated introverts. Alternately, these students may develop more confidence and become assertive.

RIGOR

An underappreciated and confusing dimension of education is rigor. Few people would argue that rigor is inappropriate in education. However, it is important to examine the precise meaning of rigor. One must look to the fourth definition of rigor offered by Merriam-Webster⁵ to find a suitable definition as "exactness." As such it is taken to mean "...strict, particular, and complete accordance with fact or a standard." Furthermore, it is "marked by thorough consideration or minute measurement of small factual details." A synonym offered for "exact" is "correct." Insuring that students achieve a correct understanding of details and an ability to use that understanding effectively is inarguably a worthy educational outcome to seek. Alternate rigor definitions include, "harsh inflexibility in opinion, temper, or judgment", "the quality of being unyielding or inflexible" and "an act or instance of strictness, severity, or cruelty." A desirable feature of distance delivery is making it understandable and correct rather than making it inflexible, unyielding, strict and cruel. You should not interpret rigor as meaning difficult. Rather one should strive to achieve exactness and precision with ease. Although difficult topics may not readily fit into easy steps, creativity on the part of course developers may help in designing techniques to achieve the result.

ASSESSMENT

The immediate outcome for completing any course whether it be online or traditional is an evaluation of the results. Assessment can be as simple as discriminating between passing and failing or it may involve graduated steps showing letter or numeric grades. Two important dimensions of this evaluation are its reliability and validity. The reliability of the assessment relates to its consistency with other similar assessments of the same content. A highly reliable assessment is one that closely matches equivalent assessments from other devices. Obviously, an assessment that has low reliability provides an erratic outcome that fails to inspire confidence. The validity of an assessment relates to its ability to measure the understanding possessed about the topic. Those with sound understanding of a topic should score highly on an assessment and those with poor topical understanding should score lowly on that assessment if it has high validity.

Assessment challenges are not new to material delivered at a distance. Professors have been guilty of the same problem for ages. Students commonly identify certain professors as

"easy graders." They know other professors as "hard graders." There is a logic encouraging students into classes of either sort. The easy grader provides a stamp of approval with little work. The hard grader provides a greater challenge to master the material. The third kind of professor is a "random grader." The random grading professor is the most dangerous kind. A random grader is unable or unwilling to distinguish between good and poor quality. Often good students who submit excellent work endure poor grades and poor students who submit nonsense enjoy good grades. Any person who has served as a department chair or was responsible to review student grades for graduation or similar needs should be able to identify which professors fall into each category. Hard graders consistently evaluate students with proportionately lower grades, easy graders consistently evaluate students with proportionately higher grades and random graders commonly assign low grades to students who consistently perform with excellence in other courses while assigning high grades to students who consistently perform poorly in other courses. Unfortunately, few if any administrators formally evaluate the reliability and validity of professors. Random graders are naively taken to be "giant killers" when they assign low grades to good performance and "benefactors" when they assign high grades to poor performance.

Aligning the assessment with quality of results has one additional challenge. Certain students develop greater rapport with professors than do others. Some of this distinction is natural and some of it is purposefully created. When a student overtly acts to create this rapport the process is called "brown nosing." Professors who fall victim to brown nosing become random graders with respect to aligning quality of work with assigned grades. It is more difficult to recognize this form of random grading since students will likely apply the same techniques to all professors and may achieve some consistency of success.

Tests

Instructors can administer virtually any type of written test possible on paper by distance delivery. True false, multiple choice, multiple answer, ordering, short answer, and essay questions all fit into the structure offered by system vendors. True false and multiple choice questions are easy to score mechanically. Multiple answer and ordering questions are slightly less amenable to machine scoring. Short answer questions of one or two words or numbers can be scored mechanically, but the challenge is great due to spelling, spacing and case differences that are trivial to meaning but challenges to machine recognition. Humans can easily recognize that answers such as one, 1, 1.0 and 1. are all the same. Unfortunately, machines require considerable coding to equate these responses. Essay questions remain beyond the scope of machine grading. However, due to pattern recognition technology it is possible to check essays for casual errors such as spelling and grammatical infractions. Some later comments on copying or plagiarism address related situations.

