

DISTANCE DELIVERY OF NUTRITION EDUCATION AS A METHOD FOR PROVIDING CONTINUING EDUCATION

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ABSTRACT

Distance learning applications in nutrition education have evolved together with communication technology. Distance delivery is transforming the culture of professional health education by expanding access to learners, introducing novel teaching and learning methods, as well as shifting the paradigm of how instructors and students interact. The aim of the paper is to prepare a participant centred, active learning model. The model proposed in this article is based on the literature review. This model resembles active delivery models that have been highly successful in increasing learning and problem solving abilities in other courses. The model focuses on constructs that distance delivery courses should address during design and assessment. For a model to be succeeded the required prerequisites should involve the establishment of a centre for educational technology, to take a model in forming the infrastructure for web based distance delivery, to update the technology required, and to train supporting staff to help in the design of web material/documentation.

Keywords: Nutrition education model; distance delivery nutrition course; health education.

INTRODUCTION

Over the last couple of decades there has been an explosion of interest and activity surrounding distance learning, most notably, distance learning applications in nutrition education have evolved together with communication technology. The design of a distance learning course has always been adjusted to the prospective and the limitations of the technology. Such activities have captured the public attention, particularly learners, policy makers, and institutions have in most cases also shaped the learning method and overall attitude towards distance learning (Kennedy, 2005; Natriello, 2005).

Technological landmarks such as the telephone, the television, computer technology and internet are precisely reflected in the evaluation of distance learning, from correspondence courses to interactive video and virtual learning environments. Continuous education is vital in the nutrition sciences field due to the huge amounts of new data generated by the rapid growth of knowledge in the area.

This gives rise to new challenges, not only for graduate professionals, but also for undergraduate and postgraduate students to keep up to date with changes in legislation, nutrition information and technology (Abusabha et al, 1999, Jang et al, 2005). These demands combined with the changing community nutrition

environment deserve the need for continuing education to be offered to program participants on a regular basis.

DISTANCE DELIVERY AS a TREND

Distance delivery (a term used interchangeably with the terms distance education, distance training) is transforming the culture of professional health education by expanding access to learners, introducing novel teaching and learning methods, as well as shifting the paradigm of how instructors and students interact (Hunter et al, 2003). Learners and instructors communicate through various media, and an educational organisation exists to design, facilitate and evaluate the educational process.

Distance learning is a wider concept. The term distance learning refers to the use of educational materials or media by learners who are not necessarily linked with an educational organisation or engaged in communication with an instructor (Batool & Saskia, 1997). Distance learning can be an outcome of distance education processes, but it can also take place without an active relationship between those doing the learning and an educational agency (Ben-Jacob et al, 2000).

Over the past decade, there has been a resurgence of international interest in distance delivery as potentially useful strategies for addressing nutritional issues. This revival has been rooted in part in the advancement of new information and communications technologies, and in part in the improvement of pedagogical and administrative models for facilitating learning at a distance. Distance delivery initiatives should (Perraton, 2000):

- be grounded in the intersection of an organization's strategic objectives and the aspirations of individuals and communities,
- be gender sensitive and adapted to the social and economic circumstances of learners and their environment,
- use communications media that are available, reliable and affordable to learners,
- engage stakeholders in participatory processes. They would need to involve representative stakeholders in planning, implementation and evaluation processes,
- reflect models of best practice developed through past experiences with similar groups of learners.

The aim of the paper is to prepare a learner centred, active learning model. The model proposed in this article is based on the literature review. This model resembles active learning models that have been highly successful in increasing learning and problem solving abilities in other courses. The model focuses on six constructs that distance delivery courses should address during design and assessment:

The Method of Teaching and Learning

Perhaps the most pressing question regarding distance delivery is what impact this type of delivery has on teaching and learning. Although many health programs have incorporated online instructional methods, there are controversial issues if these methods are as effective as traditional classroom instruction in terms of learner outcomes.

The reason for this appears to be complex due to the non-experimental nature of the studies. When looking at whether online distance nutrition course is comparable to traditional class in terms of learning, Buckley (2003) shows no difference between the two course formats. Also no significant difference between the two course formats in measures of learning outcomes in varied subject matter (Gagne & Shepherd, 2001; Green & Gentlemann, 2001; Johnson et al, 2000).

These studies have found that the performance of learners in a distance learning course was similar to the performance of learners in the traditional on-campus course and that there were no significant differences in pre- and post-course differences and grade distribution. The findings of these studies show that online learning can be as effective as traditional face-to-face instruction with regard to achievement. Some studies show that online learners outperform their on-campus counterparts and have higher achievement gains (Butzin, 2000; Hubbard, 2000). One factor to consider in these studies is that learners may be self-starter and self-directed for online courses, and they may be better prepared and more highly motivated than the learners who select on-campus courses.

