

# **Pedagogy and Technology: Is it the art and science of teaching or is it the media of transmission that enhances distance learning?**

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## **Abstract**

This paper explores the principles of adult learning and in particular distance learners use of print media and its pedagogical implications. Referred to will be Vygotsky's theory of social interactionism as an analytical model for distance learning. Questions asked are, 'How do distance learners view knowledge and manage learning?', 'How does an adult distance learner manage distance learning?' and 'Why do adults engage in study through distance education programs?' It is anticipated that this examination will shed light on distance learning approaches among learners using print media in a context of an oral culture, low social and economic status usually located on the periphery of advances in information and communication technology. The themes to be observed include pedagogic practices of the learner, the distance education provider, intrinsic and extrinsic influences and effect on the learner and the motive for engaging in distance learning using print-media concluding with a suggestion for a blended approach.

## **Introduction**

This is an attempt to understand the management and construction of knowledge by adult distance education students in Papua New Guinea (PNG). A smaller study jointly undertaken by two colleagues and myself (Haihuie, et. al. 1997) interviewed 120 students studying by distance education across a range of courses.

Three specific issues were the focus of this research. The problematic of research in distance education in PNG, conceptions of knowledge and the nature of learning by adult distance learners. An analysis of the dialogues with students in this study highlighted the following for each specific issue. From the initial dialogues with distance education students on the issue of learning, responses suggested a more consumption activity rather than a processing activity. Knowledge is ready made, prepackaged and sent out to students in the form of printed materials only for unpacking and consumption. Student responses from earlier studies suggested that learning centers on the theory of interdependence or what Guy (1994) refers to as 'others and otherness'. Learning is encouraged by others, done by the self for the benevolence of all. Finally, we wanted to find out why adult students engage in distance education programs in PNG using print media. Data was collected by a method of observation and semi-structured interview.

Building up from this research I am now undertaking a further inquiry on the use of print media and the concept of interactivity in distance learning. Interactivity stems from learning as an act of social interaction with a constructivist view of learning and knowledge creation. I will explore the principles of adult learning and how this fits in with the communication technology and the related generation of distance education with a conclusion suggesting a blended approach for adult learners using print-media.

## **Principles of Adult Learning**

Adult learning principles have a huge intuitive appeal although further rigorous analysis is needed in different adult distance learning contexts. With a wider acceptance and expansion of distance education aided by advanced communication technologies in the last ten years many empirical studies have been undertaken to assess the basic beliefs

of adult learning principles among students studying in a distance education context. Carnwell's (2000) study involving twenty women distance learners taking courses in community nursing aimed to establish the relationship between approaches to study, learning styles and strategies, materials design and how these impacted on the need for support and guidance for distance learners.

The question is whether a specific pedagogic practice or the communication technology used can enhance efficient learning. This question is asked in view of the classification of distance education from three (Nipper, 1989) and to now five generations (Taylor, 2001). Further, does learning by adults facilitated through different communication technologies show a bias and whether that bias is towards psychology or sociology?

Learning is seen firstly as an activity in the mental domain. Theorized by Piaget, this theory primarily address the mental functions, cognitive growth, and cognitive development within the individual. Vygotsky, a contemporary of Piaget, complement this theory with the addition of the element of social interaction. Vygotsky's (1990) main concepts are that of scaffolding, the zone of proximal development, and inner speech all build into the theories on social interaction. Learning is a personal psychological activity as well as a social process (Vygotsky, 1990). Knowledge is constructed in the mind of the individual and takes meaning through social interaction.

A systematic analysis by Carnwell (2000) on the approaches to study and learning styles used by the distance learners coded three types of approaches and learners. They were identified as systematic wading, speedy-focusing, and global dipping. The researcher viewed that systematic waders tend to be serialist learners, progressing through the materials in a sequential and rigorous manner. This involved an active engagement with learning materials, which fostered deep learning. Such learners found that closed materials, combined with passive tutor support provided sufficient guidance for their learning. Speedy-focusers took a strategic view of the materials, and take 'short cuts' to focus on what was required for their learning. They tended to be holistic learners, took in the whole picture to get the general idea of things. Their approach is interpreted as fostering limited deep learning. Such students preferred open materials and a passive tutor role. Global dippers tended to study in a disorganized fashion, but while they too used holist approaches, they seemed to encounter difficulties that caused them to move in and out of serialist and holist approaches. Their learning style was observed to be undirected, involving a passive engagement with the materials, and resulted in surface learning. Such students needed closed materials, dialogue, and an active tutor, to provide necessary guidance.