Research, Reports and essays

More extensive course assessments often include researching a topic and a written report on the results. Sometimes reports and essays are based on less elaborate sources. Regardless, their assessment exceeds the present technology of automated assessment. Spelling, grammatical and style problems can be detected, but in-depth assessments require human intervention. Some mechanisms are available to detect problems such as plagiarism as discussed

below. Perhaps the greatest benefit available for reports through the distance delivery of courses is the ability new software provides to add "post it notes" or audio comments directly into relevant sections of a paper. This mechanism gives professors even greater flexibility than does writing comments on paper.

INTEGRITY

Problems associated with cheating date to antiquity. Distance delivered courses introduce new and interesting opportunities for creative students to cheat. The presumption in any educational system is that students gain and demonstrate new knowledge appropriately. Mechanisms for cheating by students studying material by distance need to be examined within the context of previously existing situations. Techniques for cheating include prior knowledge of assessments, inappropriate collaboration and breaking into delivery systems.

Obtaining advance copies of exam questions

Although many professors continually wonder how students miss exam questions that they carefully explained in class, there remains some benefit in not making exams available in advance. Certain kinds of exams are susceptible to corruption through advanced knowledge. In particular, simple fact based questions often presented as multiple choice, true-false or short answer questions discriminate successfully between knowledgeable people and those lacking the knowledge if the specific questions are unknown in advance.

Detecting that students possess advance copies of exam questions is not always easy. Normally good professors teaching a traditional class interact with students adequately to assess their ability without exams. Aberrations between exam results and perceived ability are readily apparent. Unfortunately, the symptom may be clear, but resolution remains elusive. It is impractical and inappropriate to substitute a subjective assessment for a flawed objective one. Consequently, awareness of advance question knowledge merely implies the need for some future precautions. Repetition of the same questions used on earlier exams can lead to students having inappropriate advance knowledge. When a professor repeats a course, he or she often finds that previously used questions remain suitable for reuse. Professors use various devices to cope with students anticipating this opportunity. Instead of returning exams to students for their permanent retention, the exams can be re-collected and destroyed. Of course, students circumvent this procedure during the exam's review by surreptitiously taking part of the exam or hand copying questions for their friend's later use. The old joke about the economics professor who was visited by an aging former student during an exam illustrates this point. The former student picks up a copy of the exam and exclaims, "Oh my, these are the same questions you asked when I took this course!" The professor calmly replies that it is no problem because "I have changed all of the answers." In fact with distance delivery techniques the answers can be changed in subtle ways that foil attempts to use such prior knowledge. Another approach to foiling exam question copying in distance delivered courses is to insert code that prevents easy printing and copying pages. David Carter-Tod⁶ devised the following insert to accomplish this task. Simply enter the following HTML code on a page:

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<script language="Javascript"  
src="http://www.wcc.vccs.edu/services/Blackboard/nocopy.js"></script>
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Although the technique is not foolproof, it makes the process adequately difficult for the average student to transmit previously used questions.

A more blatant situation exists when the advance knowledge is widely shared. A professor who finds the overwhelming majority of students performing with outstanding precision is well advised to become suspicious. An indicator of this problem is an aberration wherein a handful of perceived good students perform to a mediocre level while the others including poor students achieve near perfection.

Inappropriate collaboration

Although collaboration is often highly beneficial and encouraged, there are times when it is inappropriate. Reynolds reports an instance of cheating wherein 25% of class members were identified to have inappropriately collaborated. Distance delivery exacerbates this problem. Using a personal assistant during quiz taking may be easier with distance delivery due to the privacy available. The well-known case of Ted Kennedy sending a skilled Spanish speaker to take a Spanish exam for him is an early example of this kind of cheating.⁷ This incident occurred half a century ago. In Kennedy's attempt to pass this course the cheating was thwarted by an observant exam proctor who recognized the imposter. After recognizing the person who was obviously taking the exam for somebody else, the proctor waited for him to submit the exam and identified the cheater by the name listed on the exam. It is likely, but obviously undocumented, that numerous similar instances went without detection. With unsupervised distance delivery exams, it is possible for two or more students to combine secretly their efforts in taking exams with little fear of detection by alert proctors.

Simple answers for paper exam questions in traditional classes can be copied with ease. Students sitting within eyeshot of each other can observe answers entered on other people's exams and duplicate them on their own exams. Historically traditional exams have been monitored in some way. A watchful proctor with widely spaced students helps to reduce the copying possibility. With distance delivery, students have the opportunity to join forces outside the watchful eye of a proctor. Having geographically dispersed students reduces this problem somewhat, but communication devices still allow for deception.

