The Design of Online Learning Communities: Critical Issues

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Abstracts

In this paper we discuss findings from evaluations we conducted and share lessons we learned as developers of online education during the last 10 years. The purpose is to analyse some of the complexities in the design of online communities for professional development and continuing education. We present STAR-Online (Supporting Teachers with Anywhere/Anytime Resources), an online community designed and implemented as a model for continuing education and professional development for teachers. This online staff development provides teachers the training, support and communication links necessary for their continued success in the classroom. Teachers can access mentors, colleagues and resources via a web-based Virtual Teaching and Learning Community (VTLC) system. A brief history of the project is presented along with a vision for the future. Practical components of the project and guidelines for those interested in establishing similar initiatives are discussed in detail. Finally, some characteristics of successful online communities and suggestions for practitioners are addressed as they derived from our experiences and evaluation work.

Concept d'assistance d'éducation en ligne: Questions critiques
Dans cet exposé, nous nous référons aux conclusions d'évaluation que nous avons gérées et aux lessons communes que nous avons apprises en tant que développeurs de l'éducation en ligne pendant les dix dernières années. Le but est d'analyser quelques complexités dans les concepts d'assistance en ligne pour le développement professionnel et l'éducation continue. Nous présentons STAR-Online (Supporting Teachers with Anywhere/Anytime Resources), une assistance conçue et réalisée comme modèle d'éducation continue et de développement professionnel pour les professeurs. Ce développement personnel en ligne fournit la formation, le support et les liens de communication nécessaires pour le succès continu des professeurs en classe. Les professeurs ont accès aux mentors, collègues et ressources par un système virtuel d'assistance pour enseignement et formation basé sur le Web (VTLC). L'histoire de ce projet est présentée avec une vision pour le future. Les composants pratiques de ce projet et les directives pour ceux qui sont intéressés à établir des initiatives semblables sont discutés en détail. Finalement, quelques caractéristiques prospères d'assistance en ligne et des suggestions pour praticiens sont abordée, étant donné qu'elles dérivent de notre expérience et de notre travail d'évaluation.

Der Entwurf von Online-Lern-Gemeinschaften: Kritische Bereiche
In diesem Papier erörtern wir Ergebnisse unserer Untersuchungen und teilen Erkenntnisse mit, die wir als Entwickler von Online-Bildung während der letzten 10 Jahre selbst lernten. Der Zweck ist, einige der Komplexitäten beim Entwurf von Online-Communities für professionelle Entwicklung und Weiterbildung zu analysieren. Wir zeigen STAR-Online (der Lehrer wird mit "Anywhere/Anytime Ressourcen unterstützt), eine als ein Modell für Weiterbildung und berufliche Fortbildung von Lehrern gedachte und durchgeführte Online-Community. Diese Online-Stabsentwicklung versorgt Lehrer mit Training und Unterstützung und stellt die Kommunikationsverbindungen zur Verfügung, die für die Fortführung ihrer erfolgreichen Arbeit im Klassenzimmer notwendig sind. Lehrer können auf Mentoren, Kollegen und auf Ressourcen über ein netzbasiertes virtuelles Lehr- und Lerngemeinschafts- (VTLC) System zurückgreifen. Einer kurzen Geschichte des Projekts folgt eine Vision der Zukunft. Praktische Bestandteile des Projekts und Richtlinien für jene, die daran interessiert sind, ähnliche Initiativen einzuführen, werden im Detail erörtert. Zuletzt werden einige Merkmale erfolgreicher Online-Communities aufgeführt, sowie Vorschläge für Praktiker, die auf unseren Erfahrungen und unseren Ergebnissen aufbauen wollen.

Introduction

Distance education as a field has grown from simple correspondence education to a highly sophisticated, distributed, interactive learning experience. An indication of the shift of emphasis in the field of distance education during the last few decades is the fact that, in 1982, the International Council for Correspondence Education (ICCE) changed its name to the International Council for Distance Education (ICDE). Modern interactive telecommunications technologies, such as computer conferencing, permit synchronous and asynchronous interaction among individuals on a scale never imagined before when correspondence courses were the preferred alternative to traditional schooling (Vrasidas and Glass, 2002). Students, educators, scientists, scholars, researchers and practitioners participate in online communities, collaborate on projects, share information and construct knowledge in ways that were unknown a few years ago.

