Spanning the 'generations': Reflections on twenty years of maintaining momentum

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Abstract

Spanning the 'generations' is a personal reflection on twenty years as a distance learner. It is a longitudinal case study that chronicles the changes in the technological delivery of learning materials to off-campus learners in Australia from initial correspondence-based learning to recent online experiences. This evolution of delivery technology in flexible learning has taken place in a relatively short period of time, historically speaking. As such, this paper offers valuable insights into the impact of rapid changes in learning technology applications in the 'whole of life' context of a lifelong learner. It also questions whether outmoded technologies should be considered obsolete and argues for a multi-'generational' consideration for distance learners.

Introduction

Twenty years ago, in 1984, the birth of the first of my four children heralded the beginnings of a new generation for our extended family. At the same time, another 'generational' production was taking place: my concurrent journey to attain tertiary qualifications as a distance learner.

It can be argued that these past twenty years have seen the most rapid changes in the history of time-, place- and pace-independent learning, especially in the manner in which it has been conceptualised and transacted. This paper provides a brief recount of some personal experiences as a distance learner during this time of vast, and relatively swift, changes in the way that materials and pedagogies for off-campus students have been constructed, distributed and implemented. Whilst this paper chronicles these experiences against a backdrop of the 'generations' of distance education (Taylor, 1998; 2001), reflecting on the benefits and limitations of each 'generation' from a personal perspective, it gives insight to the possible implications of these experiences for current practice in the development and transmissions of distance learning materials.

'Generations' of distance learning

Berge and Collins (1995) have noted that paradigmatic shifts in education have corresponded to advances in technology throughout the history of human communication. Each of these paradigm shifts correlate with historical phases, or 'generations', of distance learning which can be linked to the specific production and distribution of distance learning materials utilised at the time, in addition to the communication technologies (media) utilised to deliver these to enrolled students who were separated by time, place and/or pace of learning.

Nipper (1989, p. 67) suggested three distinct 'generations' in distance learning. The first related to the traditional correspondence style of learning, which combined print media with postal delivery. The second 'generation' in Nipper's model involved the introduction of learning materials of radio cassettes and broadcast media in addition to the coexisting print media products. The third generation was described as utilising computer technology and the Internet to deliver learning products.

Building on the work of Nipper, Taylor (1998; 2001) has identified five 'generations' of distance learning. Taylor's model of the 'generations' of distance learning similarly identifies the first 'generation' of distance learning as the correspondence model, whilst the second 'generation' is characterised by the introduction of instructional audiotapes, videotapes and computer-based learning to supplement the text-based materials. This second generation is the multi-media model. Taylor's third 'generation' (the telelearning model) includes the addition of audio-conferencing, teleconferencing and broadcasting to deliver educational products and support. The fourth 'generation' is the 'flexible' learning model, which incorporates

computer-mediated communications, the Internet and interactive multimedia as means of distance learning. A fifth 'generation' is the evolution of an intelligent flexible learning model which incorporates the inclusion of campus portal access, such as "my.monash' and 'mycsu', and automated response systems to the technologies of the fourth 'generation'. Taylor's five-tiered model of the 'generations' of distance learning will be used as the signposts throughout this longitudinal case study in distance learning spanning a twenty year period from 1984 to 2004.

First 'generation' distance learning

The 'first generation' of distance learning refers to correspondence learning with its emphasis on written or printed material. This form of learning expanded rapidly towards the end of the nineteenth century with the establishment of rail systems and new printing techniques, both of which allowed the production and distribution of large quantities of teaching material to geographically isolated learners. Meyrowitz (1997) argues that communication and transport were historically synonymous, as communication channels were also routes of transportation, such as rail links, roads, and waterways. The first generation of distance learning is thus based on the theoretical premise that teaching is the transmission of knowledge.

Had I commenced my study as a distance learner in 1954 or 1964, for example, and taken those same twenty years to complete my qualifications via distance education, the medium and mode would have remained relatively stable throughout the lifespan of the coursework. Materials would have arrived in print format and probably by post. I would have completed assessment tasks by pen and paper, or even typed my responses, then posted them off again for assessment. Indeed, I have early recollections as a child during the mid 1960s of visiting a friend whose mother sat at their kitchen table every Saturday afternoon and went through her correspondence coursework whilst we played.

