Incorporating Motivational Elements in a Web-Based Learning Environment for Distance Students: A Malaysian Experience

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Abstract. The Internet has prompted educational institutions world wide to deliver their distance learning programmes via the Web. Malaysian institutions are following suit. However, the success of Web-based distance learning programmes is largely dependent on how well we keep the students sufficiently interested, energized and enthusiastic to complete the degree requirements. There are techniques that designers and instructors can use to make the virtual learning environment attractive and meaningful. As such, the virtual learning team at the International Medical University developed a motivation model based on Horton's recommendations for a motivating environment to help sustain the students' interest. VENuS (Virtual Education for Nursing Sciences) was developed not only using the systematic model of instructional design but had also applied the motivation model. The paper describes the application of the model and highlights the feedback received on the prototype.

1 Introduction

There are tens of thousands of distance learning courses offered by educational institutions around the world. It appears to be the trend. Many institutions are using the Internet to reach out to their students. The technologies most often incorporated include the World Wide Web and communication tools such as threaded discussions, chat rooms, electronic blackboards and electronic mail (e-mail). In short, online distance learning, has gone virtual to reach out to wider groups of audiences in far away places. And, distance learning is popular among working adults because it provides them the flexibility in obtaining a degree or to upgrade their paper qualifications.

However, in spite of the promises and potential benefits offered by the Internet, not all virtual learning environments have included some of the essential pedagogical elements necessary to help keep the student numbers in. As Sir John Daniel, the Vice Chancellor of The Open University once stated, "Much of the commercial hype and hope about distance learning is based on a very unidirectional conception of instruction, where teaching is merely presentation, and learning is merely absorption. The Open University's experience with two million students over 25 years suggests that

such an impoverished notion of distance education will fail – or at least have massive drop-out problems." [1]. And, as Jackson and Anagnostopoulou found in their review of current research, online approaches should not dictate pedagogical changes [2]. The pedagogy employed in virtual learning environments appears to be the principal variable affecting the nature and quality of teaching. Hence, in the effort to design and develop a virtual learning environment for the International Medical University (IMU), past efforts and experiences were reviewed so as not to repeat mistakes. Instead, an effort was made to look for the best of recommendations.

1.1   Distance Learning in Malaysia

The most widely known distance-learning programme in Malaysia is that offered by the University Science of Malaysia (USM) for more than the past twenty years. It is today, still, largely tradition-based using print and a small portion of ICT or the Internet. However, the newer Malaysian universities such as Unitar (Universiti Tun Abdul Razak) established about six years ago and the Open University of Malaysia (OUM), established about two years ago, have incorporated the Internet in a significant way to deliver their distance learning programmes.

Other universities (a total of 16 public and 21 private universities) are quickly following suit to meet an increasing demand for distance learning among Malaysian adults as they seek to gain additional qualification while working or while waiting for the country's economic situation to improve. This growing demand has led to a marked increase in the number of distance programmes offered by both the public and private colleges in Malaysia. It is to be noted that locally, the popularity of Internet has grown exponentially in the last decade. The number of Malaysian Internet users has risen from a few hundred to over four million out of a population of 24.79 million people.

1.2   Distance Learning for Malaysian Nurses

Recently, the Malaysian government announced that at least ten percent of the 32,000 non-graduate nurses [3] in the country needs to be upgraded and has urged the nurses to obtain a Bachelor's degree in nursing while working. This has prompted the International Medical University (IMU) to help meet the ministry's needs by offering the programme via distance. Distance learning is believed to be most appropriate because in-service nurses are generally unable to secure study leave or to obtain a leave of absence from work due to the severe shortage of nurses in Malaysia. The health ministry is thus expectant that the solution is in the form of distance learning programme. The upgrading of the nursing profession will provide better quality nurses and will help meet the more sophisticated demands from the public for better quality healthcare and also to support a thriving healthcare industry.

