新穎資訊的網站，致使資料庫的使用不如預期的好。

建議將來新購資料庫時能就資料庫的主題、涵蓋範圍（地域、時間）、語文、更新頻率、使用者介面等深入、詳實評鑑，並徵求館員與讀者的意見，以便選擇最符合讀者需求的資料庫。以本計畫所購買的資料庫為主，對共享單位館員及讀者進行需求與使用滿意調查研究，分析及探討城鄉館員與讀者需
求等差異情形，以供將來規畫建置公共圖書館共用電子館藏之參考，並加強現有資料庫之推廣使用，使資料庫發揮使用效益。

四、24 小時便民服務

透過WWW的應用，24小時的便民服務已相當普遍，圖書館界也常以「有限空間，無限館藏」期許「24小時不歇業」服務。目前多數資料庫廠商為保護自身的權益，採用鎖定IP Address方式授權使用，因此讀者無法從家裡或辦公室連結使用，必需到授權圖書館才能使用，僅就大學生院校圖書館、專門圖書館或學校圖書館的讀者而言，可能影響不大，但對公共圖書館的讀者而言卻相當不方便。本計畫資料庫全部以鎖定IP Address的方式，當網路壅塞、設備不足或不良時，讀者的質疑與抱怨，是常常可以聽見的，但若不採用鎖定IP的方式，就管理上仍有許多待克服的問題。

建議館員面對讀者抱怨時能同理其挫折心情，並婉轉說明目前館方提供服務現況，積極改善圖書館內的網路環境與電腦設備的質與量。各共享單位廣設電信路徑，並與資料庫廠商、相關單位點對點直接連接服務（PPP）讓民眾從家裡或辦公室可直接查詢資料庫，或經由中央主管機關或國家圖書館統一購買全國版使用權，開放全國民眾使用。

五、館員資訊素養

資訊科技帶給圖書館嶄新的機會，但也使圖書館面臨挑戰，讀者的需求及期望不斷擴增，對圖書館員的資訊技能的要求也不断增加，所以館員的素質及資訊素養是新世紀圖書館服務的一大挑戰。由於資訊網路環境不佳與設備不足及人員異動頻繁，縣市文化局（中心）及鄉鎮圖書館人員普遍缺乏資訊素養，這對於推動圖書館資訊化服務有很大的影響，因此各共享單位如何充實人力及提高館員的素質是亟待面對與突破的問題。
建議針對現有共用資料庫，編製訓練教材，不斷反覆強化共用單位人員之利用教育訓練，使熟悉各資料庫的內容、检索方式，以及電腦相關設備之操作與故障排除，並能實際應用。配合公共圖書館人員資訊素養整體之提升，宜系統化規畫相關訓練課程，合作編製訓練教材，採全國、區域及個別圖書館等分層及分階段方式辦理，除了訓練館員圖書資訊方面的專業知能外，也應培養館員如何將資訊尋求六大步驟 (Big Six) 技能融入讀者利用課程中，使讀者不僅具備傳統素養、電腦素養及網路素養外，更讓讀者具備「學習如何學習」的資訊素養。

六、讀者推廣與利用

由於資訊素養及終身學習的重要性不斷提升，更凸顯公共圖書館為民衆終身學習的資源中心與教學中心的角色。公共圖書館服務的讀者最廣泛，但讀者中缺乏資訊素養的也是佔最多數。根據一項研究調查結果顯示，鄉鎮圖書館的使用者在使用網際網路的經驗上，明顯的比文化中心圖書館的使用者來得少，又，民衆最不常利用圖書館的服務項目是使用光碟網路以及向館員請教如何使用圖書館 [註 8]，除顯示城鄉差距外，更顯示讀者對圖書館的了解不夠，以及對資訊系統需更多的訓練與學習，因此共用資料庫的推廣使用，主動提供讀者學習的機會便應優先予以重視。

建議針對現有共用資料庫，加強宣導民衆利用；合作編印操作手冊/讀者使用手冊，提供各单位辦理推廣利用研習用之教材及資源；製作網路遠距教學課程，供民衆自學用；由統籌單位及個別共享單位長期進行全國性及地區性之讀者利用共用資料庫或資訊系統之滿意度與意見調查研究，以做為公共圖書館規畫電子圖書館、資訊服務、讀者利用推廣、資訊設備配置等參考。