While the themes in Carnwell's research are similar to mine the issue of social and cultural contexts of the learner would be different. Distance learners are subject to social and cultural influences. Engagement in economic production is either a communalistic or an individualistic effort, state of well-being of the individual learner as well as that of the society at large is another not to be discounted, systems of knowledge organization, storage, and retrieval and access to modern amenities such as communication technology and electricity are factors that impact on a student studying by distance mode. A peculiar aspect of Carnwell's study is that it is gender biased with all participants being female.

What questions can adult distance educators pick up from the principles of adult learning? The question in the first instance is, do the learning approaches used differ between adults and children? In the literature it is striking that the names Houle, Knowles, Brookfeld are frequently cited in adult education but not distance education. Terms such as andragogy, autodidaxy, transformational learning rarely surface in distance education literature.

Houle's (1961) book titled 'The Inquiring Mind' is widely cited as influential on adult education. The study reported in his book interviewed 22 self-learners through an ethnographic research approach. In his analysis he coded and labeled three kinds of adult learners. The first is the learning-oriented, the second kind the goal-oriented and the third as the activity-oriented learner. The motivation for the adult labeled as learning-oriented comes from simple pleasure to learn new things. The goal-oriented adult pursues learning because of specific interest. The third adult learner who is coded

as activity-oriented is taking part in learning activity for reasons beyond the knowledge acquired from the course.

The contention by Cannon (2000) that pedagogy is a misapplied term in defining the art and science of teaching in higher education draws its strength from the work of Knowles. Knowles's first book is titled 'Modern Practice of Adult Learning (Knowles, M., 1970) and the second title is 'Adult Learner, the Neglected Species' (Knowles, M., 1978). In his second book Knowles quotes from Linderman, another adult educator that;

'...the resource of highest value in adult education is the *learner's experience*. If education is life, then life is also education. Too much of learning consists of ...someone else's experience and knowledge. Psychology is teaching us, however, that we learn what we do, and that therefore all genuine education will keep doing and thinking together. ... Experience is the adult learner's living text book.'

Knowles, 1978, p. 29)

The challenge of adult education is to empower adult learners with the competences needed to function in an ever changing environment. Knowles uses the term andragogy which had been coined earlier to define the art and science of teaching adult learners in early European education. By the use of the term andragogy, Knowles's intention is to differentiate children's learning from that of adults. He argues that there are three fundamental ways in which differences exist. The first being that based on life experiences adults have more to offer in the learning environment. Secondly, adults will always relate new learning to their past experiences and thirdly based on their prior experiences and knowledge base, adult thoughts will be more fixed and therefore as learners adults are less open-minded.

In his book, 'The Skillful Teacher' Brookfield (1990) proposes the development of critical thinking as the main rationale for college training. This book like the first two discusses issues pertaining to adult higher education and is not focused on distance learning. However, Brookfield's conclusion that critical thinking is accomplished through a cycle of concrete experiences, reflection, abstract conceptualization and application of new insights resonates with Vygotsky's constructivist theory of learning. Adult distance learners construct their own learning and as such the learning process is learner-centered rather than teacher-centered. Brookfield encourages educators to use diversity in their teaching to challenge students intellectually. He concludes by noting that this can only be accomplished if a trusting learning environment is created.

### **Print-media communication technology**

One of the 2004 bi-annual awards of distance education best practice within the Commonwealth was awarded to the UPNG Open College in the print media category. The criteria for the judgment, whether it was pedagogic practice, cultural and contextual relevance of the curriculum content or the craftsmanship of the technology is a matter of privity by the judging panel.

The learning resources at the Open College are all text-based printed materials. Using the definitions of Nipper (1984) in his classification of distance education generations, to denote the style and model of pedagogic practice as well as the medium of communication technology used reflects the dynamics and evolving nature of distance education. He identifies and labels the three generations; as first, second and third generation distance education. However, in recent times other researchers and practioners in the field (Taylor, 2001) have extended Nipper's three generations to include two more. The addition of the latter two generations of distance education can be understood within the context of the advances in modern cutting-edge communication technology.

Development is not uniform and many low social, economic status countries either do not have the economic capacity or political will to place their countries up with the industrialized world to use the best practice of pedagogy using the latest

communication technologies. Many of these countries will remain for some time yet, using what might be termed derogatorily as archaic practices and low cost communication technologies such as print-media. Is it the pedagogy or the technology that matters in adult learning?

The communication technology used by a distance education provider either restricts or supports methods and techniques to improve pedagogic practices. The UPNG Open College uses text-based print technology. The lessons presented are in the form of three printed books, a course outline, a study guide and a resource book. Evaluation to ensure learning outcomes had been achieved by the learner require subjection to formal assessment. Assessment consists usually of a mid-term written test, an essay assignment of normally 1,500 words and a final exam at the end of the course.