The instructional approach to the course and curriculum shifts from teacher centered to learner centered (Buckley, 2003). Litchfield et al (2000) used a model of learner centered distance education. They showed the potential to improve competency, technological aptitude, professional partnering skills, and lifelong learning skills in dietetics education.

The Population of Learners

Researchers recommend collaboration among learners in distance learning classes (Palloff & Pratt, 1999; Bernard et al, 2001). Learning teams bond and provide mutual support and advice. There must be an equal amount of interaction between instructor and learner as with among learners. Palloff and Pratt (1999) stated that the most powerful experiences are those in which interaction occurs throughout a group between learners, instead of between one learner and the instructor.

Therefore, they advise that the instructor assign group projects that learners can work on collaboratively online, that groups participate in their own online discussion forums, and that groups be responsible for presenting their work to the class via discussion forums or shared e-mail attachments. Electronic means of communication from e-mail, to chat rooms, to instant messaging are totally changing the way that communication occurs. Within this new paradigm of learning, educators are increasingly emphasizing the importance of electronic communities in distance learning courses as a key to effective achievement (MacKinnon, 2000; Palloff & Pratt, 1999; Poole, 2000).

The Instructor

In an online distance delivery course, the instructor no longer stands in front of a classroom lecturing and facilitating activities. Instead, instructors may never meet their learners in person, and oftentimes interact with the class exclusively through electronic means of communication. In an online course, learners must work autonomously at a computer to construct their own knowledge without an instructor being immediately present to guide the learning. Therefore, by ensuring that the course is learner-centered, the instructor creates an environment that supports the learner as he or she progresses through the course. The instructor becomes the facilitator. According to Kearsley (2000), the most important role of the instructor in online classes is to ensure a high degree of interactivity and participation.

This means developing learning activities that engage the learners in problem-solving strategies. Projects help learners to work together on relevant and timely investigations. Palloff and Pratt (1999) categorize the various tasks and roles required by distance education instructor into four general areas:

- pedagogical: designing the assignments, structuring and organizing the content, promoting a learner-centered environment,
- social : the establishment of a community of learners,

- **managerial:** developing an agenda and schedule, establishing the pacing, setting objectives, creating rules and guidelines, organizing the various components of the course content, keeping track of assignments handed in, grading, and responding in a flexible and fair way to the many requests and problems that arise,
- **Technical:** depends on the instructors' level of technical expertise, their training in online course administration, and their ability to remain comfortable and confident in dealing with technical issues throughout the duration of the course.

Although the workload may be high, there is a great deal of flexibility because the teaching activities can be accomplished when the instructor desires. This flexibility can be regarded as a major incentive for institution to provide distance delivery.

The Learner

The key difference in distance delivery is that the learner has a flexibility—the choice of when, where, and how to learn. This brings with it the responsibilities of initiating the learning on one's own and the self-discipline to study and complete assignments (Kearsley, 2000).

In a study (Kolasa et al, 2001) the virtual seminar was developed to help learners apply nutrition knowledge to patient care was added to an existing traditional clinical skills course. While medical student activity in the seminar was greater than anticipated, the return rate for the online evaluation survey was found very low. Palloff & Pratt (1999) categorize the role of the learner in an online course into three areas:

- **knowledge generation:** learners must be responsible for actively seeking solutions to problems contained within the framework of the course,
- **collaboration:** the learner is expected to work with others online to solve problems and evaluate material. Many distance learning courses fail because they do not facilitate a collaborative learning process, leading to feelings of isolation and alienation,
- **process management:** the learner participates in a new and strange environment, interacts and engages with others. In this role, the learner must manage the whole process of learning in an online distance learning course.

Also another important factor when examining the role of the learner in a distance delivery course is the technology-proficiency level of the learners. Baron and McKay (2001) found that learners who had no prior experience with tasks such as sending attachments to e-mail or downloading PDF files found themselves overwhelmed by some of the assignments. Those with basic technological skills who were enrolled in a distance learning class became more technologically proficient at the end of the course (Cohen, 2000). Apart from all these factors Dodds et al (2003) developed a master' in public health nutrition degree program using distance delivery. They indicated that although distance delivery strategies are appropriate to carry out a full curriculum in nutrition, sufficient enrollment was needed in order to cover curriculum expenditures.

Technology

One of the more important aspects of internet distance learning is effective implementation of the course. Many advocates of distance learning tout access to college-level education as the reason for the proliferation of distance education. However, as Benton-King et al (2005) concluded that distance education in undergraduate dietetics education only via distance education methodologies could not be possible.

Learners need to know how and when to use the various technological features, and they need to see a perceived benefit when using one of them. The various technological features that make distance learning unique from traditional classes must function effectively and furthermore, should be used effectively by the learners.