七、持續經費，永續服務

本共用資料庫計畫經費是來自教育部，補助年度是88年度，由國立台中圖書館承辦，資料庫使用期限自88年7月至89年12月，以鎖定IP授權使用資料庫，例如國家考試題庫、美加大學及研究所名錄、即時報紙標題索引及影像系統、卓越商情資料庫等，凡89年1月以前連結使用的單位已不獲授權使用期滿。即時報紙標題索引及影像系統由教育部再補助經費，由國立中央圖書館臺灣分館購買90年1月至12月使用權，可繼續提供讀者查詢及更新資料，其餘資料庫仍可繼續使用，但資料不再更新；中華民國期刊論文索引影像系統有儲值金額授權，仍有餘額，故仍可繼續提供使用。

89年度教育部再補助經費辦理，由國立中央圖書館臺灣分館承辦，資料庫使用期限自89年1月至90年12月。教育部對公共圖書館的支持，給予公共圖書館從業同仁莫大的鼓勵，但我們期望這項公共圖書館首創的合作共享業務不是二三年的試辦計畫，而是能持續獲得經費永續經營的事業，為讀者提供永續服務。

建議中央主管機關教育部及行政院文化建設委員會能延續對公共圖書館的支持，編列預算或撥補經費，持續這項業務。89年度補助經費則由國立中央圖書館臺灣分館承辦，顯示共用資料庫的推展可以合作分工辦理，對公共圖書館來說是首次經驗，真正邁開全面合作的第一步，因此，建議協調建立合作分工的運作模式，奠定良好基礎，並以此模式開創其他進深之合作業務，例如合作電子資源館藏發展、合作參考資訊服務等，務使公共圖書館的發展與二十一世紀同步齊飛。

伍、結語

共用資料庫的推展讓臺灣公共圖書館界邁入一新的服務里程—大規模合作與共享，雖然是首次經驗，且略帶實驗性質，還有許多待改進、修正之處，但意義非凡。我們將繼續就現有共用資料庫加強推廣利用，更期待此次計畫能成為公共圖書館合作共享的基礎與建立合作的模式，藉此能發展其他合作共享的業務，讓臺灣公共圖書館的服務煥然一新。

合作豐富了現有的資源，也提高服務效率與品質，但合作仍需付出代價，我們感謝主管機關及圖書資訊學界的學者專家們這些年來的支持與指導，上山下海，陪著我們努力開疆、灌溉公共圖書館這片園地，而公共圖書館界的同道伙伴們的付出也逐漸展現成果，期盼我們仍執著於對公共圖書館的一份關懷與熱情，大家一起工作，一起學習，一起成長！
附註

[1]「臺灣省公共圖書館資訊網路輔導諮詢委員會」於民國八十四年十二月由前臺灣省政府教育廳組織成立，八十六年五月業務移撥臺灣省政府文化處，十八年七月文化部改隸文建會中部辦公室，委員會易名為「公共圖書館資訊網路輔導諮詢委員會」。


[3]臺灣省二十一縣市立文化中心因組織調整，自八十一年起陸續改隸各縣市政府文化局或獨立成爲縣市文化局，遂更名爲縣市政府文化局或縣市文化局，但部分縣市仍維原來名稱，例如基隆市立文化中心、台中縣立文化中心、台南市立圖書館，新竹市立文化中心改隸新城市立圖書館，隸屬新城市文化局。

[4]「臺灣省公共圖書館自動化及資訊網路規劃要點」，《臺灣省公共圖書館發展》，臺灣省政府文化處，頁46-49。

[5]程良雄等(民88)，《公共圖書館資訊需求與資訊尋求行之研究報告》，南投縣：臺灣省政府文化處，頁46-49。

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THE VIRTUAL CORE: DISTANCE LEARNING, BROOKLYN STYLE

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【Abstract】

Educators nation-wide are experimenting with the use of technology to enhance undergraduates' academic success. Brooklyn College, part of the City University of New York (CUNY), has developed a sequence of general education courses that join one-half class time with one-half Web-based instruction—a fresh, inventive model that gives students the best aspects of both the traditional and the online educational experience. As a result, Brooklyn's core curriculum has become more inviting, effective, and activity-based. The grant that supported this project was written by Dr. Barbra Buckner Higginbotham, Chief Librarian and Executive Director of Academic Information Technologies, and this major faculty training and development effort is occurring under the aegis of the Library.

