

Beyond an Institutionalized Learning Environment: Fostering Interactions and Learning Using Synchronous and Asynchronous Messaging Systems

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BACKGROUND

A need for educational opportunities that transcend constraints in geography, time and resources is being answered increasingly by distance education. The widening access to educational opportunities gives people relative freedom to pursue professional and personal growth and development in modes that suit their needs. In the workplace, competition has become stiff with information, knowledge and skills we possess fast becoming obsolete and redundant. Retooling and reorienting oneself to remain relevant is now the call of the times. More and more people are therefore seeking opportunities to educate themselves and distance education has provided a viable option to pursue educational goals with minimum sacrifice.

Public interest in such a mode of teaching and learning has expanded both in terms of program offered and enrolment numbers. The choice of delivery media is also increasing with the use of information communication technologies such as audio, video, electronic mail, the Internet and the creation of platforms and interfaces to host online learning environments, among others (Reyes, 2003; International Telecommunication Union, 2002). These developments aim to improve student learning.

The Philippines has been named the world's texting/SMS (Short Messaging System) capital, with more than 2 million SMS sent each day from over 13 million cellular phone subscribers (Pabico, 2003). Cellular phones and SMS have become an important aspect of Filipino life and usage of this communication system is wide ranging—from the more personal use (i.e. communicating with family and friends and to meet new people) to business and educational use (Coronel-Ferrer, 2002). UPOU is experimenting with educational uses of SMS (Short Message Service, text messaging or TXT) for content delivery and student support. One main use is for information dissemination regarding the university—particularly for academic and administrative matters (Suplido, et al., 2004).

It is interesting to note that Filipino students, especially in modes of education like open learning and distance education systems that have less face-to-face and classroom interaction, often use synchronous¹ (SMS, chat, Netmeeting, PC-Mobile platforms, etc.) and asynchronous² (email, e-groups, discussion boards, etc.) messaging systems to foster interaction and learning. The use of these messaging systems in educational settings has become a phenomenon and an indispensable communication system and is now an important aspect of teaching and learning (Pabico, 2003) Its implications for distance education policy-making, administration, curriculum development and instruction are, therefore, worth examining.

THE UNIVERSITY OF THE PHILIPPINES OPEN UNIVERSITY (UPOU)

The UP Open University is the 6th constituent unit of the University of the Philippines (UP) System that offers distance education programs to adult learners who are otherwise constrained by geography, time, and resources. Programs offered include Masters and Doctorates as well as Associate and Certificate programs.

Distance Education Has the Following Characteristics (UPOU, 2003)

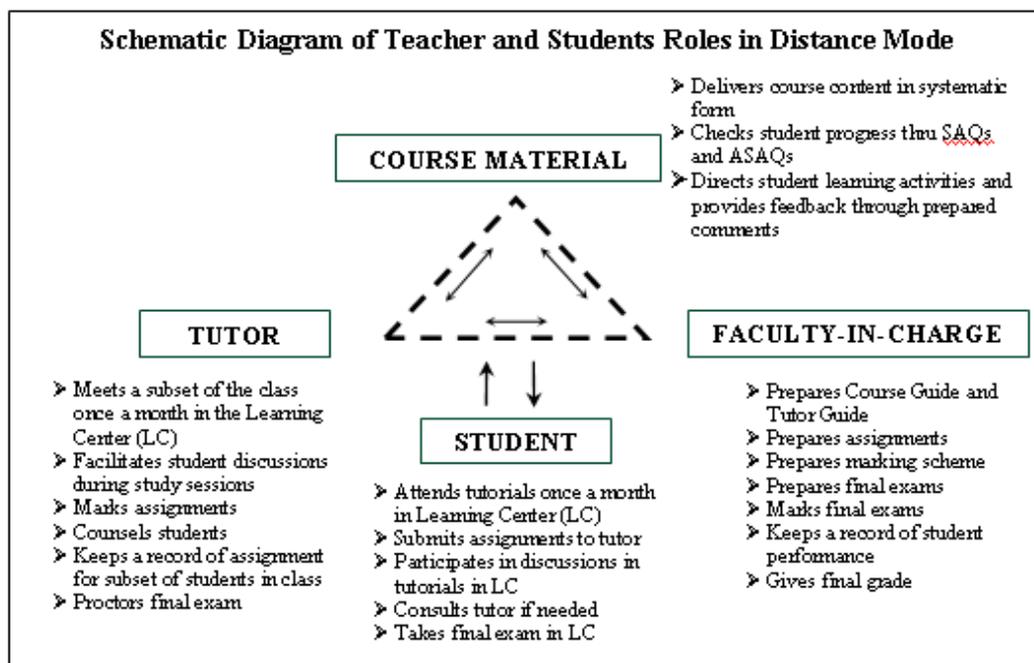
1. The learner is physically separated from the teacher.
2. Learning is individualized. Distance education requires an independent self-learning style on the part of the student. Students study in their own time and place.
3. Learning packages make use of multiple media such as print, audio, video, computer programs and the internet.
4. Two-way communication between teacher and student exists through printed communication, electronic mail, telephone, teleconferencing, computer conferencing and even video conferencing.
5. Communication technologies are a very important aspect of distance education since these are used for various purposes (i.e., as a tool for administrative networking, as a facility for two-way communication between teacher and student, between tutor and student, between the University's support services and the student, and as an aid for teaching and learning)