Almost twenty years on from those carefree Saturdays, I was to commence my own distance education in exactly the same way. The year was 1984, and I was a young mother living in a two-roomed garret in Amsterdam. The desire to ensure long-term financial security for my family had led to a decision to complete the undergraduate qualifications that I had been commenced as a full-time on-campus student two years previously in Australia. As my initial tertiary provider did not offer distance learning options at the time, my studies had been suspended with my relocation to Europe. After much consideration, I enrolled in a tertiary distance education provider based in Australian in order to complete my undergraduate degree.

At the time, coursework arrived in print format in thick, bound volumes. Living offshore, communication from lecturers was mainly limited to brief comments penned on assignments and the very occasional written letter. My assessment tasks were completed either by hand or were typed with the aid of an old typewriter (which had a missing key and also typed the letter 's' out of alignment with the rest of the text). Work was submitted on airmail paper to reduce both bulk and weight in order to help keep the cost of postage down. Carbon paper sufficed as a cheap and reliable means of keeping back-up copies of correspondence and assignments. One quickly learnt reality at the time was that assignments had to be ready and posted two to three weeks prior to the due date in order to arrive back in Australia in time to avoid marking penalties.

The benefits of the correspondence method, in hindsight, compared to the cost (economic and personal) of technological acquisitions that were to follow, was in how relatively cheap and portable this system was for the learner. Course guides and unit readers could be tucked into the pram and taken to devour whenever any 'waiting time' was to be had: doctor's surgeries, public transport, in the park. Such portability can be yearned for by participants in later 'generations' of distance learning, where hard copies of resources are reliant upon a students ability to access, download and print copies of electronic resources (see Willems, 2005).

However, there were limitations to this way of studying. Communication was my main problem. It was both infrequent and tardy, and often arrived too late to be of major benefit. In addition, researching was difficult due to numerous constraints, there was no contact with peers (which I missed following my on-campus tutorial discussions), the construction of learning materials and assessment tasks were the antithesis of my own learning style preferences, and the editing process on essays written by hand or old-fashioned typewriters, was arduous.

Second 'generation' distance learning

The 'second generation' of distance learning heralded the integration of such technology as radio cassettes, videotapes and broadcast media with the printed materials of the 'first generation'. This change in format followed closely my return to Australian shores in 1986. Coursework during these years was still predominantly in a written-text format in their thick volumes. However, the wonderful addition to distance learning (in my eyes) was the incorporation of supplementary audiotaped lectures in the distance learning package. This inclusion made use of a technology that was already in our home and car: the radio-cassette player. It also came at a time when, following the birth of my second child, I was mainly housebound.

My personal enjoyment of the audiocassettes was due to a number of factors. Hearing another adult human voice discuss the theoretical or practical issues at hand helped bring to life what was at times quite dry information and helped guide the interpretation of set reading. It 'humanised' the whole process. Paralinguistic cues such as emphases on words help to highlight key arguments. In addition, and unlike reading (which for me needs to be a laborious and reclusive activity in order to make sense of it), the audiotape could be played whilst other tasks were conducted, such as note-taking, preparing a meal, driving the car, or at times when I was too tired to sit and hold a book. The tapes reinforced the key concepts of the set readings. Moreover, they could be played time and time again. When I look back over my twenty years of study, it is important to note that I remember the content of courses that had the supplementary audiotapes much more than those which came with printed materials only. This highlights the important area of the impact of individual learning styles on the successful outcomes of distance learning — an arena that is still not sufficiently considered by those preparing materials for distance learners.