THE VIRTUAL CORE: DISTANCE LEARNING, BROOKLYN STYLE

Educators nation-wide are experimenting with the use of technology to enhance undergraduates' academic success. At Brooklyn College, we are creating an imaginative hybrid approach that addresses the issues far more effectively than using technology as either (1) a simple add-on, or (2) a radical replacement, for the traditional classroom experience. Instead, we have developed general education or "core" courses that join one-half class time with one-half Web-based instruction—a fresh, inventive model that gives students the best aspects of both experiences. As a result, our core curriculum is becoming more inviting, effective, and activity-based, and all the established benefits of the liberal arts college experience are retained. Imagine this scenario:

It's 9:00 PM and Jane Lee's house is still humming. The campus is only a couple of bus stops away; 20 minutes later, Jane is logging onto a PC in one of the college's 24-hour student labs. She decides to work on her assignment for Core Studies 8.1, Biology. She begins by logging onto Prof. Blamire's Web site and reading his message about how to approach the next class. Then, she checks in on an on-going class discussion on the topic. After reflecting for a moment on the range of views expressed, she realizes that an important point has been overlooked. She accesses some additional information from the Web that supports her point of view, then composes a short paragraph and adds it to the discussion for others to consider.

Jane moves over into a comfortable chair to read a chapter from the course textbook and make some notes. In a little while, she returns to the computer to complete a pre-test on the topic and assess her progress. She wants to review a part of the lecture she missed last week because of illness. She clicks on a screen icon and Prof. Blamire appears in a
small window, summarizing via digital video the materials she missed.

After a soda and a chat with a friend who's also taking a break, Jane decides to catch up on an exercise she and her bio lab partner are working on. Back to the computer! On a single screen are three windows: (a) the lab exercise; (b) the objective; (c) a biological simulation which recreates the "wet lab" exercise. She investigates a mutation in the genetic code--finds a new twist--explores more deeply--and it's midnight before she realizes what time it is. Jane decides to compose a message to a student in her class with whom she's become friendly, and call it a day. Tomorrow morning, when she feels fresher and before she starts her part-time job in the college library, she will return to finish up those exercises--and perhaps start working with the unit on Mendelian genetics that links with her Core history class.

BACKGROUND

Part of the City University of New York (CUNY), Brooklyn College enrolls 15,000 students, 10,000 of whom are undergraduates. Our diverse student body mirrors the Borough's many ethnic groups. The College is well-known for its interdisciplinary Core Curriculum, required of all students and cited as "a bright spot in American higher education" by the National Endowment for the Humanities. (Cheney) This ten-course sequence provides a common intellectual experience for all students and serves as a foundation for advanced study.

In 1995, Brooklyn College elected to merge the Library and academic computing under the direction of Dr. Barbra Buckner Higginbotham, Chief Librarian and Executive Director of Academic Information Technologies. Quickly, the focus of Academic Information Technologies (AIT) became Web-assisted teaching. Three partially virtual Core courses were developed and piloted in the 1997/1998 academic year. The response from students was so positive that, working with Biology professor and multimedia specialist Dr. John Blamire, Dr. Higginbotham submitted a successful proposal to the U.S. Department of Education's Fund for the Improvement of Post-Secondary Education (FIPSE) for funds to develop partially virtual versions of other Core courses. This article details the Virtual Core project's first year.

WHY LEARN ONLINE?

The Virtual Core project is designed to address and remedy a number of interrelated problems common to undergraduate general education programs throughout the country:

Learning is a dynamic process. Passive listening is not enough: students must actually do things, in order to master and appreciate the subject matter. Unfortunately, today's fiscal climate has caused colleges to rely increasingly on large lecture classes, reducing or removing many occasions for active learning. Such economies remove valuable opportunities for discovery and problem-solving, causing students to falter.

Many students (especially those for whom English is a second language, members of under-represented minorities, and some women) are initially apprehensive about college. Negative feelings can translate into poor performance and diminished learning. Students may not ask the questions, build the bonds, or learn the material necessary for success. A reform that lessens anxiety, improves academic success, and creates excitement about learning is a valuable one.