With the extended use of computer networks and distributed multimedia systems for communication, education and training, learning is now distributed among people, artifacts, communities and nations around the world. With more and more countries and people from all around the world getting connected to the Internet, the network of networks is both growing and changing very rapidly. The development of Computer Supported Collaborative Learning (CSCL) tools has made a tremendous impact on the evolution of the field of distance education and distributed learning. Emerging technologies and their affordances require that distance educators rethink their fundamental epistemological assumptions about the nature of teaching and learning. In an era of information economy and knowledge management, it is becoming imperative for nations and organizations to invest in continuing education in order to maintain competitiveness in a global market. A dominant trend in training and professional development is the use of network technologies for distributed learning and the creation of *online learning communities*.

Theorizing online learning communities

There are two issues raised about what constitutes an 'online learning community'. First of all, what constitutes a (learning) community and then under which conditions online communities are being constituted? The idea of community rests upon two sets of values: on the one hand, the idea that co-operation and shared responsibility provide the best context for effectiveness in accomplishing some goals and, on the other hand, that close ties of affiliation are beneficial and supportive for the living of a good life (Burbules, 2000). This implies that learning within a community is a social process. As such, being part of a community involves building connections among what is being learned and what is important to the participants and creating relations among participants with similar goals. Thus, the existence of a learning community is bounded by a set of conditions and practices that give rise to it, such as the media used, forms of communication, social and learning practices, political values and commitments and the design of learning environments. There is nothing 'innate' or 'essential' about a 'face-to-face' community compared to an 'online' community; both are as 'real' as any communities are (Burbules, 2000). Both have to struggle with maintaining the cohesion that gives them the sense of being communities. That does not imply, of course, that online learning communities are homogeneous; on the contrary, such assumption is problematic given that participants have different learning styles or different motivations for learning.

In online environments, communities are growing and are developing new ways of using information and communication technologies. The interest in online communities grows day-by-day and corporations and education institutions alike are utilizing the power of online community building for life-long learning and continuing education. One challenge faced by those designing projects for professional development and continuing education is to examine if online communities are worth the effort and investment and if they actually make a difference in increasing the efficiency of an organization. What forms do communities take online? Can we 'design anything resembling community' online? (Barab *et al.*, 2001) What kind of learning takes place in online communities? Does participating in an online learning community make learning immediate, practical and real? Do online communities provide opportunities for participants to learn anywhere, anytime? Is participation in communities influenced by gender, ethnicity and other socio-economic factors?

Online communities face several challenges among which some are technological and some social. The technological component relates to the continuous development and improvement of tools that will allow participants to utilize them without a steep learning curve. Transparency in user interface design and human computer interaction is a critical component of successful integration of technological innovations within education and training settings and influences the adoption rate of such technologies. An important challenge in computer-mediated environments is to maintain both social organization and community spirit. A satisfying

degree of transparency is achieved when technology does not interfere with the exchange of information and communication (Mason, 1994).

Online communities also face social challenges that include social organization of the 'virtual commons', social interaction, access to technology, equity issues, gender issues, morality issues and dehumanization issues (Vrasidas *et al.*, 2003). Often times, participants are attracted to online communities and virtual environments because they believe they can gain something valuable by collaborating with other members of the community. What binds together communities in computer-mediated environments are collective goods such as an instant network of contacts with useful skills (social network capital), a personal and distributed intelligence, mutual trust, just-in-time answers to questions (knowledge capital) and psychological support from others who might share common experiences (communion) (Smith, 1992). More details and practical recommendations based on our experience as well as the experience and research of others are included in the last section of this paper.