In view of the advantages offered by the Internet, a web-based learning environment was designed for the nursing programme at the IMU. This mode of learning is also expected to contribute to the Malaysian government's National Information Technology Agenda (NITA) to help spur the development of the K-based economy. It is thus

also perceived that the nursing profession will benefit more from their exposure to an online learning environment. All the new hospitals that have been recently built or being built will be equipped with the latest in technology and will be paperless. Hence, it is even more imperative to develop a group of nurses who will champion the use of ICT as well as establish an ICT using culture where they work [4].

2   Design of the Virtual Learning Environment

Designing an effective virtual learning environment for any form of learning is both an art and a science. It requires the understanding of sound learning principles and the selection of only the appropriate technologies. According to Alexander and Boud, for example, much of the potential of online learning is being lost because too much of the pedagogy of online learning has been transferred unreflectively from didactic traditional teaching where the computer substitutes for the teacher and textbook as conveyors of information [5].

It is important to ask, "How can instructors exploit technology to promote improved learning?" Another important question is "What is it that we want to do and how will technology support it?" It should not be a situation where looking at the capabilities of the technology, we determine how the learning process should be fitted in. An example is where class notes or a videotaped lecture is transferred to the Internet. What is more important is the strength of teacher-student and student-student interactions, how students are engaged in the learning process, particularly in collaborative learning [6]. The latter is where communication tools such as threaded discussions can be effectively used.

To a certain extent, the wide availability of Learning Management Systems (LMS) such as Blackboard, Top Class, Lotus Learning Space and WebCT has made the task of designing virtual learning environments somewhat easier. Creators are prompted to include certain sections in the virtual learning environment that would support the pedagogical needs of distance students. This includes features or sections such as course content, e-discussions, chat, e-mail, whiteboard, self-assessments, grading information and calendar. However, these are mere tools. They will only be effective if the designer and instructor can employ the tools to support good pedagogical principles and to provide the motivation distance students require.

For a virtual learning environment to succeed in meeting the needs of distance learning, it must be attractive, motivating and meaningful. How the designer and instructor incorporate teaching, learning tasks, activities, content, information or communicate any other curricular related matters to the student will make a huge difference. The significance of creating an environment that attracts, motivates and provides for meaningful learning is especially important to keep attrition rates low. As Horton suggests, it is important that instructional designers, web developers and instructors use techniques to keep students interested, energized and enthusiastic [7]. It is not about using the best or the latest technology. It is about choosing the most appropriate technology that will support the various pedagogical requirements so that we can incorporate, within it, features to achieve effective learning using motivational tech-

niques recommended by Horton. In short, a motivating environment is particularly important in the case of distance students to help keep attrition rates low.

2.1 Design Guidelines

Virtual learning environments should have high standards of quality but it must also be easily accessible, motivating and provide interactivity for students [8]. The need to achieve the balance between these elements is clear but not so easy to achieve. While most technology platforms are able to support the most sophisticated elements such as video clips, animation, sound effects, music, voiceovers, photographs and drawings, they may not necessarily be the key elements required to succeed. What is the use of having multimedia files if students have slow access to the Internet and find the time taken to download and finally view these files take too long and hence frustrating? Similarly, what is the use of providing collaborative learning opportunities when students and instructors are unaware of the value, unsure of the process and benefits?

For web-based courses, elements that must be accounted for in the overall design are in the following six areas: administrivia (e.g. syllabi, schedules, contact information, course objectives and expectations), course content (e.g. textbooks, readings, lectures, video/audio tapes, graphics and images), interaction (between student and instructor and among students), additional learning resources, monitoring of the learning process and final assessment of attainment of course learning objectives [9].

