The Concord Model for Learning at a Distance

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Summary

Five major models for distant learning strategies are identified: course supplement, online lecture, online correspondence, scheduled asynchronous, and the Concord Model. The latter is based on the centrality of asynchronous student collaboration and can be considered as a refinement of the scheduled asynchronous model. The eight design characteristics that define the Concord model are detailed. These fit together to create a practical, powerful design for online courses. Experiences in applying this model to student courses, teacher professional development, and online course developers are summarized. This experience indicates that, if the model is followed, online courses are as effective as comparable face-to-face courses and require no more teaching time.

Virtual Potemkin Villages

Gregory Alekandrovich Potemkin was a great favorite of Catherine the Great, Empress of Russia in the 18th century. Among other favors, she rewarded him with vast stretches of vacant land and correspondingly vast sums to develop the land. When she planned a grand tour of the Crimea in 1787 to see for herself the results of her largesse, Potemkin was in serious trouble, because he had, of course, squandered the money. The wily Potemkin convinced Catherine to travel by boat so he could control a show he staged for her. He built facades of villages along the riverbanks and hired peasants to cavort in the fields and fill his fake villages with laughter and virtual commerce. At night everyone was packed up and sent ahead of the flotilla for another performance the next day. Catherine was seduced by the spectacle, and continued showering Potemkin with favors[1].

It is too easy to make Potemkin villages on the Internet. Any competent Web designer can erect an entire school with attractive structures, seductive course descriptions, and images of cavorting students, that accepts registration fees by credit card. The resulting virtual school might be completely legitimate and offer quality instruction or it might be the latest in the line of Potemkin shows. Putting aside outright fraud, it has proven difficult to deliver high-quality instruction online, and even universities with international reputations have fielded courses of questionable quality. This article describes the "Concord Model" [2] for the design and operation of online courses developed by our group starting in 1995 (Tinker and Haavind, 1996) that has resulted in over 200 successful courses reaching over ten thousand teachers, students, and online course developers.

Models for Online Courses

Many different approaches have evolved for using the Internet for course delivery. Because there are huge differences in the educational value of these different approaches, it is important to distinguish the major kinds of approaches, or models, used. Without a taxonomy of models for online courses, there can be great confusion. Broad claims about the value of online learning need to be qualified by the kind of model being discussed.

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[1] After this was written, this story about Potemkin was revealed to be a falsehood. According to an authoritative source (Montefiore, 2000), Potemkin never staged fake performances on the 1787 grand tour; this slander was spread by his enemies at court. The concept of a Potemkin Village, itself a slanderous fake, has become part of our heritage, so it was retained in this article

[2] See http://www.concord.org

The Course Supplement Model

Perhaps the most widespread use of the Internet in courses is the **course supplement model**. Here, a traditional, face-to-face course is augmented with online resources that might include assignments, readings, answers to problems, discussion groups, simulations, and tests. While this model can improve instruction, it does not support learning at a distance and hence will not be considered further here.

The Online Lecture Model

Teacher time is a scarce resource. Because the dominant cost in most schools is instructional time, educational administrators are always asking whether there is any way to decrease this cost by increasing the number of students each teacher reaches. Any attempt to increase the number of students per teacher will reduce the amount of time a teacher can devote to each student. Beyond about a hundred learners at one time per teacher, instruction becomes impersonal and few teachers can keep track of the interests, accomplishments, and needs of individual students.

Traditional precollege instruction has held fast to the idea that a personal connection is necessary between student and teacher. In contrast, most post-secondary institutions economize in the major introductory classes by filling lecture halls with hundreds of students and attempting to provide personal contact in recitation sections and labs led by less-expensive advanced students or staff. One of the reasons the elite colleges are so expensive is that they have less dependence on large lecture courses and provide more contact directly between students and expensive faculty.

Many entrepreneurs and universities have latched onto online instruction as a way of reducing instructional costs and reaching large numbers of students. The model used in this case can be called the **online lecture model**, because it resembles traditional lecture halls but moved to the Internet. These courses tend to use technologies that duplicate the lecture experience. Because the goal is to reach large numbers, considerable resources can be put into courses based on the online lecture model and they can employ expensive video and well-crafted multimedia presentations. Some form of personal contact is often provided over the Internet, in the form of graded papers and exams, non-moderated discussion groups, answers to frequently asked questions, and office hours for faculty or assistants. The contact with teachers must, however, be limited, or the costs rise and wipe out the cost savings that were the original motivation for this format.