In the instructional design, topics and concepts are contextually relevant. However, the level of feedback and interaction between learner and the teacher, between learner and other learners and between learners and other people in the community who may be a useful learning resource is observed as not being facilitated. Such inadequacy is attributed to the print media technology. Nipper's (1989) categorization by generations of distance education locates the current print-based pedagogic practice in the first and second generation. Do generations denote best pedagogic practice in distance education? A desired element of distance education pedagogic practice is communication that enhances interactivity. The next section examines the characteristics of each generation of distance education.

### **Generations of Distance Education**

The terms first, second, and third generation distance learning according to Nipper (1984) refer to three models of distance education, which are linked historically to the development of production, distribution, and communication technologies. In attempting to apply the generation label to the practice of distance education it is imperative to understand the umbilical relationship that communication technology has with interactivity and learning among learners in the Papua New Guinean socio-cultural context.

Another name for 'first generation' distance learning is correspondence teaching, a phrase now synonymous with Englishman Issac Pittman and his teaching of short-hand in the 1840s. The medium in this case is written or printed material. First generation distance learning has in fact been practiced throughout the history of Western civilization, but it expanded in terms of quantitative efficiency when, by the end of the nineteenth century, new printing techniques and the railway system made possible the production and distribution of teaching materials in large quantities to geographically dispersed learner groups. Student-teacher and teacher-student feedback processes was slow, sparse, and mostly restricted to the periods when the learners submitted their scheduled assignments. This description of first generation distance learning and the era in which first generation distance learning was used makes practioners using print media at present seen as assistants in a simulation exercise of an archaic practice in a live museum show.

'Second generation' distance education is also called multi-media distance teaching, and has been developed since the late 1960s, integrating the use of print with broadcast media, cassettes, and - to some degree - computers. Feedback processes are very similar to those of 'first generation' systems, but include telephone counseling and some face-to-face tutorials. This can be labeled as a blended approach even though literature evades using blended approach. A blended pedagogic approach is now widely accepted (Carnwell, 2000, and Muianga, 2005).

The main objectives of the first and second generation systems have been the production and distribution of teaching/learning material to the learners. Communication with the learners has been marginal, and communication amongst the learners has been more or less non-existent.

From one point of view this could be explained by the technologies available up to now. They were one-way or two-way communication technologies. More interactive

technologies have not been available outside the laboratories.

In one sense the technologies of first and second generation distance education systems have had one extremely important advantage in that they have been widely available, and it could have been expected that this accessibility would eliminate any bias in the social recruitment of learners. But by giving very low priority to the process of communication, by making it one-way or very restricted two-way, the result has in fact been a strong social bias in first and second generation distance education. It has mostly appealed to groups of educationally already privileged learners, and it has to a certain extent 'expelled' the educationally or socially weak learner (Nipper, 1989).

With the use of print media communication technology there is very little communication in the real sense of the word between the process of producing and distributing learning material, and the process of acquiring the information which it contains. Using the pedagogical metaphor of interaction there is no 'noise', it seems a quiet or put sarcastically a 'dead' learning environment using print media technology.

The teaching/learning process is thus defined by the very problem of geographical distance, and this problem is simply solved by implementing effective presentation and distribution methods. Learning is not seen to be a social process as well, and therefore does not imply dynamic interaction with or between the learners and teachers. In terms of the traditional classroom-based situation, the first and second generation concepts can be said to open the classroom. But because there is no interactivity, the classroom is not extended in the social and cognitive sense of the word, but dis-integrated. Learning is turned into an individual instead of a social process.

### **Conclusion: A Blended Approach**

Communication and learning as a social process will be the key elements in the conceptual development of later generation models of distance learning. It is not possible to promote the notion of learning as a social process without access to interactive communication facilities. With the advances in modern communication technologies distance education has now moved on from the first and second generation systems leaving behind print-media technology.

Communication technology enhances interactivity in distance learning. The type of communication technology used and the context in which it is used facilitates interactivity. While there has been classification of distance education by generations in light of new computer mediated communication technology, print media communication will still be around for a variety of reasons. Other technologies and limited face-to-face tutorials can be blended in with print media to achieve the same outcome in distance education to improve efficiency in the pedagogic practice and for mass education. Distance learner's use of print-media will go through a personal psychological as well as a social experience in their learning using a blended approach. Based on the principles of adult learning principles examined, and the desired need for interactivity it is suggested that a blended approach be considered. This suggestion is for a distance learning situation in which print media is the only medium of instruction for learners to enhance interactivity and facilitate learning as a social process.

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