Horton states that for students to succeed in distance learning, self-discipline and motivation plays a key role. He found that dropout rates are as high as 85%. It implies that we cannot assume that all students will come properly motivated or continue to be motivated as they move from one course to another or from one semester to another. In fact Horton observes that web-based learning demands high levels of motivation and this means a virtual learning environment must motivate students. The instructional design team must consciously plan to include high levels of motivation as they develop the web-based learning system. Horton believes that motivation is a key element that will contribute to a student's success in the distance-learning environment. In the review of the literature, many others in the field echo this [10]. Hence, the focus of this paper is on providing the motivational aspects in the virtual learning environment.

Preparation of the learning environment and materials for distance learning is usually the task of an instructional development team comprising at the very minimum; an instructional designer, a web developer, graphic/multimedia artist and subject-matter expert. The instructional designer applies the universal ADDIE (Analyze, Design, Develop, Implement, Evaluate) instructional design model. While the ADDIE model is a widely adopted universal model for the development of learning materials, sound pedagogy need to be employed during the process of developing a virtual learning environment such as VENuS at the IMU. This is where Horton had the most impact on the author who is the instructional designer, during the process of designing VENuS. It is without a doubt that good instructional design of web-based education significantly improves what instructors deliver to students and enhances learning objectives. While different learning objectives require different learning strategies,

courses need to be structured and organized to involve students in the learning process in the most effective way. It was found that Horton's recommendations on how to create a motivating environment for students were the most apt and practical. Hence, the recommendations became the basis for developing some of the detailed features of VENuS, the virtual learning environment for the IMU's distance learning programme for nursing.

2.2   Design and Development of VENuS at the IMU

VENuS (see Fig. 1) is the learning platform for the IMU's distance learning programme for nursing. It is designed by a team comprising full-time subject-matter experts, an instructional designer and a Webmaster. For graphics related work, the team taps the artistic talents from the IMU's Chief Knowledge Officer's Office. Two members of the VENuS team had prior experience designing OLIS (Online Learning Interactive System) for the medical students of the IMU. The instructional designer and Webmaster have graduate degrees in Instructional Technology and have had vast experience in the field, teaching as well as developing technology-based learning materials.
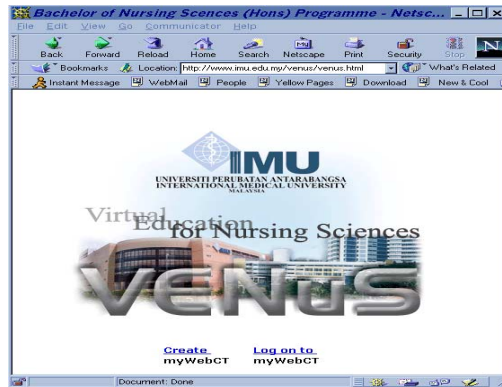
Fig. 1. The entrance page to VENuS where students and instructors log in to access the contents of the nursing programme

The learning management system used to develop VENuS is WebCT. When designing VENuS, much consideration was given to the preparation of a student-friendly and motivating environment. The motivation model based on most of Horton's recommendations was applied. These are described in the next section.

Students can access VENuS via the Internet from wherever they are. An initial survey with the first cohort group of the IMU's nursing students indicate that everyone had a computer at home although not all were experienced in using the Internet. This also means that not everyone had an e-mail address. However, based on the survey conducted during their pre-course orientation, everyone was prepared to upgrade their home computer and subscribe to an Internet Service Provider.

2.3   Motivational Elements in a Virtual Learning Environment

In the attempt to understand Horton's concerns and recommendations relating to the factors of motivation for an effective learning environment, the author created a visual model in the form of a wheel (see Fig. 2). Most of Horton's recommendations were considered, particularly those that were applicable for the nursing programme. The author organized Horton's recommendations into four main areas: Communication, Content and Activities, Community and Reinforcement. Each area comprises Horton's recommendations that, when implemented, is believed to provide a student-friendly environment that will provide an incentive to the students, encourage, as well as discipline them.   Each area is discussed below.