For motivated and disciplined students, the online lecture model can be an excellent and inexpensive way to democratize learning. This approach can have broad impact in developing countries that lack the quantities of qualified teachers needed to provide more personal contact with learners. It is, however, inappropriate for large-scale use at the precollege level.

The Online Correspondence Model

A similar model, the **online correspondence model**, puts fewer resources into the content delivery, but provides some personal feedback in the form of graded papers and examinations. Many university extension divisions and commercial schools that were already providing correspondence courses by post to distant students have migrated their courses to the Internet and it is natural that they use the online correspondence model. Less expensive to develop than the online lecture model, the correspondence model can be an efficient way to deliver specialized content to motivated students. Like the lecture model, however, this design is sub-optimal for most precollege students.

The Scheduled Asynchronous Model

Many thoughtful educators have converged on the **scheduled, asynchronous model**, because it is based on student collaboration, a powerful learning strategy and one of the great strengths of the Internet (McRobbie & Tobin 1997; Hoadley & Pea, 2001). Collaboration is an effective learning strategy in all disciplines that forces students to articulate and communicate their ideas, and test them against others'. Teachers, particularly mathematics and science teachers, are often dubious of the value of discussion and feel that it interferes with mastering problem sets and the required content coverage. Many studies, however, have demonstrated that much of instruction is "a mile wide and an inch deep" (Schmidt, McKnight, & Raizen, 1997, p. 34) and that discussions and reflection are critical for understanding core concepts. (see, for example, Halloun & Hestenes, 1985; AAAS, 1993; NAS, 1996). The slower

pace demanded by thoughtful discussions is likely to be able to lead to deeper insights and better understanding of key concepts (Bransford et al, 1999).

Scheduled, asynchronous models are based on online student collaboration and all have the following characteristics:

Asynchronous collaboration. The core learning strategy in this model uses asynchronous discussions and group problem solving between students in threaded discussion groups. Compared to synchronous technologies (chats, shared whiteboards, shared applications, audio conferencing, and video conferencing), these discussion groups are less expensive, more thoughtful, and far easier to schedule, particularly across time zones. Research shows that this learning environment is inclusive and supportive of students with disabilities (Hsi & Hoadley, 1997).

Explicit Schedules. Online courses that rely on collaborative discussions must be tightly scheduled so that participants in the discussions share similar experiences and insights. We schedule a major topic for each week and usually schedule the same sequence of activity, discussion, and reflection within each week. For instance, if the content of a video is essential for a scheduled discussion, then the schedule must have all participants to view the video before beginning the discussion. While it is not important that all participants view the video simultaneously, it is best if each does view it within the days just prior to the beginning the discussion group. Then each participant should make an initial entry and within a few days and some responses to comments already posted. The best schedule preserves the "anytime, anywhere" flexibility of online courses while also ensuring that all participants bring similar experience and learning to the discussion.

The Concord Model

We find that the characteristics sketched above for the Scheduled, Asynchronous Model are necessary but not sufficient for successful online courses. Many educators who have tried using threaded discussion groups in online courses have found that these groups are too time-consuming, unresponsive, irrelevant, or boring. As a result, participation is minimal, drop-outs are wholesale, and little learning results. These ineffective experiences, however, should not be used to condemn the idea of scheduled asynchronous courses, but to demonstrate the importance of additional design details that define the **Concord Model**.

In addition to being scheduled and asynchronous, enrollment needs to be limited, faculty must be expert in online group facilitation, the course and online spaces have to be carefully designed, and high quality educational strategies must be used. In particular, successful online courses require that the following six design characteristics be implemented in addition to the two above:

Sound inquiry pedagogy. "The new and more powerful opportunity available to educators today is to use (internet) technologies to help individuals collaboratively construct networked learning communities that will accelerate and augment the community's learning, as well as each individual's learning" (Carroll, 2000). There are many specific design elements in the Concord eLearning Model that contribute to best practices for inquiry teaching including varied smaller group problem-solving activities, explicit objectives matched to qualitative assessments, rubrics for postings that ensure discussions provide embedded evidence of learning, and the effective use of graphics, simulations and visualizations that support exploration and sense-making activities for collaborating learners. Our extensive course standards[3] that incorporate these design elements and sound pedagogical practices should be part of any effective course but are essential in this medium.