In the next few pages we will briefly describe an online project (STAR-Online) that was based on a distributed learning model for professional development. We will then discuss practical issues to consider while building online communities for professional development. Although STAR-Online focuses on teacher continuing education, the discussion will be on the general implications of using emerging information technologies for distributed learning, online communities and continuing education. Issues relating to the use of technology for overcoming geographic isolation, limited resources, place and time restrictions will also be discussed in detail.

STAR-Online

In April 2000, the US Department of Education awarded the United Star Distance Learning Consortium (USDLC), a 5-year Star Schools grant for the STAR-Online project. USDLC is a non-profit educational consortium with a 15-year history of innovation and success in the production and distribution of educational programmes and products to adult and K-12 teachers, students and administrators in schools across America. This consortium represents national leaders in distance education and is one of the most prestigious and effectively operated distance learning collaborations in the US.

STAR-Online (Supporting Teachers with Anywhere/Anytime Resources) is a model for continuing education and professional development for teachers. This online staff development provides pre-service, new and veteran teachers the training, support and communication links necessary for their continued success in the classroom. Teachers can access mentors, colleagues and resources via a web-based Virtual Teaching and Learning Community (VTLC) system. The VTLC provides interactive, self-paced, collaborative staff development with nationwide links. It is an online, interactive self-paced staff development model, which allows teachers to gain knowledge and skills in the applications of educational technology. For example, through the VTLC teachers can participate in quality online training modules, access resources and an online portfolio as well as network and collaborate with other teachers nationwide.

Once a teacher has registered to use STAR-Online's VTLC, they fill out the online registration form prior to entering the VTLC. They are then given a login ID and a password that can be changed at any time. Upon receiving the login ID and password, they fill out a pre-survey that provides a graph of suggested modules based on their skill level and interest. All of the registration data, pre-survey results and any work done in the VTLC will then be housed in their personal electronic portfolio, which can only be accessed by the teachers themselves.

After completing the pre-survey, they may use any of the available professional development resources in the VTLC. These resources include Teacher Resources, Communication Tools and the Online Modules. The Teacher Resources section provides educators with relevant links to other sites and upcoming professional development activities. An online video library will be developed from StarNet's extensive video library and is accessible via DIRECTTV satellite television. The Communication Tools are available to help support peer collaboration, mentoring and technical support of teachers. These communication tools are:

● Listserv;
● Chat Room;
● Bulletin Board; and
● SHARE database of Lesson Plans.

As part of the VTLC, STAR-Online has online staff development modules, which introduce educators to a variety of technologies through a series of lessons, activities and integration ideas. With these modules and the

other communication technologies available in the VTLC, educators become a part of a new learning experience, which enhances the use of technologies in their classroom through lessons and collaborative projects via the Internet.

Each module is interactive with several components. Teachers move linearly through the following components of each module:

- *Overview*: This section gives an overview of the topic covered in the module, its uses and the learning objectives.
- *Competency*: This is an electronic form the teacher will fill out prior to participating in the lesson. This will help guide them to the tutorials and modules that would best meet their needs. They will read through the questions addressing competency areas and check the box next to the question if it is a skill they possess. Once they have submitted the form, they print a copy of the response for their records.
- *Lessons/Activities*: The lessons will address the competencies required to use this technology effectively. Each lesson includes a sequence of interactive tutorials and activities, some of which are collaborative. Once they have completed all of the tutorials, they proceed to Integration.
- *Integration*: In this section the teacher fills out a lesson plan form, prior to integrating the lesson into their classroom. Sample lessons and results are provided to help them develop their own lesson. After reading this section and finding a suitable activity for their classroom, they will submit their intended plan. Once they have submitted the plan, they begin integrating it into their classroom.
- *Share*: Once the teacher has integrated this technology into their classroom, they fill out the 'Share' form provided in the VTLC. This form will ask such questions as what they did, how it worked, how it impacted the students, as well as the benefits and barriers teachers ran into. They fill out this form and submit it electronically. The data provided is posted in the Integration section next to the lesson for other teachers to review.
- *Evaluation*: Finally, participants fill out the evaluation form provided for each module and submit it electronically.