Communication. Communication is one of the keys to successful learning. Creating a warm and welcoming atmosphere is an underlying principle to creating a learner-friendly environment and is a key factor in distance learning (see Fig. 3). There are four other areas of concern: setting clear expectations, requiring commitment from the student, intervening when the student is not on track and encouraging students to seek help. In setting clear expectations, the student needs to be told what is expected of them and they also should be encouraged to convey what they expect from the course. Items that need to be communicated are how the course will be organized, what are the learning outcomes, what and how many learning activities will there be, what are the assignments, how and when will the student be assessed, what is the passing mark, and what will happen if students do not meet the minimum requirements (see Fig. 4). Additional questions are what and where are the resources and who can they ask if they need clarification. This is no different from the way courses should be conducted full-time on campus.

It is expected that a distance student will be distracted at work and at home compared to a full-time student on campus. It is believed that asking the students to be committed to the goals of the course when they register and to declare that they will complete the course requirements will help them stay more focused. Identifying unmotivated students early and re-motivating them as soon as the problem is recognized is another recommendation by Horton. Some of the signs of unmotivated students include being late with assignments, not answering messages, giving negative comments about the course, instructor, or other students, not submitting optional assignments and suddenly performing poorly in tests.

Students need to be encouragement to seek help. Providing them an avenue to discuss their problems without being embarrassed or intimidated will help them to be open with their problems and to be responsive to suggestions on how to find solutions. This can be via e-mail communication with their instructor or mentor, a phone call or meeting in person with someone they can trust and seek understanding from. Dealing with such students will require the instructor's understanding, proper advice and counseling as well as follow-ups.
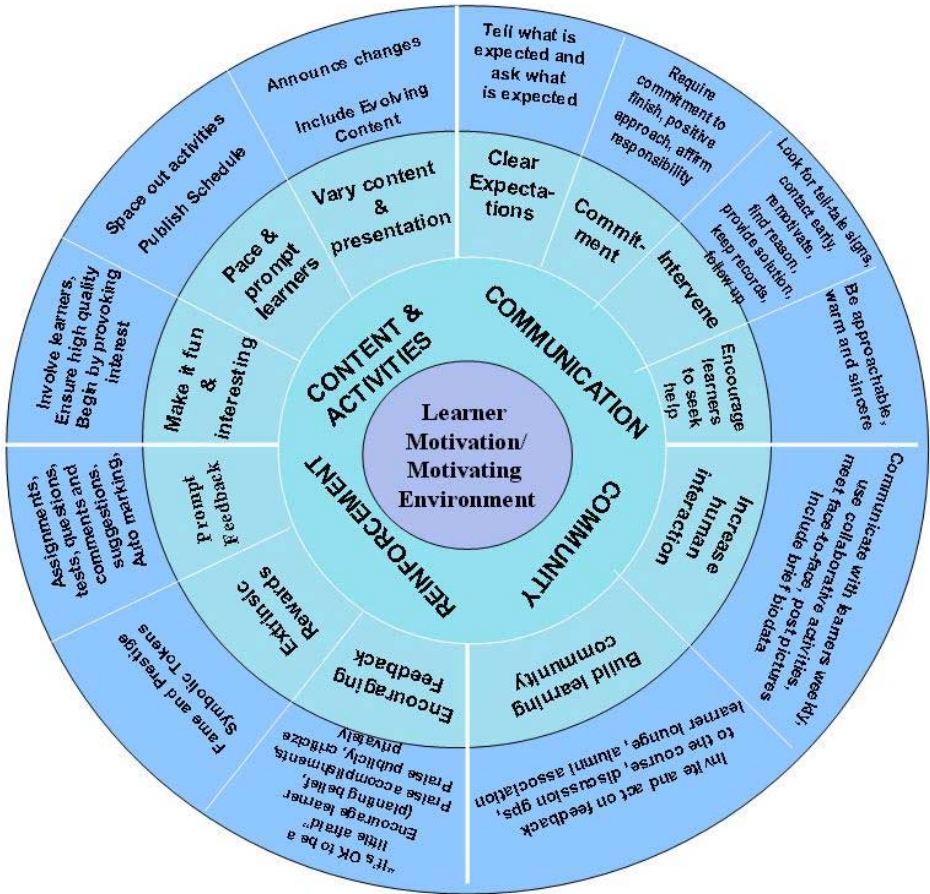
Fig. 2. A model developed to ensure student motivation or the design of a motivating environment for web-based learning. It includes recommendations by Horton. There are four areas of focus: Communication; Content and Activities; Community; and Reinforcement