On-going Assessment. Continuous assessment is essential in online courses because one cannot be sure whether a high-stakes test would be closely monitored. Rather than taking advantage of quantitative testing options made easy by the electronic medium, our strategy allows the teacher to learn each student's voice and typical approaches to problem-solving thus avoiding the problem of secure monitoring. We find the learning is enriched by this alternative approach. Required discussion postings must contribute more than "I agree" or "I disagree". Additional credit is given for contributions that point others toward productive exploration, coin useful phrases or offer analogies that help others express their thinking and pursue new areas. A rigorous academic experience is ensured by augmenting the learning dialogue as a vehicle for

[3] See http://www.govhs.org/Pages/Main+Office-Course+Evaluations

evaluation with unique projects where content is explored in local settings or using additional Internet technologies (creating an original web page of resources for a specific audience, building an electronic portfolio of work, or posting original designs, new problems or findings, music, or other appropriate original work).

Expert facilitation. Each course section must be led by a qualified teacher specifically trained in online facilitation. Leading an online discussion is a skill that must be developed; it is not sufficient to simply assign an excellent face-to-face teacher to online teaching. Effective strategies in person have unintended effects online that halt rather than seed deepened dialogue (Haavind, 2000, Collison et al, 2000). In addition, many beginners make the mistake of putting themselves in the middle of the online conversation, establishing email conversations with each member of the group. This quickly overwhelms the facilitator and interferes with student-to-student collaboration. The effective facilitator moves out of the middle and has strategies for stimulating real student collaboration and guiding the conversation toward important content. The facilitator must monitor all discussions and respond within 24 hours to technical or process questions. However, effective online community leaders can avoid interrupting participant collaboration and knowledge co-construction by only intervening to leverage content discussions toward deepened, clear focus on learning objectives (Collison et al, 2000).

Trust creation. Learning through collaboration requires students to take intellectual risks. This can happen only when there is supportive and honest behavior by all participants that still encourages criticism and clear thinking. Leaving time for participants to get to know one another is an essential first step in this process. Written expectations about good group processes is also helpful. The facilitator must establish and shape intellectual and emotional norms, model appropriate behavior, and steer harmful input toward higher, learning ground for all. Anonymous polls, role playing, introducing a partner to the group, and a "cafe" or student lounge thread where non-course topics are discussed, are all techniques we use to build and maintain strong, trusting groups.

Limited enrollment. For meaningful online collaborations, the number of participants in an online discussion group needs to be limited. We find that 20-25 is the maximum number in one group for general discussions and that sub-groups with as few as two or three are needed for the intense collaboration required to produce something complex, like a course design. If the enrollment in a course is larger than 25, independent sections of approximately 20 are formed. When smaller working groups are needed for a specific task, the section is divided into subgroups.

Excellent materials. Learning resources of many kinds are needed to provide the content and common experiences needed for effective discussions. To appeal to different styles of learning, we advocate using the widest feasible range of media and activities. We do not attempt to supply all material over the wire: books, media, kits, and labs might require supplies that are mailed or obtained locally. We encourage course authors to engage students in explorations, surveys, creative works, and self-reflection as appropriate. Multiple, short assignments in different styles and media are helpful in preserving course flexibility, reinforcing key concepts, and addressing different learning styles.

Purposeful virtual spaces. For most courses, several conversations are needed, each with different goal. At a minimum, four kinds of conversations are needed. An academic discussion area one about the content is central. A technical thread is needed to keep tech inquiries together and out of content threads. The facilitator only has to answer technical questions once, since others will check the tech thread before asking the same question twice. Also needed is a social conversation thread for the group to meet and greet, de-brief and exchange resources or network. Finally, a weekly or biweekly "class meeting" thread is needed where participants can share with the facilitator and peers how the course going, what is working, what is being learned and appreciated about the course and what challenges they confront as they move through the material. In many courses, multiple content threads, possibly time-limited, might also be needed. The conversations in these threads need to be set up in separate virtual spaces with clear learning goals and supporting rubrics for effective communication and growth (no "I agree/ I disagree"). The facilitator must nurture the appropriate use of each virtual space to keep dialogues clear and focused. Clarity about what kind of message to post reduces confusion, encourages communication, and makes the content thread(s) more fluid and rich.