Many students' personal lives exert great pressure on their academic careers. In CUNY, 45% of the candidates for bachelor degrees are 25 or older. This trend finds older students busy with jobs and families as well as school. A Core curriculum that offers flexible study--work that can be completed according to the student's schedule, rather than the college's--expands academic choices, making a traditional liberal arts education more attractive and more manageable.

College faculty across America are seeking ways to address these issues, often by using technology to support teaching. Today, two models predominate. In one, technology-based modules supplement conventional classroom activities. In the other, class time has been completely displaced by courses delivered via technology. We believe that Brooklyn's "one-half in-class/one-half on-line"
model provides sounder solutions than does either of these approaches.

IS DISTANCE LEARNING BETTER LEARNING, OR JUST DIFFERENT LEARNING?

It is unnecessary to rejustify traditional classroom teaching methods (lecture, discussion, laboratories): it is enough to say that these are well-tested approaches to education, and the majority of faculty continue strongly to believe in them. Active involvement with instructors benefits students, and one need not throw out the baby with the bath water—completely discard the classroom experience in favor of an asynchronous electronic one—in order for students to reap the benefits of technology-assisted instruction.

One might also ask, why should class time be reduced at all—why not use Internet modules merely as supplemental homework tools? In our experience, effective modules demand more time and interaction than students already spending three hours a week in a classroom can manage. Students are less likely to perceive the Internet work as just another burden (and therefore to neglect it) compared to the work of other classes they are taking, when there is a trade-off in class hours. Most importantly, while lecture is useful for some things, hands-on learning is better for others. The Virtual Core project is determining which aspects of a class can be most effectively delivered in-person and which on-line, and developing courses that allow students to achieve maximum academic success in classes combining the two in productive proportion.

The key question becomes, what causes us to think that Internet components will lead to better learning, particularly when combined with the classroom experience so that those elements of on-campus learning so clearly tied to student success are preserved?

Brooklyn psychology professor Louise Hainline observes that "the data on the effectiveness of lectures compared with other methods of teaching suggest that while lecturing is an efficient method delivering information to students, it does not excel in terms of other indices of learning such as retention, transfer of information to new situations, or measures of problem solving/thinking." One study found that after a lecture students recalled 70% of the material covered in the first ten minutes, but only 20% of the material covered in the last ten. This suggests that effective adjuncts to lecture are welcome—especially those that promote more active learning.

In one of the most widely read higher education articles of 1995, Barr and Tagg suggest that the primary purpose of colleges is to "produce learning," rather than to provide instruction, and that traditional teaching is only one of many means to cause learning to occur. Ideally, lectures, laboratories, and technology-assisted elements will complement one another, each strengthening the whole that is the course. Good technology-assisted components promote a high level of interaction between the student and the subject material, favoring both the quality and quantity of learning.

Developmental psychologist Lev Vygotsky characterizes the role of the teacher as one who helps build a "scaffolding" for the learner, arranging materials so that the he or she can take the next steps independently. In line with this thinking, Internet-based course components can provide students a framework for the examination or investigation of a topic, while faculty continue to offer guidance and support in the classroom.

With Internet modules, the penalties imposed by time (either the hour at which learning must occur or the time allotted to accomplish an assignment) are removed, as are associated pressures. Students can direct their own education, moving as slowly or as rapidly through material as their needs and abilities dictate. They can prepare their thoughts in advance and turn to their studies when they are intellectually and physically fresh, improving their performance.

Internet modules also promote more student/student and student/faculty interaction. As Kenneth Bruffee, authority on collaborative learning and a member of our faculty suggests, computers can be used to facilitate conversation among students. When students talk with the instructor and with each other online, this fosters a sense of
community that encourages peer collaboration; it also builds teamwork skills. Faculty report participation rates for online discussions that dwarf the frequency of in-class contributions (85-95% versus 15-25%), commenting on the quality of that conversation as well. Instructors who are actively using the Internet as a teaching aid note that it is impossible to get to know so many students so quickly in an ordinary classroom (especially in large lecture classes) or to comment critically on their work, because of time constraints and because students are often more reticent in-person than they are on-line.