Content and Activities. Horton suggests that the online learning environment should be fun and interesting for students. Learning should be a pleasure and the process enjoyed by students. Designers should ensure that students are started off in the right way. In VENuS, this was accomplished by provoking interest in the subject, for example, by setting a scenario, telling a story, asking a question, showing a picture that creates curiosity, or by stating a meaningful problem that the material will solve.

Students who feel involved in the learning process will be motivated and benefit from the learning process. Interactivity should be part of the design where students do more and read less. Giving more examples or familiar case studies and scenarios that the students can relate to would be effective. And, Horton cautioned designers
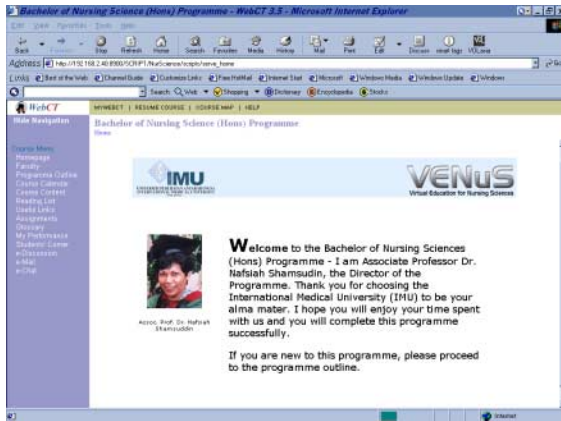
Fig. 3. The Welcome Page that greets students after logging into VENuS. The welcome message from the head of the nursing programme has been edited to reflect a warm and a student-friendly environment.

to consider the incorporation of multimedia materials only if appropriate and practical. It should justify the download time.

Undoubtedly, the contents and resources provided should be of high quality. The content should be accurate, credible, organized and clear. There should be no misspellings, grammatical errors or lapses of logic. A more effective presentation of the contents and materials presented at the Web site can be achieved by having a consistent and attractive layout utilizing an appropriate visual design scheme (see Fig. 5).

The content and presentation should be varied, for example by adding new content. If that happens, an announcement at the course home page or in a discussion thread should be made. Content should also be evolving. Horton suggests the use of discussion groups, FAQs and tips, news, and lists of useful Web sites or resources. All these are expected to motivate students to visit the Web site frequently.

It is also important for students to be able to space out their learning activities such as readings and assignments. This is particularly helpful to distance students who have a full-time job and a family to manage as well. A course schedule (see Fig. 6) can be provided to help students organize themselves in line with time management principles. Instructors should ensure the practicality of the various learning activities.

Community. Perhaps the most important need for distance students who will feel lonely and isolated from their instructors and peers is the need to feel belonged to a learning community. This could be in the form of online student lounges (see Fig. 7) such as chat rooms or threaded discussions where they are able to keep in touch with their peers and instructors. It could be a place that invites students to give feedback to the course or to discuss general learning issues. Nevertheless, online learning needs to be supplemented with face-to-face meetings such as tutorials and this where the six regional centres identified by the IMU in various parts of the country come in. Online,

Fig. 4. Part of the Table of Contents for a course delivered through VENuS. The topics or sections for each week are broken down into Learning Outcomes and References, Learning Tasks, List of Sub-topics and Summary of Key Points. The weekly content is more organized, systematic and clear to the student. Note that a general introduction to Module 1 of the course, the course timetable and the course evaluation are also provided.

the learning atmosphere should be kept as humanistic as possible. Students should be invited to introduce themselves and to have their personal homepage published t the Web site. Another useful feature of virtual learning environments is the use of threaded discussions for collaborative learning to bring out issues and problems where students discuss with each other. The role of the instructors is to facilitate or moderate the discussions to help students keep on track and to finally weave in the topics discussed to provide more meaningful learning.