To better understand the context of distance learning in UPOU, and the roles of teacher and student see Figure 1.

Interaction is an important requisite for learning, Figure 1 clearly illustrates each of the variables that interact and affect one another. However, aside from this interplay, there are other important factors necessary for learning in a distance education setting:

- Effective pedagogy and teaching strategies
- Close monitoring of student performance and fostering one-to-one interactions (Holmberg, 1998)
- Collaboration and interaction among learners
- Use of multimedia/ICT that are appropriate in meeting learning objectives (Reeves,1998)

Figure 1: Teaching and learning roles at UPOU



A system of academic and student support is therefore imperative to achieve better student learning and high graduation rates. One essential component of such a support system is a set of accessible, reliable and inexpensive communication tools. However, the reality is that State Universities and Colleges in the Philippines (including the University of the Philippines) have limited financial resources this challenge the innovativeness and the creativity of both the teachers and the students to maximize resources available to them.

The Integrated Virtual Learning Environment (IVLE)3

In 2001, UPOU committed itself to use an Integrated Virtual Learning Environment (IVLE) by offering of an online component in its graduate degree programs. IVLE started as a tutorial support system and eventually evolved into a platform for offering full online certificate programs. IVLE marked an important development in the provision of alternative learning modes for UPOU distance education students and thus introduced new ways of teaching and learning. The IVLE, and the broader category of Information Communication Technologies (ICT), are increasingly playing an important role in fostering interaction among students and faculty and have become a tool to strengthen and improve responsiveness of academic and student support systems, and hopefully, will promote information literacy and resourcefulness in students. The IVLE has the following features, which are mostly asynchronous in nature.

Discussion board

Based on the course outline, the faculty regularly posts topics in the discussion board for his/her students to discuss. Discussion forums usually start with introductory messages from the faculty and the students. Such an activity is geared towards making students comfortable with the medium and with interacting using the interface.

Workbin

This is a repository of course files and assignments students can use to exchange documents. The assignment folder can be configured to ensure security of files, which the faculty can only access.

Group mail and class list

This allows sending of emails to all registered students of the course. It provides the faculty with a convenient class list with corresponding UPOU email addresses of all students enrolled in the course for contacting students.

All registered students are assigned a free UPOU email account and every semester, they are provided with an IVLE user name and password, which they can use to access their courses. The password is provided for students whose courses have an online component or whose courses are delivered online. Course specific announcements and all functions available in the IVLE become accessible once they are logged into the system.

Another IVLE function, which is very beneficial and helpful for the faculty is the provision of a searching and bookmarking mechanism that can make links to other courses that may be useful in the enrichment of one's course content and may provide relevant pedagogical input. This gives the faculty a chance to virtually sit-in and observes other classes.

Asynchronous communication systems such as the IVLE accord faculty and students flexibility to "interact" at their own pace and time as it does not require them to log-in simultaneously. This accords students more time to conceptualize and construct their ideas well before they share them with their teacher and their classmates in the discussion board or the email system.