These seven additional characteristics, together with the two characteristics of the scheduled asynchronous model. define the Concord Model, and position it as a major refinement of the scheduled asynchronous model that deserves its own name.

The Educational Impact of Online Courses

A course offered using the Concord Model is approximately equivalent in cost and educational value to a similar face-to-face course. About the same amount of material can be covered in the same number of hours requiring a comparable teacher effort. This may be surprising to administrators who expect that e-learning will result in great economies of scale. While not reducing costs, the Concord Model does ensure that the added flexibility that online courses offer can give important benefits to education. These advantages can be maintained only if there is continuing attention to quality.

Costs

The claim that online and face-to-face courses require similar effort may be surprising to many teachers who have tried online courses and report that they spend far more time teaching than usual. When comparing the teacher time required by online courses using the Concord Model with face-to-face courses, it is important to make a fair comparison. Concord Model courses can appear to be more time-consuming when courses using different pedagogical styles are being compared. The Concord Model requires high quality teaching—student collaboration, clear course goals, inquiry-based learning, and alternative assessment tied to course goals. These strategies are highly recommended for all instruction, but are not widely implemented. The traditional text-lecture-test paradigm persists because it is easy. It takes less time to grade a vocabulary or multiple-choice test than to use a rubric to evaluate student portfolios. Inquiry-based learning appears to take more class time only because the lecture approach can "cover" more content, even though student learning is correspondingly superficial. When online and face-to-face courses using the same pedagogy are compared, the effort required is comparable, if the teacher has expertise in online teaching strategies.

The second reason many teachers report that online courses take more time is because they are not expert at group facilitation, whether online or face-to-face. Group facilitation is difficult for teachers who are used to being on center stage in the classroom. Carrying that model online, many teachers set up the expectation that every student in an online class should communicate primarily with him or her. If this happens, the teacher is easily overwhelmed because each student's conversation depends on only one other person, the teacher. The successful facilitator's strategy is to move students toward collaborative knowledge-construction among themselves. As an active guide, the facilitator then monitors the learning dialogues carefully, looking for ways to leverage the learning of the group toward more focused or deepened learning. When it is working, collaborating learners offer each other assistance when there are questions and teachers can spend their teaching time pushing the group forward with minimal but targeted interventions and providing private, individualized feedback. Since there is no time taken presenting material in an online venue, the quality of a teacher's profession is greatly enhanced as teaching time is spent **teaching** instead of presenting, directing, and answering quick (albeit sometimes endless) informational questions. Thus, time parity between online and face-to-face courses can be achieved when high-quality pedagogy is used in both and the online teacher is expert in facilitation. Achieving this parity usually requires an investment in teacher professional development in pedagogy and facilitation. Since this investment pays off in both face-to-face and online courses, it is a valuable long-term investment in overall teacher enhancement, and its cost cannot be considered a liability of online teaching.

This section on costs focuses on teacher time because it is the dominant cost in instruction. While online courses also entail technology costs, it is unfair to add these to the costs of online teaching because the technology is increasingly being made available to schools for many purposes. In many schools, this technology is underutilized and school administrators are thankful for an application like online courses that demonstrate real benefits.

Benefits

Because even the best online courses require as much time and effort as face-to-face ones, it is reasonable to question whether they should be used at all. Their advantages are subtler than reducing costs, but substantial nevertheless:

Providing specialized topics. Online courses can reach thin markets and offer specialized courses such as a high school course on the Holocaust or a teacher professional development course on the use of inquiry in algebra teaching. In the VHS[4], one of the strongest motivations for teachers online is the opportunity to teach a pet topic that would not normally attract sufficient students. The VHS has offered hundreds of specialized courses, so almost any student interest can be satisfied.

Supplementing local resources. Schools, particularly smaller ones, have difficulty offering a broad range of courses for students and professional development opportunities for teachers. For instance, two years ago Monroe Senior School, Alabama's smallest K-12 school, was in trouble. Budget cuts threatened the school with closure. Low test-scores and a shortage of courses were close to prompting a state takeover. Participation in the VHS solved the second problem and appears to have contributed to higher scores. As a direct result, the school remained open and offers a far greater range of courses than most of its larger neighbor schools.

Increasing flexibility. Most high school schedules leave little room for students to take unusual combinations of courses. Too often, a student needs a particular course, but cannot enroll because of scheduling conflicts. An online course solves this problem because it does not need to be scheduled; sufficiently mature students can do the work anytime and anywhere there is a computer.