To promote collaborative learning whereby students are engaged in the online discussions with their tutor and fellow students, marks should be given and made part of the formative course assessment. The nursing curriculum committee had decided that the marks given would be based on the quality of postings rather than on the frequency or length of postings. An evaluation matrix is being developed for this. Collaborative discussions will comprise at least 10 percent of the total course marks.

Reinforcement. This is another important principle of learning. Students need to be informed that they are on the right track, doing the right things and performing within expectations. Instructors could encourage students by confirming that the student's fear and anxiety about their course and performance are to be expected. What is more important is that they take steps to remove their fear or anxiety and become a member
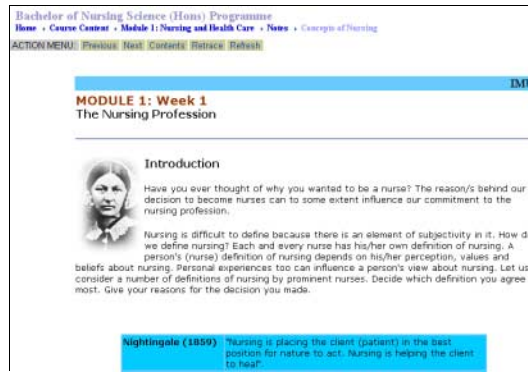
Fig. 5. Part of the content page. The layout and colour scheme are applied consistently throughout the content pages
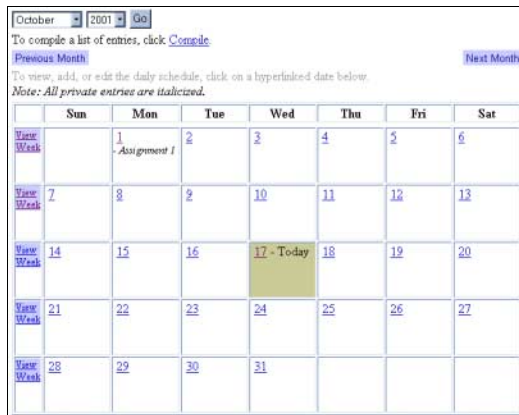
Fig 6. A monthly calendar provided in the VENuS learning environment to help students manage their time and to focus on their learning requirements. A weekly calendar is also available online

of the online learning community, contributing to each other's learning process. Students should be praised publicly to encourage others but criticized privately to prevent unnecessary embarrassment. Public praises can be achieved in the discussion groups and criticisms can be given to the student via one on one communication such as e-mail or discussed in person.

Students should receive prompt feedback on their learning tasks or activities such as assignments, tests and projects. Self-tests could be provided at the Web site to enable students to gauge their own learning. This also includes responding to students within an acceptable period of two or three working days to personal e-mail communication from students or postings to the discussion groups. Another reinforcement technique to motivate students recommended by Horton is the use of extrinsic rewards such as
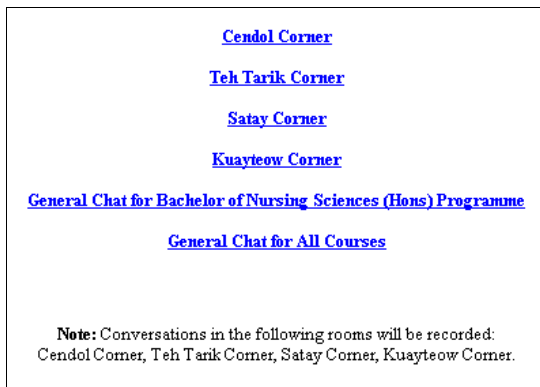
Fig. 7. Student lounges for informal communication among students to provide a sense of community. Each corner will have a graphical icon in the final version of VENuS. Formal threaded discussions on learning issues are provided in another section