The IVLE does have synchronous communication mechanisms (i.e. chatting) but at the moment it has limited functionality. Students and faculty who require more synchronous interaction use external systems available on the Net to meet their technical requirements.

The IVLE is Net-based, thus student users need to have good access to the Internet in order to maximize its benefits. Results show that the Philippines' preparedness towards becoming an eLearning society is hindered by a lack of adequate landline facilities and Internet connections in far-flung and traditionally underserved areas of the country (Trinidad, 2002). UPOU students are geographically dispersed; those based in far-flung provinces have access problems and for those whose areas have Internet providers, slow data transfer speed (bps) is a problem. Slow bps leads to problems of timeouts and loss of links when accessing the IVLE website. There are also instances when students complain of the IVLE being unavailable, thus their plans and schedules are drastically affected.

Limitations of ICT infrastructure in the county, and periodic unavailability of the IVLE, lead faculty and students to seek alternative means of communication that will allow them to get immediate feedback from each other and provide them a means for fast, convenient, inexpensive and easy interaction.

Alternative Messaging Systems and the UPOU Experience

Various alternative messaging systems are commonly available and decisions about which to use would depend on the technical requirements of the end-user. Each of these systems has a different set of features and may be asynchronous or synchronous. UPOU Faculty use a variety alternative messaging systems in the course of the semester. Instant Messaging (IM), Short Messaging Service (SMS), and emailing are being used to facilitate asynchronous discussions, interaction and consultation with classmates and faculty.. These are systems external to applications available in the IVLE.

SYNCHRONOUS MESSAGING SYSTEMS

Immediate feedback is important to facilitate discussions and synchronous communication systems have been very effective in monitoring student progress as well as in the provision of timely academic support to unlock student difficulties with concepts they must learn.

To provide an example of its use, the experiences of a UPOU faculty handling Mathematics classes in the Associate in Arts (AA)4 program will be illustrated. From experience, students learn Mathematical concepts and operations best when they see step by step solutions in real time discussions. Because Mathematics is viewed with fear and anxiety, real time discussions and real time support helps students overcome difficulties and anxieties that hinder learning.(See Figure 2).

The following systems have been used over the duration of the 1st semester, academic year 2003-2004 and have proven to be very effective in fostering interaction among students and with the faculty. It is important to note that most of these systems are available at no cost by downloading from the Net thus cost efficiency is addressed

Instant Messaging (IM)

Instant messaging systems allow textual or video interaction between two or more parties in real time. These systems are available for free, the only requirement is that the user is online. Some of the IM tools available in the Net are IRC (Internet Relay Chat), ICQ (I Seek You), MSN Messenger and YM (Yahoo! Messenger).

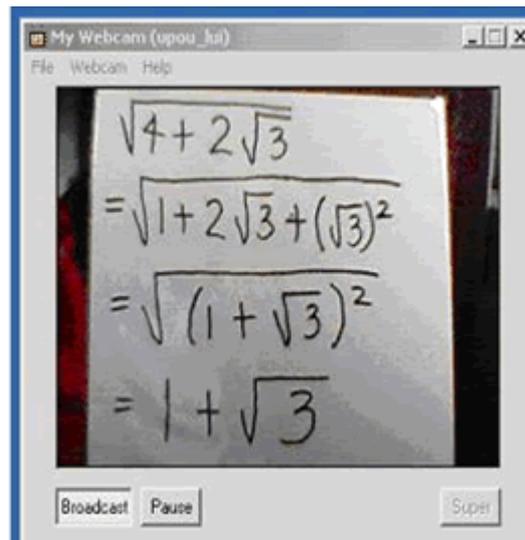
The Mathematics class used YM due to the familiarity of the faculty and the students with its multi-media features, which are as follows:

- Private and group chats with emoticons features that add a personalized and human touch to conversations and discussions.
- File transfer functions allow for file exchanges in real time, which is helpful in the provision of instant feedback, comments and corrections to student work. This feature, however, is limited to small capacity files.
- Video implementation on the PC platform or in simpler terms, chatting with a webcam. In the context of Gardner's multiple intelligences, each intelligence is seen as capable of functioning relatively independently of the others. Individuals will differ with regard to the areas in which they are considered to be most effective (Ramos-Ford & Gardner, 1997). Thus, some students learn best through visuals and face-to-face interaction thus, features that allow students and faculty to see each other can be helpful in teaching Mathematics. This feature has been very helpful for the faculty to see non-verbal cues of students and show solutions in a step by step manner using a whiteboard, which is then broadcast to students online. This strategy does not require students to have webcams themselves as they will see the magnified whiteboard on their computer screens, explanations of the solutions, responses to questions, and clarification requests from students are done through textual chatting. Voice chatting (either private or group) with webcam is also possible. This easily simulates the chalkboard and discussion in a residential class.