More than 20,000 teachers have benefited from this project. One of the major goals of this project is to develop an online learning community which will provide a comprehensive, collaborative communication system with a rich array of individualized training available to teachers anytime, anyplace – thereby building capacity at individual, classroom, regional, state and national levels. In the following years, STAR-Online will continue to meet pressing technology needs overcoming geographic isolation, limited resources, diverse cultures and students at-risk by expanding its content and resources. Through the use of distance learning technologies, USDLC partners will offer pre-service and in-service teachers and media specialists training and graduate courses. In addition, the program will maintain a video library; develop a distance learning teachers' institute; build a teacher support system for National Board Certification; and model a statewide technology infrastructure. For more information about STAR-Online, one can visit the following website: http://www.star-online.org.

Findings and recommendations

In this section, we will synthesize the lessons learned while working on this and other online projects. These lessons are based on systematic research and evaluation work conducted over the years, as well as on reflection on our involvement in online education (e.g. see Vrasidas and McIsaac, 2000; Vrasidas and Glass, 2002; Vrasidas *et al.*, 2003). Like the development and implementation of any innovation, building online communities for professional development and continuing education requires good planning. There are no scientific formulae and algorithms on how to build and structure an online community. There is no step-by-step approach that guarantees successful community building. However, those that plan to develop and implement an online community for professional development and continuing education have a lot to benefit by reviewing what others have done and learned from such innovations. Some general guidelines and lessons we learned thus far relating to successful online communications are listed below. Along with our experiences, we include recommendations from others who designed, implemented and studied successful online communities.

Characteristics of successful online communities

Successful online communities have several of the following characteristics:

- They consist of people who cannot meet face-to-face because of place and time constraints and who meet online to work together on a shared task.
- The tasks and sub-tasks on which members work online are clearly defined and participants have a clear understanding of the expectations.

- A common sense of responsibility exists among participants towards the assigned task and peers.
- Easy access to technology and Computer Supported Collaborative Work (CSCW) tools is available to all members.
- The tools for communication are accessible and usable.
- There is good leadership and co-ordination of online activities.
- There are capable moderators that provide facilitation, help, guidance and support as needed to the members of the community.
- Ongoing interaction among members is based on constructive dialogue.
- A joint vision, control and ownership of the community, its goals and artifacts are equally shared among the members of the community.
- There is mutual support among its members and sub-groups.
- The rules that govern participation in the community are clearly defined.
- A system is in place monitoring member participation and behaviour and a system to sanction certain inappropriate behaviours.
- It is a safe environment where participants can freely express their opinion and ask questions without the fear of being 'attacked' by others.
- Activities completed are evaluated regularly and feedback is provided in a timely manner.
- There is a certain degree of structural dependence that establishes the need for members to interact and share resources.
- Smaller groups within the community provide a peer-support group smaller than the larger community (Levin *et al.*, 1990; Palloff and Pratt, 1999; Salmon, 2000; Harasim, 2002).

Planning issues

The general characteristics presented above provide the framework for successful online communities. Some of the issues to consider and questions to ask as one is planning to create an online community for professional development are:

- *Goal development*: What is the goal driving development of the project? Why is this online community being developed instead of a different approach? How is building an online community appropriate for this purpose?
- *Audience analysis*: Which is the target audience? What are their characteristics? How experienced are the learners in using the Internet and navigating the Web? Are they familiar with microcomputers? What is their knowledge level of the subject matter?
- *Needs assessment*: What are the specific skills, knowledge and concepts that need to be taught? Detailed surveys and pilot studies can provide the development team with valuable insights on what is needed by the target audience and their organizations/companies/schools. What is the gap to be bridged with this project?
- *Limitations*: Do all members of the target audience have access to the Internet, microcomputers and related technologies? If not, what provisions will be made to provide access to technology (use the company offices, establish community centres, use computer labs in local libraries, partner with corporations to fund some of the technology, etc.)?
- *Budget*: What is the budget for developing the project? How much of that budget will be applied for purchasing software and hardware and for hiring professionals to assist in the design and implementation of the online community? Where can you locate additional funding for your project?
- *Task analysis*: What tasks will users be performing while using the tools available and participating in the community? Are there any prerequisites that users must possess before qualifying to participate in the project? What is the hierarchy of tasks expected to be performed?
- *Timeline*: What is the projected timeline of the project? Are the funds and resources available sufficient to meet the deadline?
- *Evaluation*: How will you know that the community has value and makes a contribution to the organizations and individual members who participate in it? How will you know that the project achieved its goal(s)?