Crossing borders. Online courses often mix students from different cities, states, and countries. They also can bridge ethnic and class gaps and include students with disabilities. All students gain from meaningful participation in diverse groups and from learning about others and their circumstances. Good students at less-advantaged schools can gain confidence by "calibrating" themselves against a national or international standard.

The Value of Cooperation

The Virtual High School project has exploited another advantage of the Concord model: the ability to support a cooperative. In this project, each school contributes to the co-op one or more online one-semester courses or course sections, each capable of enrolling 20 students. For each section it contributes, the school can enroll 20 students in any of the courses offered. Last year 140 different high school and advanced middle school courses were offered. Because it is a co-op, the cost to the school is low, approximately $150 per student enrolled in a semester-long course. In the VHS, this cost is in the form of a membership fee that covers the administrative costs of the co-op. This compares favorably to the $300-$500 being charged for other online courses, because the major cost of a high-quality course, the teacher time, is traded within the co-op and does not appear as a cash outlay.

The VHS co-op is possible only because it is feasible for teachers to develop and offer effective online courses. In the beginning of the VHS project, we were concerned that less-advantaged schools would not be able to contribute to the co-op, but experience has shown this to be wrong. Some of our greatest teachers and most popular courses have come from teachers in the least-advantaged schools. As a result, the co-op model is scalable and can reach any school in the country (Hsi and Tinker, 1997).

The Concord Model has been used extensively for professional development of teachers, university faculty, and pre-service students. For busy professionals, it is often best to offer half-semester, 8-9 week courses requiring 5-7 hours per week. We sometimes call these seminars to emphasize the centrality of the online discussions. An exciting opportunity exists to create the kind of range of seminars for professionals that we have been able to offer high school students. One or two hundred short courses could cover a very broad variety of topics so that there would be exactly what any teacher, faculty, or administrator needs. For instance, instead of offering a history teacher a generic workshop on computers in education, there would be an online seminar on specifically on computers in history or perhaps even more specialized seminars such as on online simulations of the classical period. One of the first experiments in this area was a course from the National Teacher Enhancement Network program at the University of Montana on general relativity in high school physics (NTEN, 1995). This kind of specialization can only be supported by online courses.

[4] See http://www.govhs.org/website.nsf

Evaluation Potential

We have found that course preview, monitoring, and assessment are essential from four perspectives: instructional design, content, delivery, and impact. Instructional design is specified by an extensive course standards rubric against which all courses are judged. Content is reviewed by the equivalent of a department chairperson who reviews a number of courses within one content area. Course delivery is monitored by regular visits by staff to the online discussion sections and critical feedback to the instructor. Impact is measured by end-of-course participant feedback and external review.

Metacourses: Implementing the Concord Model

As the Concord Model has been developed and refined, it has become necessary to train new staff, consultants, and collaborators in various aspects of the model. This training is now offered entirely online as a series of "metacourses", that is online courses about online courses. The following three types of metacourses have been developed:

Introduction to Online Courses. Several Concord Consortium projects have needed an introduction for beginning course authors, future online course teachers, and others interested in an overview of effective online course theory. For this audience, we have developed a quick, six-week metacourse "Online Pedagogy Education"[5]. A similar course specifically developed for the Virtual High School project is called "Netcourse Instructional Model". This course, because of the many specific requirements of the project, is longer, requiring 12 weeks to complete. Metacursos, a division from a sister organization of The Concord Consortium, offers in Spanish a netseminar on "Online Teaching Foundations"[6]

Online Facilitation. The Concord Model depends critically on the skill of the facilitator, and so a course on facilitation is essential to success. Good facilitation requires more time than the introductory metacourses can afford, so the metacourse "Facilitating Online Learning by Moving Out of the Middle" (MOOM) has been developed[7]. There is a Spanish version of this metacourse, in two versions: introductory (CEVOVI[8], 6 weeks) and complete (MAIA[9], 12 weeks). This course gives participants the strategies and experience they need to be effective facilitators who can direct online conversations toward educational goals while avoiding spending an inordinate amount of time in the process. The principles of the course have been published by members of the Concord e-Learning Group in the *Facilitating Online Learning*[10] book (Collison, et al, 2000).