Whilst the integration of audiotapes during these years personally enhanced my learning, it also did not impact on our household in any way. The same cannot be said for other requirements of the coursework during at this time, which necessitated the purchase of four pieces of equipment. For example, the directive from my tertiary learning provider for assessments to be typed and not hand-written, combined with the demise of the trusty old typewriter, led to a pricey purchase of a personal computer and a compatible printer with money borrowed from family. The choice of system, though at the time quite state-of-the-art, proved later to be an impediment as it was not IBM compatible. Indeed, it was compatible with no other system. However it did have word-processing capabilities. The completion of assignments was far less laborious than the hand-written or type-written final drafts of previous years, and once learnt, the art of the cut-and-paste function proved to be a huge bonus in the editing phase of assessment preparation, unlike the former rigours of re-writing or re-typing the entire work. This early computer had no hard drive but relied on using a 3½ " floppy disk to hold both the word-processing programme and the text files produced on the same disk: one third of the disk capacity was occupied with the programme, leaving two-thirds of the disk for file storage. Disks were 756 KB in memory and each could store approximately three small essays. Early frustrations (and quickly-learnt lessons) included the loss of work by not saving to disk. However the corruption of, or damage to disks, also resulted in loss of work. These were extremely stressful events and a strategy developed to overcome this was to print each page after completion, all being well. The cost of replacement of printer ribbons was an unforeseen expense in the household budget, as they needed fairly regular replacement, unlike the supply of carbon paper used previously.

Despite the bonuses of word-processing, the cost of postage in submitting assignments was still a factor for consideration, and to keep the cost down, I still tended to use airmail quality paper to reduce the weight and thickness of each assessment submission. Communicating with lecturers and locating resources were still problematic issues as a distance learner at this time.

In 1989, videotapes arrived as supplementary resources with the text-based materials for some subjects. The subject outline, however, did not mention that viewing video material was integral to the completion of the subject. Their arrival in the coursework package exposed an implicit assumption that all distance learners would have ready access to the necessary technology in order to participate. Whilst we live in a first-world nation, our household income during those years was well below the existing poverty line. At the time, we did not have a television, let alone a VCR player, and trying to gain access to the technology was fraught with challenges, such as trying to orchestrate a time when I could take a videotape to a friend's house in order to view it. Trying to take notes whilst all and sundry were gathered to be 'entertained' was a challenging exercise. The choice to eventually purchase a television and VCR player meant some severe cost cutting in the already restrictive household budget. I am eternally grateful to my husband and children for their moral support during these times of deprivation. The introduction of video-cassettes into the realm of distance educational materials was a great concept, and one which I could eventually enjoy as it brought a visual dimension to what had predominantly been text-based learning.

Yet my experience serves to highlight that incorporating new technologies into distance learning may further distance some learners from a successful educational outcome.

I completed my undergraduate double-degree in 1992, but in order to be able to participate in tertiary education, I had been required, over an eight year period, to purchase four unanticipated pieces of technology along the way, expending over AU$3,000 at the time on equipment alone, in addition to tuition, text and stationary costs. Whilst this might not sound much to some, it was (and still is) enough to exclude adult learners from the process of higher education. According to one study into the provision of online learning in rural and remote areas of Australia (Else & Hicks, 1998), the prohibitive costs of technology is an impediment to effective student outcomes.

Whilst lecturer communication was meagre during the fist nine years as a distance learner, peer communication was non-existent and I longed for such opportunities. I remember the privilege of attending the graduation for my undergraduate degree and being overwhelmed by the number of students who were having the same degree conferred. Whilst not all these would have been distance learners, the people I talked to were, and I remember wishing that we could have supported each other through the challenges and shared strategies of success actively, rather than retrospectively.

Third 'generation' of distance learning

The so-called 'third generation' of distance learning, using Taylor's model, utilises the technologies of television, audio-conferencing and broadcasting to facilitate remote learning. I had no coursework that was delivered in this manner. However, a friend enjoyed the experience of studying via tele-learning through the 'Open Learning' scheme as it utilised technologies already available in her home: the television. In addition to television, technologies of this third 'generation' included audioconferencing, video-conferencing, and radio.

Video-conferencing, as a technology, can be a prohibitively costly exercise for individual learners, if they can access the technology required for transmission. However, the notion of broadcasting to deliver learning materials and support on broadcast radio is one which could be more greatly explored as it utilises the widely-available and relatively cheap technology of radio to disseminate materials — a medium available to many people around the globe. As Ramanujam has argued: '[t]he use of low cost technology or the "old fashioned" technology like the radio is yet to be appreciated fully' (1999, pp. 6–7).