Experience indicates that the greater level of student/student and student/faculty interchange in courses with an Internet component carries over to the classroom, so that the courage to communicate developed on-line translates into more in-person discussion. Faculty comment that, as a result of developing technology-assisted course components, their own classroom presentations are strengthened: the intellectual rigor and strong element of organization required to create an effective Internet module can carry over into the delivery of traditional lectures.

Faculty whose course sites make use of discussion groups say that the writing required serves to improve students' composition skills. These new abilities have considerable carry-over, helping students in other courses as well as in the postgraduate workplace.

There is ample evidence that students perceive the Internet and much of what it delivers to be interesting (if not riveting) and stimulating (if not electrifying). Studies show that the introduction of Internet-based components in undergraduate courses meets with strong student approval. Consistent with this finding, our three pilot Virtual Core courses filled up immediately as a result of simply describing them in the spring list of course offerings.

In sum, several principles are of critical importance in the way that general undergraduate education is developed for and presented through technology:

The modules provide students with active "hands-on" experiences.

The learning process is one of discovery in which students come to conclusions as a result of inquiry and analysis.

Technology-based modules integrate coherently and smoothly with classroom lectures and laboratory exercises; they incorporate shared themes and methods of exploration.

Modules stimulate student-to-student and student-to-faculty communication.

Internet components explore innovative ways of presenting topics.

So that students reap the benefits of self-directed study, the modules are designed to enable learners to interact with them in informal settings, at their own pace, and at times of their own choosing.

Non-linear pedagogy and hyperlinking are used to create learning tracks that enable students to individualize a course, exploring its components at their own pace and developing personal methods of discovery.

PROJECT DESIGN

Through an application process in the fall 1998, Professors Blamire and Higginbotham solicited faculty developers for the Virtual Core project from those seven of the ten Core courses for which Internet modules had yet to be developed. During this same period, Academic Information Technologies (which reports to Prof. Higginbotham) created an Academic Support Team to provide ongoing assistance for development efforts. Team members train and support faculty in their use of the Web course authoring platform; provide customized programming; arrange copyright clearances; and supply the more advanced features that some faculty wish to incorporate. An evaluator was hired, and has begun designing appropriate assessment tools.

In the spring 1999 the Faculty Mentors worked intensively with the 14 faculty selected for the project, to redesign significant portions of each of the courses for the Internet environment. Using equipment, software, and Web connections provided by the College, Faculty Developers began to create a number of Core course modules for Internet delivery. Under the guidance of the Faculty Mentors, they met bi-weekly to explore common underlying themes.
and teaching techniques; determine those aspects of the courses that lend themselves best to Internet delivery; ensure that each module develops skills that will carry over from one Core course to another; and explore how Internet components can be integrated smoothly and coherently with traditional lectures and laboratories.

Course development will continue in the fall 1999. To generate information permitting a solid evaluation of Core courses involving significant Internet elements, for each of three semesters (spring 2000, fall 2000, and spring 2001) students will be preregistered for the Internet-enhanced sections of the seven Core courses to be offered, and another group for an equal number of un-enhanced sections (the control group). In the spring 2000 we will offer the Core courses with the new Internet modules for the first time, employing assessment tools for faculty achievement, student success, and student satisfaction. Graduate Assistants who are content specialists will assist students working with the Internet modules in various campus locations. They will also manage, spur, and refocus online discussion. Library and computer lab staff will assist students with Internet module access.

At the end of the semester, the Graduate Assistants will partner with the Faculty Developers to assess the student learning that occurred as a result of the Internet modules and modify the Internet components as experience dictates.

RESULTS TO DATE

In the spring and fall 1998 Brooklyn College piloted three courses using the one-half in-class/one-half on-line model. Based on what they have learned as teachers of their own courses and lurkers-with-permission on the other two, the faculty teaching these sections report that the partially virtual format is proving to be a very strong one. A review of these courses' features gives a good idea of the effectiveness of approach and strategies, how the modules work, and how faculty ensure that students fulfill their Internet assignments, rather than effectively "skipping class" once a week.