- Voice chatting is an alternative to the limited functions of chats, discussion boards and emails when it comes to the need to discuss mathematical symbols and the lengthy explanation of each of the operations involved. This function, however, requires from both users to have a headset with a microphone.
- Archiving functions allows the retrieval of chat transcripts. The transcripts aid the faculty in the wrapping up/synthesizing discussions.

All in all, IM systems are useful to faculty in determining the level of student difficulties and to assess their performance. It gives one a picture of what is necessary to help students overcome their problems in the course. In some cases, counseling and consultations are done through private chats as some students may have esteem problems or are shy about expressing their problems within a group.

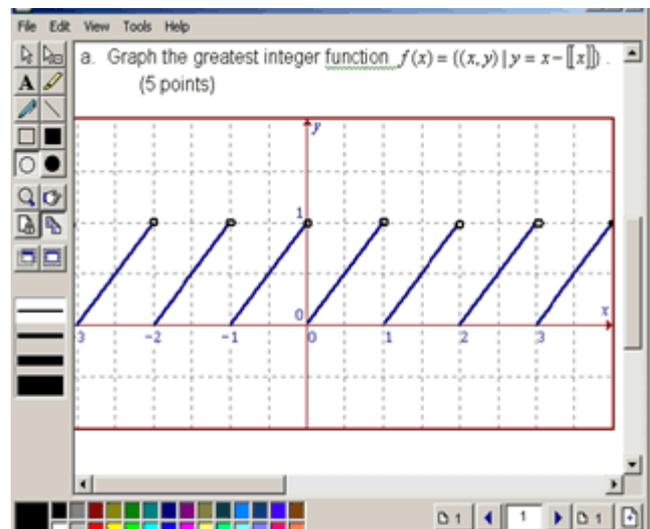
Figure 2: Screenshot example of chat discussion using webcam.



Netmeeting

This is one of the applications included in a Microsoft operating system that can be accessed by students connected to the Internet. Aside from chat capability, it has whiteboard functions that can be used to show mathematical solutions. Mathematical graphs are also shown on the whiteboard for further explanation and analysis of mathematical concepts. (See Figure 3).

Figure 3: Screenshot example of whiteboard using Netmeeting.



(PC-to-mobile phone Short Messaging System (SMS))

SMS is commonly known as text messaging. As stated earlier, the Philippines is known as the texting capital of the world. SMS is one of the students' favorite means of communication with faculty and other students. Since on average, mobile phones have a capacity of 160 letters per message, abbreviated spelling has evolved to extend messages and at the same time get the messages clearly to the other person.

The PC-to-mobile phone messaging system costs the user nothing when connected to the Internet and incurs a small charge for replies from mobile phones. Call/text cards for mobile phones have usage costs and the faculty can not charge the expense to the University budget, however the PC-to-mobile systems is cost effective when using the 24-hour unlimited Internet facilities of the University. The faculty can, therefore, send replies to more than a hundred students inquiring via SMS at no extra cost.

The most efficient PC-to-mobile service available for free on the Net is Chikka. This system is truly Philippine-made as it was developed and is being run by Filipinos. This tool can communicate to all mobile service providers in the country, as well to students who are on travel abroad and are using roaming facilities.

The Chikka network makes possible one-time sending of SMS to multiple recipients/mobile phone users instead of doing it one by one. A message archive function is also available hence, recall of the interaction is easier for evaluation and assessment purposes. Since a PC keyboard is used, encoding of messages is easier compared with the use of a mobile phone keypad. When offline, unread messages to one's Chikka number (if using a PC registration) will be forwarded to one's mobile phone or through email notification. One limitation for Mathematics, however, is that there is no provision for mathematical symbols so in using this system; there is a need to put every mathematical symbol into words. (See Figure 4)

Figure 4: PC screenshot example of discussion using Chikka.