Online Course Design. Teachers in the Virtual High School must develop their own online courses. The Teacher Learning Conference (TLC) is a one-year, 28-week online course for these teachers. During the course, each develops an online course that they will teach after completing the course. In the TLC, participants see what a well-designed online course looks like from a student's perspective while learning the theory and practice of developing and offering online courses in the Concord model (Hsi and Rose, 1999).

The TLC nominally requires 20% of a teacher's time for an academic year, but participants regularly report that it is the most intense and difficult professional development experience of their lives. Participant grades in the course depend heavily on the quality of their courses as measured by detailed design standards and much of the TLC course is devoted to understanding how to meet these standards. Participants who lag behind are quickly dropped from the program because experience has shown that these make poor online teachers. We even dropped two enrolled superintendents who wanted to teach online courses and mistakenly thought they could fit the TLC around their busy schedules.

Successful participants love the TLC, and most who survive the first few weeks do complete the course and go on to teach their course. These teachers often report that the TLC course changed their lives and, in

5 See http://www.concord.org/courses/OPEd/
6 See http://www.metacursos.com/solutions/seminars_files/2ebur.html
7 See http://www.concord.org/courses/MOOM/
8 See http://www.metacursos.com/solutions/seminars_files/1cecvi.html
9 See http://www.metacursos.com/solutions/seminars_files/5maia.htm
10 See http://www.concord.org/publications/fol/

many cases, caused them to abandon plans to retire or change careers. They often apply the pedagogy learned in the TLC to their face-to-face teaching, altering their strategies to rely more on in-class student collaboration and less on lectures and high-stakes tests.

A similar phenomenon happens in the *CAVA Creación de Ambientes Virtuales de Aprendizaje* netseminar, a metacourse with introductory[11] and extended[12] versions, respectively focused on helping participants design and implement online learning environments in accordance with the Concord eLearning model. Participants have direct experiences that make them rethink their teaching, both face to face and at a distance.

Metacourses based on the Concord Model are available in English and Spanish from the Concord Consortium[13] and its commercial partners Metacourse [14] and Metacursos[15].

Concluding Comments

Potemkin's ruse only gained him temporary favor. His rivals convinced Catherine that there was no substance to the Potemkin's villages and she was not pleased. Potemkin's stock quickly tanked. It is more difficult to determine the quality of an online, discussion-based course, than to simply look behind the façade, as Catherine the Great should have done. The simplest way, visiting the discussion area, is usually off-limits in order to maintain privacy and the sense of trust that is needed for an effective group. It is not ethical to withhold from participants information about visitors, and the presence of visitors, even if they only lurk and don't contribute, can inhibit discussions. We sometimes post versions of discussions after obtaining permission and changing names, but there is no way for users to know whether such postings are typical or very rare. The best approach is to rely on a trusted and experienced external evaluator who has reviewed all aspects of course or program of courses. For instance, the VHS has asked Robert Kosma from SRI International to evaluate its program (Kozma, et al. 1998; 1999a; 1999b; 2000). All the reports are linked to the VHS Web site[16].

In lieu of expensive external evaluation, programs offering online courses should at least take full advantage of the Internet's ability to provide extensive information. Organizations that offer online courses should post full details about their design principles and all available review documents. For each new course, there should be at least a course summary, syllabus, and assignments. If the course has been offered, the dropout rate and participant evaluations should be posted as well, although both should be treated with caution. The dropout rate is the most sensitive measure of overall course quality, but can be hurt by poor participant selection. For instance, a course that is free or one that participants have been told they must take, can suffer high drop-outs that do not reflect the intrinsic quality of the course. Similarly, participant course reviews, particularly by high school students, can be misleading. There are always one or two participants who complain about anything, no matter how excellent it is.

We would not wish Potemkin's fate on anyone, but we do hope that there is more emphasis on substance in online courses and a better understanding of the models used and the trade-offs implicit in each. The Concord Model for online courses is one that provides an excellent environment for learning and has proven value across the curriculum. The differences, however, between a good implementation of the Concord Model and an educational Potemkin village may be hard for the casual user to judge.

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11 See http://www.metacursos.com/solutions/seminars_files/4dava.html
12 See http://www.metacursos.com/solutions/seminars_files/6cava.html
13 See http://www.concord.org/courses/
14 See http://www.metacourse.com/
15 See http://www.metacursos.com/
16 See http://vhs.concord.org/Pages/About+Us-Project+Evaluation

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