Following the completion of my undergraduate coursework, we relocated from outer suburbia to the country in 1993. I worked part-time and completed a graduate certificate, again as a distance learner, but this time through a hybrid-model of learning. This was an employer-sponsored initiative with a visiting lecturer from the tertiary provider completing an 'in-house' residential school as part of the training. It was encouraging to be able to discuss the training with my lecturer during the on-site contact and gain instant feedback, both verbally and non-verbally. Whilst assessment was individual, there was also the opportunity to discuss the programme with colleagues, gain their guidance or suggestions, and apply the theoretical principles immediately into practice.

Fourth 'generation' of distance learning

The introduction of computer-mediated communication and the growth in the popularity of the Internet with its e-mail and data storage and retrieval possibilities heralded the 'fourth generation' of distance learning. This model utilises the technology of computer networking to facilitate communication, and hopefully learning, to spatially dispersed learners, and includes such components as electronic mail (e-mail), computer conferencing, and bulletin boards. Through the potential of this media, distance learners may have the opportunity to experience being part of a learning community, despite being removed from the physical structure of the university institution. If the technology is used to its fullest potential, distance learning has the possibility of becoming a social process.

Following the completion of the graduate certificate, I had commenced a graduate diploma n 1996, which was based predominantly on the older correspondence style of distance learning. Whilst I continued to appreciate the portability of the written product, I was disappointed that the audiotapes that I had valued and found so useful in earlier times were no longer utilised. I was already part way through a graduate diploma when the fourth 'generation' of distance learning was introduced at this institution.

My older computer had been replaced at the start of the graduate certificate with a Windows-compatible system; it was a base-line model and had a limited memory, requiring several upgrades to enable the installation and use of the necessary additional software and hardware (an external modem), and connection to the Internet through a local Internet service provider, all essential in order to complete the study.

Whist the printer was still functional, it too had required replacing as it was getting more difficult to purchase the carbonated tapes for printing.

Initially, e-mail correspondence with lecturers, tutors and occasionally peers, was the main form of utilisation of the technology. Internet searches became increasingly more frequent and quickly replaced the borrowing (and in some cases, purchasing) of texts, due to the cost-savings in terms of time and finances. A downside of using the Internet as a chief source of information gathering at that time was the credibility of data and information.

With the option of communicating more quickly than by post, and more cheaply than long-distance telephone calls, e-mail quickly superseded former styles of communication with my lecturers (letter, phone, and fax), not simply due to cost-savings, but also timesavings. I could e-mail when I had a moment, and not be constrained by communicating across time zones. On the other hand, such instantaneity in the transmittal of messages did not translate to the timely receipt of responses — a factor that remains a challenge for some distance learners today (Willems, 2004a).

Fifth 'generation' of distance learning

A second graduate diploma, required by my state teaching board to upgrade existing teaching qualifications, was commenced in 2002 and completed the following year through my fourth tertiary education provider. This distance learning experience combined text-based coursework, CD-ROM and the opportunity to participate in online subject forums and assessable 'small group' work, made possible by university portal access to assist computer-mediated learning. It also provided an online assessment transmission service, which was a wonderful bonus in terms of the cost of printing and transmission. According to Taylor (2001, pp. 3–4) this fifth 'generation' of distance learning (the intelligent flexible learning model) has the potential to benefit both institution and distance learner, by decreasing the costs associated with providing access to institutional processes and online tuition, and also providing time, place and pace flexibility for the learner.

Concurrently, the former graduate diploma was upgraded to a research masters degree and completed in 2004 and also saw a transition from the fourth to the fifth 'generation' model. It examined the experiences of 35 distance learners (enrolled across seven different tertiary providers) to computer-mediated distance learning (Willems, 2004a), with the research conducted between 2000 and 2003. It chronicled the benefits of fourth 'generation' distance learning. It also reflected the challenges that these same students had to overcome in order to successfully participate in and complete their computer-mediated learning. Their feedback is noteworthy. Of the 35 respondents, only two were not members of any of the equity groups identified for educational disadvantage, and over one-quarter of the case study participants were members of three or more equity groups (Willems, 2004b).