Breaking into systems

Computer systems connected to the Internet have long been recognized as vulnerable. Consequently, it is inevitable that distance delivery courses that depend upon the Internet for their very existence are susceptible to tampering. The number of people adequately skilled to break into these systems is very limited. Unfortunately, this handful of people has the capability of inappropriately benefiting and readily sharing the fruits of their work widely and quickly. Thereby one individual can corrupt an entire course.

The notion of breaking into the system is not entirely new with distance delivery. Students long ago broke into locked offices. Years ago the author taught a relatively small class and observed one of the students performing more poorly on an exam than expected from his classroom performance. The experience occurred when exams were graded by hand and results were recorded by hand writing with a ballpoint pen into an old-fashioned green grade book. Specifically, the student earned merely 60 out of 100 points on an exam. That was barely enough for a D. Upon recording the next exam, it was noticed that this student's grade now

showed 80 out of 100 points. Miraculously the student was now earning a grade of B. Careful study of the page revealed that the 8 was superimposed over a 6 and that the pen used was a felt tip style lying in the desk drawer near the grade book. It was modestly different from the original pen. Consequently, the portion of the line added in changing the 6 to an 8 did not produce the same indentation in the paper that the ballpoint pen's tip had for the 6. Upon reporting the finding to the dean's office, the response was as any professor might expect. He asserted recriminations about locking doors when professors go home. Knowledge that the door had been religiously locked encouraged careful study to understand what happened. I found that faculty office door ventilators were incorrectly installed. They were fastened from the outside. Thus, they could be popped off the door from the outside with the simple twist of a screwdriver. It was then easy to reach inside to the door knob and open the locked door. Other professors teaching classes with the same student enrolled were contacted and their grade books showed evidence of tampering. Furthermore, it was obvious that ventilators for these offices had also been removed and replaced. Although the evidence was overwhelming, it was all circumstantial. To resolve the problem, some traps were set. One professor left multiple choice exams scheduled for the next day on top of his desk in full view. A hair was taped to the vent to see if it was removed. As expected, the next day the vent clearly had been opened and one exam was missing from the stack. However, the actual exam the student received later that day had been hidden so the one he was handed contained a different set of questions from the exam left on the desktop. For amusement, the professor watched the guilty party. He started rapidly entering answers by filling in the blanks. However, when he reached a question that his previous knowledge told him had option F as the correct answer and on that exam the options only went through D, he became befuddled. His exam performance in that instance was extraordinarily bad. Final resolution of the problem occurred when a campus police officer was assigned to sit in the office of a professor overnight just before an exam the identified student was to take. The police officer arrived at the office ready to take his place, but the student was already inside searching. After attacking the police officer with his screwdriver, the student was escorted to jail with more problems than simply stealing exam questions. In summary breaking into a computer system is not conceptually new.

Plagiarism

Plagiarists have long abused reports and essays. Most universities have severe penalties for plagiarism. Identifying such cheating is often easier than students suspect. After a brief experience in teaching, most people learn to recognize various forms of cheating including plagiarism. Detection has taken a dramatic turn with the emergence of distance delivery and reports delivered in machine-readable format. The ease of plagiarism is greater today due to the Internet. It is now easier to detect plagiarism with the tools employed. Plagiarism is typically defined as passing off the words or ideas of another as one's own without crediting the true source. Historically, professors reading reports needed to recognize some pattern to detect plagiarism. Some prior awareness of another document was needed.

Mechanisms for detecting plagiarism range from the receipt of reports that demonstrably exceed the ability of certain students to brute force reviews of all potential submissions. After suspecting the pattern of plagiarism, the original source needs to be identified. A common approach used by professors has been to retrieve the cited sources. Plagiarists are often naïve enough to include a reference to the source they copied. After all, it is one of the best sources

they found. Modestly insightful professors can usually select the handful of potential sources from the bibliography and review copies to confirm the plagiarism.

In a distance delivery, class reports are logically transmitted to the professor in electronic form. This technique opens new doors. Electronically submitted reports can use those same electronics for problem detection. One simple approach is to retain copies of previously submitted reports for comparisons. This provides a limited database and still depends on the professor's ability to recognize repeated patterns manually. This approach is useful when the same or similar assignments are given in subsequent semesters.