The course

One of the more important aspects of computer-mediated distance delivery is effective implementation of the course. Distance delivery is also unique in that the user must be able to follow the guidelines of the course and learn from the materials independently, without any help from the instructor. Abusabha et al (1999) pointed out that mixed model approach for distance education that combined satellite teleconferencing with local hands on activity sessions exhibited a significant increase that community nutrition professionals believed they needed training. An introductory undergraduate nutrition course that had been remodeled as an active-learning, learner centered model was examined by Mazurak et al (2005).

They found out that the model provided alternatives to expand delivery to encourage interest in the field, and provide continuing education for allied professionals. Factors such as instructional message design, user interface, visual appeal, technical problems, and training of faculty and learners must be assessed. These factors influence learner's ability to access and complete a distance learning course.

PLANNING MODELS FOR NUTRITION EDUCATION

As with all types of education, the various distance delivery models are built around the central components of the instructional process: presentation of content, interaction with instructors, learners, and resources, practical application, and assessment. Each distance delivery model uses technologies in various ways to address some or all of these components. The various distance education models differ not only in the types of technologies that are used, but also in the locus of control over the pace and place of instruction. In some models, the institution have primary control, as is the case in a traditional classroom environment. In others, the control rests with the learner. Descriptions of major models of distance delivery of nutrition education are (Batool et al, 1997; Draves, 2000):

Distributed Classroom

Interactive telecommunication technologies extend a classroom- based course from one location to a group of learners at one or more other locations; the typical result is the mixture of on-site and distant learners. The institution control the pace and place of instruction.

Independent Learning

Free learners are from having to be in a particular place at a particular time. Learners are provided a variety of materials, including a course guide and detailed syllabus, and access to the instructor who provides guidance, answers questions, and evaluates their work. Contact between the individual learner and the instructor is achieved by one or a combination of the following technologies: telephone, voice-mail, computer conferencing, electronic mail, and regular mail.

Open Learning & Class

This model involves the use of a printed course guide and other media (i.e. videotape or computer disk) to allow the learner to study at his or her own pace, combined with occasional use of interactive telecommunications technologies for group meetings among all enrolled ones. Some number of issues need to be addressed apart from the model of distance nutrition education that is adopted (FAO, 1999; Pearce, 2000; McLean, 2001):

Logical support

When setting up a system for distributing nutrition education materials, it is critical that all learners are treated equally. Overnight delivery (i.e. FedEx, UPS, and Express Mail), priority mail, electronic file transfer, and fax should be provided. With a long lead time, regular mail service may be an alternative. Institution may incur expenses directly related to their distance delivery activities. In case of written examinations, proctors to check learner IDs to verify the identity of learner, can be provided by the institution. Security of examinations is a concern from the time each examination leaves the instructor's hands until it is delivered back to the instructor for grading. Before and after the exams are administered, they should be handled only by authorized personnel.

Learner support

Learners need access to academic advising services which can be accomplished by telephone or e-mail, or by providing periodic on-site advising at off-campus locations. Learners should be informed as to whom to contact about specific types of questions or concerns. Instructors might provide learners with their telephone number and hours during which they can be reached or with their Internet or e-mail address for individual, private discussions.

Institution support

Institution are likely to be more confident and effective if they understand what they are being asked to do, and why. They need to know the capabilities of the technologies available to them so that they can use these tools effectively to meet their instructional objectives. Orientation and training should be scheduled well in advance to give faculty sufficient time to redesign, modify, or adapt their course and assignments.

Laboratory usage

It is possible to design activities that teach learners the skills of close observation without conducting lab-based experiments. Developing lab kits that contain the special equipment and supplies learners need to complete one or more lab experiences, conducting lab experiments i.e. like chemistry and microbiology, at one location on an interactive video network, videotaping the experiments, asking learners to travel to a central location with laboratory facilities to complete an intensive lab module over several days or weeks might be one or more of the appropriate solutions.

Evaluation

Information about personal characteristics of successful instructors should be factored into future planning and hiring decisions. Information about effective instructional strategies, the technical systems and administrative support systems should be evaluated by the learners, the faculty, and, if appropriate, the technical support staff.

DISCUSSION

The introduction of the internet and interactive web sites or CD-ROM has enriched this delivery method by allowing the user to interact with the content. For a model to be succeeded the required prerequisites should involve the establishment of a centre for educational technology, to take a model in forming the infrastructure for web based distance education, to update the technology required, and to train supporting staff to help in the design of web material/documentation. The appropriateness and effectiveness of distance delivery depends very much upon why, how, and how well it is designed and delivered. Distance delivery initiatives should be undertaken for appropriate reasons, and in a manner that is suitable to the stakeholders of the initiative.

Organisations undertaking distance delivery initiatives should have the capacity to do so, and should invest or obtain the necessary resources in order to do it well. As society moves forward technologically, theories of learning and instruction need to be applied consistently and persistently to the development of all courses, and attention needs to be focused on the quality of the instruction.

Author's note: The paper was presented at the 2. International Open Distance Conference, Eskişehir, Turkey.

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