Practical recommendations

Thus far, we have identified some characteristics of online learning communities and discussed some issues to consider while planning a community. Following are some practical recommendations that derived from our work as well as the work of others:

- *Give ownership to participants*: When online communities for professional development are developed and facilitated by staff from participating institutions they are more likely to be successful. Therefore, those involved in the development of online education should try to provide opportunities for participation to all stakeholders. Furthermore, those who participate in the community should have enough opportunities for shaping the structure, function, content, policies and operation of the community.
- *Ensure commitment*: Although it is difficult to ensure that all participants will have the same level of commitment, all stakeholders need to be committed to developing a quality product that would meet the needs of participants.
- *Select the appropriate tools*: Using the right tools, which are usable and offer enough functionality to achieve the goals of the community, is fundamental for the success of communities. Brown and Duguid (2000) have argued for the importance of texts and discourse in forming communities. Communities have been forming around texts and written documents for centuries now. As it has been stated, 'Communities bound together by texts and a shared disposition towards those texts, as ancient philosophical and religious communities remind us, predate not only the net and the telephone, but even the printing press' (Brown and Duguid, 2000, p. 190). Therefore, systems used to facilitate communities need to allow participants to easily exchange ideas, share documents, edit each other's document and post it to the group. Developers need to consider whether to develop custom web-sites for the community or use a commercial Learning Management System (LMS). For example, for most online projects that we designed we developed all content custom, without the use of a commercial LMS (e.g. WEBCT or Blackboard). Therefore, this requires serious programming, planning and testing. Educators rarely have all the technology skills needed to develop custom web-sites for online communities and, thus, the use of commercial LMS has grown dramatically. The commercial LMS combine the communication infrastructure required for the delivery of online educational content such as e-mail, online discussion boards, chat facilities and announcement boards, with the document repositories, drop boxes, links to other web-sites, online assessment and interactive tutorial that combine image, text, animations, video and audio. Several organizations use one or more LMS. However, using only one LMS within an organization has certain advantages:

  - Faculty training needs to take place only once in using the one platform you chose;
  - Technical support for faculty and students is simplified and streamlined;
  - Expert faculty can serve as mentors to novice faculty users since they will be using the same platform;
  - Faculty and students use a system that uses the same navigation scheme, look, and feel;
  - Same communication tools are used for all classes;
  - There is the same login procedure; and
  - Assignment submission and retrieval procedures are similar and streamlined.

- *Incentives and compensation*: Teachers and faculty want issues relating to time release, duties, compensation and other policies and requirements to be clear before investing time and effort in the design and facilitation of online communities. For tutors and teachers to participate in online communities, they need to know clearly what the expectations are and what the gains will be. Sometimes teachers feel they are alone in their schools without all the support they need to succeed. It is important for schools and organizations to establish clear rules as to how teachers will be compensated while participating in professional development and online education.
- *Training and professional development*: Teacher training is very important for both community development and facilitation. What are the best ways to prepare teachers to be effective online community builders? Is face-to-face training, or online training, or a blended approach best? What are the skills of an effective online community facilitator?
- *Institutional policies*: In addition to the policies regarding teacher involvement, there are several other issues that need to be addressed at the local school and district levels. Such issues include accreditation, plagiarism and intellectual property. For example, what policies need to be in place to facilitate the success of online professional development?

Facilitation, moderation and pedagogical considerations

In this section, we will briefly examine some basic issues as they relate to the facilitation and pedagogy of online learning communities. Although several other issues are also important such as the provision of facilitation, allowing participants to present themselves, negotiating guidelines for participation and etiquette, in this section we will focus on the issues discussed below.