fame and prestige or symbolic tokens. Examples are Student of the Month awards in which the student's photo, profile and accomplishments are displayed in one section of the Web site or certificates or recognition awarded for various accomplishments such as the Best Online Discussant. The next section highlights the feedback received from the students to VENuS during one of the VENuS evaluation sessions. The feedback will reveal some of the motivational elements that have been incorporated based on the model presented in Fig. 2.

2.4 Feedback from Students

The IMU is awaiting approval from the National Accreditation Board nursing before it can begin its nursing degree programme . VENuS was developed ahead of time to demonstrate to members of the evaluation panel from the board how the virtual learning environment will provide the content and learning activities. VENuS was first introduced to potential students during a two-week pre-course orientation programme of the first cohort group of nursing students who will be sponsored by the Ministry of Health. They were provided with hands-on activities, particularly on how to access and use VENuS, how to e-mail messages and attachments, post their messages to the discussion group and how to benefit from the links to the Internet. They were also taught how to create a personal homepage comprising a one-page biodata for inclusion at the Web site. Following their initial feedback, the VENuS User Guide for students was further improved and another guide on "How to Succeed as an Online Student" was written to deal with motivation issues. These would be distributed to the students upon registration as well as made available online in VENuS.

Following the pre-course orientation, more contents were added to VENuS. Next, a group of eight potential students were invited to spend half a day at the IMU to use VENuS and to provide their feedback to the use and features of VENuS. A one-page

questionnaire containing four open-ended questions were administered. These were filled and returned as soon as they have completed their assessment of VENuS. Their use of VENuS was also observed to determine other difficulties so that steps can be taken to overcome them. They were invited to give feedback to four questions:

– "What do you like most about VENuS? Think in terms of features, content, navigation, overall environment, etc."
– "What do you find most difficult to do/manage in VENuS?"
– "What do you think are some of the challenges that students will face when using VENuS?"
– "If there are two things that we should improve in VENuS, what would they be?"

When asked what they liked most about VENuS, their comments include:
– well-designed
– very good
– provides social interaction
– opportunity to create home page
– instructions are concise , clear and easy to follow
– content easy to read
– discussions will develop critical students
– participation in discussions will allow students to evaluate own strengths and weaknesses
– simple yet captures attention
– communication with course mates and lecturers
– interesting features suitable for nurses and paramedics
– direct communication with facilitator
– allows faster feedback

Responses to the second question were much fewer. Respondents who were probably new to computers and the Internet commented having difficulty getting into the e-discussions, e-mail and e-chat facilities. In contrast, one person commented that there was really nothing difficult because time and repeated usage will solve the problem of using the interactive features of VENuS.

Some of the challenges given were interesting. One was worried about the amount of time she would need to spend on VENuS considering that she had a job and a family to look after. Another concern was on how frequent students would need to participate in the collaborative discussions. One respondent felt it was a challenge for students to understand the topic well enough before going into the discussions. They need to be able to think critically. Another was concerned about accessibility from the home, particularly in connecting to the Internet via telephone lines, as lines are busy at times. Another concern was of not being sure how to submit assignments and how to get feedback from the lecturers.

When asked for suggestions to improve VENuS, the few comments were to ensure that the pre-course orientation be continued to provide hands-on experience to familiarize the students with the virtual learning environment. One person suggested that the language in the content pages be simpler for them to understand. Another suggested that assessments should be based on knowledge development, critical thinking

and research-based assignments. This issue needs to be researched further as a significant portion of the course marks will be given to examinations.