CORE STUDIES 8.1: SCIENCE IN MODERN LIFE: BIOLOGY (PROF. JOHN BLAMIRE)

<HTTP://WWW.BROOKLYN.CUNY.EDU/BC/AHP/BIOLOGYCORE.HTML>:

The Core Biology Internet component includes a Web site with a virtual laboratory as well as channels for student-faculty communication, quizzes (enabling students to gauge their progress), animation (molecules actually react!), and many other features, any of which can be modified and adjusted as the need arises. Using video, sound, animation, graphics, and audio (including the voice of the instructor) the site provides a complementary view of the subject, one seen neither in lecture nor the textbook. The virtual lab or Science at a Distance component includes bio-simulations that supplement wet lab experiments (students conduct analyses on the Web and derive conclusions), as well as elements that allow learners to investigate catalysis, activation energy, and the rôle of enzymes. In the V-lab students examine hundreds of data points, rather than the five or so that are possible in a physical laboratory: these nondestructive (no broken glass!) bio-simulations allow investigations that would otherwise be impossible.

In one of Prof. Blamire's Web-based assignments, students form small four-person teams. Each team is given a topic, such as "cancer in humans." Every member receives an individual assignment (for example, the nature of mutations) which she or he researches using the Web site and its links, printed literature, and the textbook. The results (a few paragraphs) are posted to a news group for all students and instructors to read. The postings are then critiqued online and rewritten. Next, teams use Web-based bio-simulations to generate data (such as cell growth), plot graphs, and formulate conclusions. The complete assignment package is combined into a portfolio and graded by the instructor. Each team leader give an in-class presentation of the group's results. These assignments run for approximately four weeks each; there are two to three of them each semester. Each student also completes a program of
lecture/textbook/Web site research on the major topics from the course.

CORE STUDIES 1: CLASSICAL ORIGINS OF WESTERN CULTURE (PROF. HARDY HANSEN)
<HTTP://ACADEMIC.BROOKLYN.CUNY.EDU/CLASSICS/HANSEN/CORETOP1.HTM>:

Prof. Hansen believes that the effectiveness of his module hinges on how well the Web-posted discussion questions are crafted. In his experience, the wrong kind of topic elicits off-the-cuff responses that do not teach anyone anything. On the other hand, the right kind of query produces excellent discussion that yields new ideas and synergies.

Each week, Prof. Hansen's students conduct their Web discussions between Wednesday and Monday. On Tuesday, he freezes that discussion page: while students have six days of flexibility in terms of their participation, days or weeks later they cannot come along and "participate" in a long-gone discussion. Web activities account for 25% of the course grade, another incentive to take part. Prof. Hansen notes that the Brooklyn model asks students to work harder than they might in a traditional classroom-only course, yet he receives no complaints! Students go home after class, read a new assignment, then think about and respond to interpretive questions based on that exercise. When the next class begins, participants pick up in person where that virtual discussion left off. How is this different from conducting the entire discussion in class? Professor Hansen reports:

It is radically different. Very student's voice is heard, and the students have far more voice in the direction the discussion takes. The instructor helps out and guides the students, but they are much more self-directed in a net-based, virtual discussion. I take notes on what they say, rather than vice versa, and I can direct our further discussions, both real-time and virtual, more intelligently. When I devise the right sort of topic for our weekly Web discussion, the students accomplish far more than they would by sitting in a classroom, passive for most of the 50 minutes. They contribute more in the real-time classes, too.

At the same time, Brooklyn's model does not require that courses be stamped out with a cookie cutter: Prof. Hansen adds that the particular focus of the weekly discussions depends very much on the individual instructor's approach—one of the reasons why colleges and universities have various people teaching a course in the first place.

CORE STUDIES 4: THE SHAPING OF THE MODERN WORLD (PROF. DONALD GERARDI)
<HTTP://ACADEMIC.BROOKLYN.CUNY.EDU/HISTORY/DFG/GERARDI/CORE4TOP.HTM>:

Prof. Gerardi discovered just a few weeks into his first term teaching Internet-enhanced Core 4 that technology helps to make students much more active learners:

It encourages (indeed requires) them to reflect on lecture points and materials at their own pace and then to share their understanding with other students as well as with me. In the past I have tried several techniques to get students to interact with readings and with each other. I interrupted lectures to ask questions to get reactions and test for comprehension. I took class time to group students into discussion groups to interpret sources and develop writing assignments collaboratively. The results were never encouraging. None of these techniques worked as well as what I am doing in this web-based course.