In my own experience, the coupling of interactive multi-media and campus portal access in the fifth 'generational' model brought with it the opportunity to communicate with educators and peers, undertake comprehensive literature searches from my home in the country, and transmit assessment tasks. This provided opportunities to 'meet' other distance learners online, to learn in a collaborative environment, and to encourage others in their journey through learning. Moreover, it aided consolidation of deep learning. For example, the exercise of role-playing theorists in an online assessment task brought to life, for a practical person such as myself, dry theorising.

Conversely, there were difficulties that made working in this model difficult. A number of the challenges of this phase of flexible distance learning revolve around accessing the Internet. In the evenings, for example, download speeds were slow. Frequent 'drop-outs' added to the frustration: power blackouts have been as much of a problem as was staying 'connected', either from the local Internet provider or by being 'timed-out' by the university server. Other challenges have included not having enough memory to download online components. The hidden costs associated with downloading and printing online coursework is another problem of this style of distance education, and one echoed by respondents in the case study research (Willems, 2004a; 2004b; 2005).

Discussion

In the history of distance education, the past twenty years have witnessed significant paradigmatic shifts in distance learning that have corresponded with the implementation of new forms of delivery technology. Translated to practice, this may in practice equate with superseding older forms of distance learning in relatively quick succession. Such changes have been implemented to help decrease the variable implementation costs for distance education providers and to create time, place and pace flexibility for the distance learners (Taylor, 2001).

However, these changes have simultaneously created participatory barriers for some learners through an inability to maintain pace with the acquisition of technology (Willems, 2004a). Brennan et al. (2000, p. 18) suggest however that the constant renegotiation of technological developments can seem more of an imposition than progress. More than an imposition is the notion of time lag. Ramanujam (1999, p. 4) highlights this point when he writes that one of the main challenges facing distance learners in developing nations is that:

> … by the time they acquire it, [the] technology itself becomes outdated. The time gap never gets filled.

The time-lag problem in the pursuit of technology acquisition is not simply a developing world phenomenon. For first-world students such as myself, whose predominantly part-time study program has been drawn out beyond the 'shelf-life' of the technology, keeping pace with distinct 'generations' of distance learning can become a hidden barrier for successful completion. As such, access to the technology of delivery is an equity issue in distance learning (Willems, 2004b).

The point is that each phase or 'generation' of distance learning has heralded its own specific benefits to distance learners. Each has important attributes which can be seen to be of value to distance learners globally depending on their context of learning. Ramanujam (1999) reminds us that there is an inherent danger in considering the preceding 'generation(s)' of distance learning as antiquated, 'old fashioned' or obsolete. Modernisation need not disregard the strengths of previous ways of doing: the proverbial tossing out of the baby with the bathwater. Such a perception arises through a focus on delivery medium, with accompanying considerations that new technology is a discrete entity, rather than on a student-centred focus, involving their involvement in the construction of knowledge.

Around the globe, multi-generational communities exist to support each other. Each generation draws on the strengths of the generation that exists before or after it: the wisdom of older generations, the exuberance and fresh thinking of the new generation. As such, it may be advantageous to consider the models of distance education as a family of co-existing 'generations', each still having valuable contributions to make to the study life of global distance learning. The co-existence of the 'best' of each style of distance learning to create a multi-generational model may well meet the needs of a broader range of distance learners (such as the portability of materials, affordability, utilisation of existing technology, communication, timely feedback and time-saving options) in order to prevent a techno-elitist barrier to accessing, and participating in, distance education. Simpson (2005, p. 156) suggests that distance education, constructed with a mixture of delivery methods, is a way of supporting the defining characteristics of distance learning: openness and flexibility for the learners.