ASYNCHRONOUS MESSAGING SYSTEMS

Given the limitations of the IVLE system at UPOU and the technological limitations of ICT infrastructure in the Philippines, alternative asynchronous messaging systems available for free in the Net are most useful. For the Mathematics classes illustrated here, the eGroup application of Yahoo! was used as an alternative means of communication. eGroups are similar to the IVLE in features but has added features that are effective for facilitating active communication and interaction with and among students.

The convenience of an eGroup lies in its flexibility and simplicity. When logged-in, members readily see new and unread messages from the faculty or their classmates in the splash page and the interface is simple enough to navigate. The moderator (in most cases the faculty) has control over the group membership, which is based on the class list and their Yahoo! email addresses. Unlike IVLE where control relies on the site administrator, adding

and deleting email addresses in the eGroups is easier. Other functions of eGroups are:

- Creation of links to useful and relevant websites. It also gives students chance to share their own websites and creative works.
- File bin where members can exchange relevant files and documents.
- Polls that allow members to do simple surveys for educational purposes.
- Database of members for easier monitoring by the teacher.
- Calendar that gives automatic reminders of activities and deadlines via emails.
- Photo section gives every member opportunities to share their more personal sides. (See Figure 5).

Figure 5: Screenshot of personal photos in eGroup.



IMPLICATIONS

As students and faculty become more comfortable with technology and because technology is fast becoming a necessary part of everyday life, people's expectations of it become clearer. There is strong demand for efficient, effective, convenient and yet intuitive and simple to use systems of communication and with varied alternative systems available in the Net, people have a choice about which system, or a combination thereof, is more appropriate to their needs. Learning systems must be able to evolve with the changing needs of its students and this is more and more felt in the field of distance education and open learning where delivery systems work in tandem with ICTs.

As the experiences of UPOU students show, there is a need for the University to carefully look into the functions and applicability of the IVLE as a learning environment. More students use external messaging systems to foster interaction and learning thus, a thorough study on the reasons for this occurrence using the perspective of culture as a learning variable is recommended. Perhaps Filipino distance learners prefer synchronous messaging systems as they provide immediate feedback and foster a sense of not being isolated and alone, and are able to convey psychological support and promote collaboration. Studies done among Filipino learners have in fact shown that traditional distance education students often feel isolated and alone due to highly individualized nature of learning via open systems (Alip, 2001; Alip, et. al., 2004). There is a need to monitor the support services needed by the students that would match their accessibility. Thus, the power of internet technology as a learning tool in distance education is no longer an issue but the challenge lies on how to make effective use of the technology (Alviar-Escobin, 2004).

ICT, however, is not the end in itself but a means for promoting better student learning. ICT must be used within the context of its appropriateness and relevance in meeting learning objectives and in addressing the support needs and providing services required by students. As Frick (1996) aptly put it:

- Technology is best used in education for teaching and learning activities that are not possible without it.
- Teachers should select the best of culture, and make it available to students as they guide their learning.

CONCLUSION

In our enthusiasm to be global, technologies should be handled with a critical mind; educators in the Philippines must always give consideration to cultural factors, to whether or not a technology is appropriate to the characteristics of a Filipino learner because only in such manner will we be able to harness its advantage for the betterment of our people's education and learning.

Notes:

1. Synchronous: Occurring simultaneously or happening at the same time. Also referred to as "real time."
2. Asynchronous: The occurrence of two or processes at different times.
3. Software developed by the National University of Singapore (NUS).
4. A UPOU undergraduate-level degree program equivalent to the first 2 years of a baccalaureate program in the Philippines. The program is composed of 72 units of undergraduate general education courses. Students are adults over 21 years old and are working fulltime or are fulltime homemakers.
5. Call or text cards are pre-paid card service of mobile phone service providers and are available anywhere and anytime, from 24-hour convenience stores, "sari-sari" stores in villages and from small kiosks and taxi drivers.
6. Chikka: Filipino slang for conversation.
7. Not available via IVLE.

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Nikki Philline C. de la Rosa interests with educational psychology, pedagogical support for distance learning, student support system in distance education, adult teaching and learning, agrarian reform and development.

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