● *Structure communities to promote interaction*: Interaction is the heart and soul of every learning environment. Online environments and communities allow multiple kinds of interactions. However, interaction will not take place unless it is required and contributes to the overall goals of the community. Structuring collaborative projects is a good way to promote interaction among community participants. Assigning participants to moderate online discussions, engage in debates, summarize results and reflect on their postings are also strategies that promote interaction.

● *Build mechanisms for providing immediate feedback to community participants*: During face-to-face situations non-verbal gestures and other cues are constantly exchanged, thus providing both the teacher and learners with feedback. A teacher's smile, verbal comment and a facial expression are all ways students can get feedback. Students' confused faces can indicate to the teacher that she needs to elaborate more on a topic. However, in online interaction these contextual cues of communication are lost and, therefore, frequent feedback is very important. Students need to be provided with immediate feedback on their work, discussion participation and overall progress. Feedback needs to be personalized and addressed to the individual student's work. Feedback addressed to the group is also helpful, but it is individual feedback that touches participants. In text-based CMC settings, users invent other means for compensating for the lack of visual and audible cues. Instructors can create an environment within which participants can interact with peers and feel socially present (Vrasidas and Zembylas, 2003). In addition, it is important to contact participants on a regular basis to check if they are having any problems and get their continuous feedback. Some communities have a policy according to which facilitators have to acknowledge receipt of an e-mail within 24 hours. Some others are self-regulated and the need and dynamic content as it is being made available in the community provides feedback to participants.

● *Provide opportunities for practice with technology*: An important component of online interaction is that it is mediated with technology. It is important that both facilitators and participants have the skills necessary to engage in technology-mediated interaction. Before developing and facilitating an online community, professional development of the facilitators is essential. Without the necessary skills, the facilitators will not be able to utilize the medium for more effective instruction and provide the best learning experience for the community members. Furthermore, the facilitators will not be able to model expert behaviour, unless they have previous experience. Community participants without the necessary skills will get disappointed, not be able to participate and more likely they will drop out.

● *Assessment of online learning and participation in online communities*: Online learning environments require a variety of methods for evaluating and assessing student learning and participation (Hiltz, 1990; Vrasidas and McIsaac, 2000; Mason, 2002). Traditional face-to-face classrooms and communities provide teachers and facilitators with several ways to assess student learning. For example, non-verbal communication is a big part of the evaluation process of the traditional face-to-face classroom. However, the online facilitator does not have access to facial expressions, voice intonation or body language. Therefore, a variety of methods are essential for evaluating online learning communities, students, participants and educational programs offered online. Such methods include information gathered from participants' work, participants' moderations of online discussions, their postings in online conferences and other artifacts developed and used while participating in the online community.

Conclusion

In this paper, we have presented some practical guidelines for planning and structuring successful online communities. Emerging technologies enable the use of strategies and initiation of projects for continuing education that were not possible before. In order to make the most out of technological developments, policy makers, administrators and educators need to get away from the mentality that technology is but a poor substitute for face-to-face interaction. Taking advantage of the affordances of these new technologies requires good planning and sincere interest by all stakeholders.

If one accepts the above ideas, then it is only the first step to realize that the very notions of teacher and learner identity, spatiality and temporality online are becoming increasingly more complex. One of the major conditions in this new 'space' is its global character and nearly instantaneous interaction. However, forming online communities requires struggles with maintaining the fabric of cohesion that gives them the sense of communities (Burbules, 2000). Online communities must continually struggle with the problems and possibilities of their own capacities to *become* and *remain* communities. The constant changes in these problems and possibilities and the types of communities that are constituted are greatly influenced by how particular structural decisions concerning their development are negotiated. Such decisions are deeply embedded in educational philosophies and epistemological assumptions about teaching and learning. Any

choices made have certain implications for the kinds of communities that are envisioned and how these choices will privilege some and disadvantage others. The ways in which visions become real and the ways in which online communities become and remain the sort of communities that are meaningful to their participants, need to be understood as having major impact on the quality of teaching and learning in this newly born century.

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