As an example, for Lecture Topic IV, "Markets, Hierarchies, and Images of Power," Prof. Gerardi combined what would have been two class lectures into one, part in-class and part as a virtual class online. In the past, a few students (perhaps 15%-20%) would contribute comments on the slides or answer questions he raised about sources. But online, he found he had 90%-95% participation, with students posting to the forum after working through the illustrated part of the lecture. In addition, the assignment had them comb difficult original sources in the course collection to find captions for some of the images, showing them the connections between two types of primary sources and illustrating how historians might use different media in reconstructing the past. "It's my judgment," Prof.
Gerardi says, "based on thirty years of teaching history, that to accomplish all those objectives in the traditional way would have taken at least two weeks instead of one, and with less evidence that the students had actually done the work!"

PROJECT PRODUCTS

The Virtual Core project will generate a cluster of Internet modules useful for undergraduate general education courses. The project's chief tangible product will be a faculty development "road map" for building Internet-assisted course components. A kit, available via the Virtual Core Web site, will offer other institutions a step-by-step guide for designing their own program to develop Internet modules. This contribution is of critical importance: the use of technology for teaching is a "hot topic" today, but often schools either lack the funds for experimentation, or begin then founder. Other institutions will benefit from the ability to acquire an established faculty development program, one that says, "If you do it this way, it will cost this much, and it will work." Since almost all colleges and universities require core sequences, our virtual kit (designed to be usable at any institution) will have considerable impact: our project will make the transition to quality technology-assisted teaching easier and more cost-effective for peers at other institutions.

EVALUATING OUR SUCCESS

An external evaluator is collecting and analyzing data intended to determine whether the goals of the Virtual Core project have been met. While we are more interested in quantitative markers of progress, we have also included qualitative measures of program effectiveness, including pre- and post-assessments of attitudes toward course content, student expertise and comfort in using technology, and so forth. Added to this analysis will be subjective measures of student and faculty opinion of the modules, their impact, and their design.

PROJECT RESULTS

The Virtual Core project is already producing valuable results in four key areas:

(1) Results for Students. Students' writing skills are improving. Student satisfaction and success in the Core curriculum (and thus with the initial college experience) are increasing. Students have greater flexibility in meeting their educational needs and feel more fully a part of a community of learners.

(2) Results for Faculty. Our project is giving faculty the opportunity to explore and develop new approaches to teaching, without abandoning those they now use and to whose power they remain committed. They are developing fresh instructional skills and increasing their base of knowledge about technology-assisted learning, discovering which aspects of their courses lend themselves best to Internet delivery. They are finding new rewards in the closer relationships the Internet modules permit them to develop with their students, and the increased vitality and effectiveness of their teaching. Like students, they have greater flexibility in meeting their academic obligations.

(3) Results for Brooklyn College. Our one-half in-class/one-half on-line model has the effect of increasing the number of classrooms on campus. When virtual labs substitute for some laboratory time, the same result occurs. On campuses where there is considerable faculty reluctance about asynchronous education, a model where the classroom experience continues to predominate has a better chance for faculty acceptance.

(4) Results for the Postsecondary Community as a Whole. Our faculty development program for Internet-assisted learning can save other schools the time and expense of experimentation that often ends in failure, assuring them of Brooklyn's success. The measurement and evaluation processes for good teaching, student success, and faculty/student satisfaction in the Internet-assisted environment should also be broadly useful.

EXPORTING THE VIRTUAL CORE TO OTHER SETTINGS

The Virtual Core project has strong potential for implementation in other institutions: most colleges and universities have basic education requirements, making the concept of Internet modules for such courses of interest to educators from community
colleges through post-baccalaureate institutions. The curricula and techniques developed are transferable to any setting, whether an institution's environment is an urban or a rural one, whether it enrolls 30,000 students or 1,000. As the new courses are developed, we will freely make their sites available, as we do the three existing courses. Our Core Curriculum turned all eyes on Brooklyn when it was introduced in 1981. Similarly, we expect that the Brooklyn Model for Web-based learning will generate like excitement in the world of higher education.

References