Based on an earlier survey to determine their level of computer and Internet knowledge and skill, it was found that 5.8 percent of the 89 respondents have never used a computer before the pre-course orientation programme. A majority, that is, 68.2 percent of the respondents have never used e-mail, and 52.3 percent have never used the Internet prior to the orientation programme. The students were mostly in the early to late 40s. The pre-course orientation programme had included training in the basic use of MS Word and MS PowerPoint as well as the Internet in general and VENuS in particular. The survey also aimed to determine their PC ownership and access to the Internet. Most, that is, 89.9 percent of the 89 respondents have a PC at home. About 38 percent had access to the Internet from home and a majority of the cohort group of students ,that is, 77.7 percent of them needed technical assistance when using the computer at home.

3   Summary and Conclusion

Distance learning offerings are on the rise to meet the increasing demands of the matured and working adults who appreciate the flexibility in getting a degree. Many institutions are offering their programmes through a Web-based learning environment that incorporates the use of various communication tools such as e-mail and threaded discussions. However, it has been found that drop out rates among distance learning students are high leading to the recommendations by educators to include motivational elements. It is believed that motivated students will stay in the programme until they graduate. Hence, instructional designers and instructors need to incorporate motivational elements into the design of virtual learning environments.

The paper reported the IMU's experience in developing VENuS, a virtual learning environment designed to deliver the university's distance-learning program for nursing. The VENuS development team considered most of the motivational elements recommended by Horton. These are represented in the form of a diagram (see Fig. 2). The motivational elements fall into four main areas: communication; content and activities; reinforcement and feedback. Horton's recommendations in each of these areas have been highlighted. How they have been incorporated into VENuS has been shown in several screen captures (see Fig. 1, Figs. 3 to 7).

The first cohort group of nursing students attended a pre-course orientation programme for two weeks, during which they were given the opportunity to use VENuS. The team also observed their behavior to detect any difficulty, technical or otherwise, in using VENuS. This led to the improvement of the VENuS User Manual and the writing of a guide on "How to Succeed in Distance Learning." A second round of the evaluation of VENuS by students were conducted four months later. Students' gave very favourable feedback with regard to the learning environment and the contents of VENuS. Some concerns were related to technology, that is, whether they would be able to connect to the Internet from home due to their newness to the Internet or busy telephone lines. Another concern was whether they would manage, as part-time stu-

dents, to spend time online and to actively participate in the collaborative discussions. However, based on the feedback received, it was realized that these discussions were considered appropriate and students indicated that they look forward to being part of the discussions. They were also concerned with how they would be assessed. They suggested more emphasis on the evaluation of higher levels of cognitive knowledge or critical thinking, for example, to be evaluated for assignments based on readings and research rather than on examinations.

As the team consulted additional reports of other distance learning practitioners and implementers, it was realized that the use of technology has to be carefully planned in. It is not be used to hype up the value of distance learning. In short, use high tech but ensure a high touch environment. It appears that instructors need to re-orientate their instructional styles so as to be able to leverage on innovative technology but at the same time, ensure that students are completely comfortable in a high-tech learning environment. It is necessary, for example, to provide new online instructors the experience of being in a collaborative online learning environment. The role of the instructor in discussion forums is crucial to the success of online collaborative learning. It is thus suggested that instructors enroll in one of the many online discussion groups on the Web to familiarize and appreciate the process of engaging students in web-based collaborative learning.

The most important element in the distance-learning environment is the student, who, isolated and at a distance from their instructors and course mates, need much more support from the institution than regular on-campus students. This can be achieved by providing a motivating environment that will provide them the incentive, encouragement and help them develop the perseverance to succeed. While VENuS was designed to incorporate motivational elements, further research needs to be carried out to determine how these elements have helped students feel encouraged to stay focused and to gain confidence in what would have been a lonely path to obtaining further education.

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