Several commercially available products can be employed. For example, mydropbox.com⁸ allows professors to submit papers electronically to compare contents with their data bank to detect copied work. More subtle approaches are also available. Popular word processing programs such as Microsoft Word attach considerable amounts of hidden information to document files. Some of this can readily be retrieved by looking at the documents properties. The properties option under the file menu allows one to see the author, date of initial creation, date of modification and other details about a file. Simply mousing over the name of a pc file with Windows Explorer pops up a message showing the author, title and modification date among other things. All of this information is embedded within the file using html code. Within the word processor itself, the html code affects the display, but is not readily revealed directly. However, these files can be opened with other software for editing html such as Dreamweaver and the direct contents are then obvious. For this to be useful, an instructor needs to be modestly fluent in html coding.

Another handy technique for detecting plagiarism is to subject part of the submitted report to a search engine. For example, simply copy the first sentence into the search bar of Google⁹ and the original electronically plagiarized source appears. Placing the submitted item in quotation marks helps to omit extraneous hits.

SCHEDULE

A continuing controversy deals with alternate schedule structures. Synchronous course delivery requires simultaneous involvement of students and instructors. Conversely, asynchronous delivery allows interspersed but non-simultaneous interactions between students and instructors. The balance selected between these notions impacts delivery of course material. Synchronous delivery is much more confining and limiting.

Open Schedules

The use of asynchronous delivery allows for scheduling flexibility. Students work at any convenient time. The pace can be rapid or slow. Some tasks such as quizzes can be restricted to completion within a limited amount of time. Students repeat complicated tasks as often as needed until mastering the material. At most, an absolute deadline for completion might be specified. However, even this deadline might be flexible.

Fixed intervals and deadlines

The other scheduling extreme is to provide explicit deadlines and limits for access and use of certain items. The instructor can provide material during scheduled online meetings that

allow for immediate interaction. Exams scheduled to appear and disappear at precise times can be taken only during a limited interval. Such limited intervals are useful to inhibit cheating. Forcing everybody enrolled in a course to complete an exam during a tightly constrained time reduces the opportunity for several students to join forces and collaborate. Each student must work on his or her own task and is unable to devote time to helping others.

Blend

A compromise between open and fixed schedules often serves the distance delivery instructor well. To complete a course within typical periods such as semesters, quarters or summer sessions some deadlines are necessary. Furthermore, the learning process often builds through a logical sequence of material that is best absorbed sequentially. Thus, not only must final exams and projects have deadlines, preliminary exams and reports might have earlier deadlines. The greatest benefit of this approach is that it allows students to work ahead when they anticipate conflicts, but periodic deadlines force the discipline of continuing progress on students.

CREATIVE APPLICATIONS

Any number of creative ideas is possible with distance delivery. An opportunity described here involves delivering a summer course with a combination of distance components, traditional components and professional visits. Specifically, an international financial management course included a mixture of these elements. General questions from the assigned text are loaded into Blackboard at home, and then students take preliminary quizzes from the US - online at any Internet accessible location. Often students take these quizzes from their homes after completing the spring semester and returning home. The class then meets in London for lectures, discussions and visits to major financial institutions. Students submit written reports through the digital drop box on Blackboard and take a final supervised exam in a convenient Internet café. Everything is graded and returned to them with "post-it" type notes on their reports to clarify grading. Most of the course is delivered in London while sustaining a connection to the computer on our home campus.

OUTLOOK

Finance education is time consuming, costly and often ineffective. Educators must take advantage of the latest methodologies and equipment to keep finance education moving toward the level of proficiency that its importance justifies. This paper describes a variety of experiences and observations that derive from survey information, traditional assessments and interviews. A number of suggestions help educators take advantage of existing functional capabilities. Technology still needs to advance in controlling the course delivery. Rather than having students presented with "one size fits all" course structures, the system needs to be adaptive to individual needs. This approach is impractical if not impossible with traditional delivery techniques, but quite amenable to distance delivery technology. When a student excels on an assessment, the system needs to pass him or her along to the next suitable level. Conversely, when a student fails at some task, the system needs to redirect his or her experience into suitable remedial material. Furthermore, that redirection into remedial material should not

simply move the student to a lower level; rather the student's specific difficulty needs remediation. Perhaps the MBA introductory course is the first and most important area for the immediate use of distance delivery in finance. It is likely that the future will hold new and better opportunities.

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