What might this multi-generational model look like? (See Figure 1.) It would recognise that by adopting the new technology platform, it may exclude some of its learners. The multi-generational model would consider providing alternatives such distance learners, rather than moving to a one-size-fits-all format, which may serve to limit market participation. It would contain a composite of options for students, empowering them to make choices in their learning, encourage participation as well as successful completion. In addition to access to the latest 'generation', the multi-generational model would include:

- Access to print resources (first 'generation' or correspondence model): the need for the provision of portable learning materials still rate highly for some distance learners. Students for whom regular access to computer or other forms of electric technology, satellite connection and/or telephone lines, and/or stable power supplies is a difficulty, the availability of print are crucial (see the case study of 'Diane' in Willems, 2005). As such the print formats of first 'generation' learning still have a place in distance education of the new millennium.

- Access to audio-visual materials that do not require downloading from the university portal (second 'generation' or multi-media model): the audio component of second generation distance learning is still considered advantageous to some distance learners in terms of assisting access. Audio learning can be implemented using existing technologies to supplement to other media in the distance learning. Relatively cheap-to-produce audio-visual options, such as lectures in CD-ROM format, are but one consideration.

- Access to telelearning alternatives (third 'generation' or telelearning model): whilst later generational audio streaming options are dependent on access to various technologies there are forms of audio learning which utilise existing household appliances. A re-vamp of the audio technologies of third 'generation' of distance learning, including radio transmissions (Ramanujam, 1999) and telephone learning (dubbed as 't-learning' by Simpson, 2005), could assist access for learners who have difficulty regularly accessing the online capabilities of the flexible learning 'generations' of distance learning.
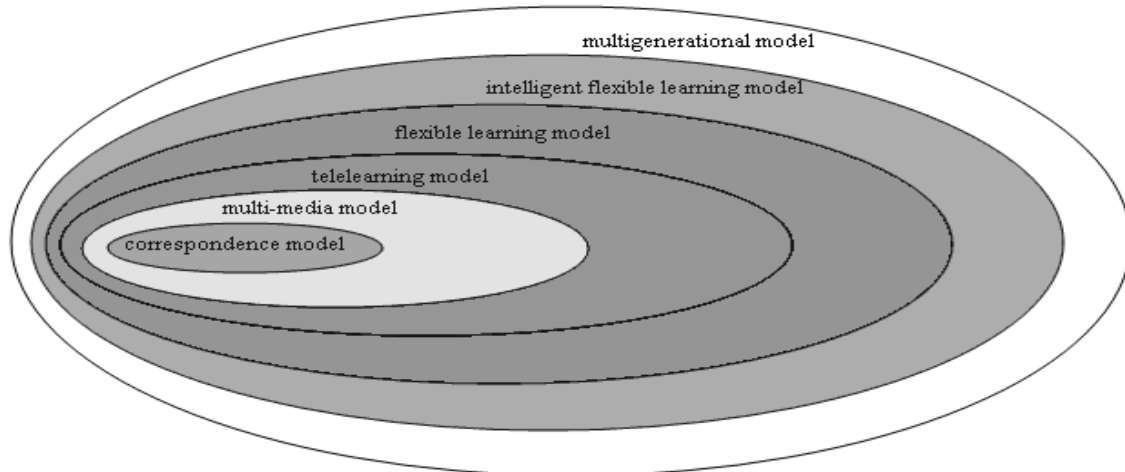
Figure 1: A multi-generational model of distance learning

In so doing, distance learning options would focus on the learning preferences, needs and technologies of the individual learner. As such, production and transmission would invite consumer choice (learner-centred distance education).

Conclusion

With completion of the Graduate Diploma in 2003 and the Research Masters in 2004, twenty years as a distance learner have come to a close. Distance learning has made participation in higher education a possibility at times in my life when on-campus attendance has not been an option. However, success has not been automatic. In my own experience, success has had more to do with triumph over challenges, such as technological time lags, than completing coursework and assessment tasks.

If the founding precept of distance learning is provide education to the population who cannot attend on-campus education, technology-driven education may further alienate already disadvantaged students from the site of learning. The adoption of a learner-centred, multi-generational model of distance learning may be a strategy to overcome such alienation. Indeed it could become a unique selling feature to attract learners from around the world. Yet it will take a brave tertiary distance education provider to make the needs of its distance learners paramount to the technology.

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