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Generations of Distance Education:  
Technologies, Pedagogies, and Organizations

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**Abstract**

Distance education has often been discussed in terms of generations as its forms and methods have been evolved over years. Most often, generations of distance education has been discussed in terms of the dominant technologies it utilizes in teaching and learning. There has been another attempt to classify distance education into generations in terms of its dominant pedagogy. This paper proposes the discussion of distance education in terms of its organizational structure, and proposes a new organizational structure for distance education in which a division of labor can be observed across institutions.

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## 1. Introduction

The term “distance education” may sound somewhat outdated nowadays as in today’s technologies of education, its “distance” nature no longer matters as much as before. What matters more nowadays is “flexibility” and “distributed” aspect of teaching and learning using technologies. However, still “distance education” exists as a field of research and practice and many educational scholars and practitioners identify themselves as those in the field of “distance education.”

There have been numerous attempts to classify distance education in the past. Most of them classify distance education in terms of dominant technologies used. Distance education and technologies are considered inseparable as in order to reach students at a distance, one must use certain tools or technologies to do so. While technologies of instruction have been examined closely, the organizational transformation those technologies necessitate tends to be overlooked. In changing the mode of instruction or the educational model of distance education, an institution must also rearrange or transform its organizational structure to enable and effectuate such changes. Actually many distance education institutions fail to transform themselves to adapt to the changes and stay behind in adopting new technologies and methods of teaching and learning.

## 2. Generations of Distance Education

### 2.1. Technological Perspective

The history of distance education tells us the evolving use of technologies. Bates(2005) as well as Peters (1994) mentioned that distance education had gone through three stages. The first generation of distance education refers to those which mainly utilize written and printed texts and postal services for delivering such texts in the forms of books, newspapers, and manuals. It is so-called print-based correspondence education. In this stage, the interaction between teachers and students was usually limited to correspondence, meaning hand-written texts that were sent via postal mail. It is difficult to gauge the extent of student learning in this mode as student evaluation is usually summative and left at the end of the course.

The second generation is characterized by the use of radio and television as instructional media in addition to print materials. This generation is often referred to as the “industrial mode” of distance education with highly specialized division of labor in producing and delivering instructional materials and the potential to educate thousands of students at once. Many open universities in the world including British Open University, Anadolu University’s Open Educational Faculty in Turkey, Korea National Open University and the Open University of Japan also started as this second generation institutions. When those institutions were started, broadcasting media such as television and radio were selected as the mediums of instruction as they could easily reach mass audience and it matched the mission of open universities to expand educational opportunities. All of those institutions began as national initiatives and the respective national government was heavily involved. In the case of the Open University of Japan (OUJ), it was given a television and radio station by the government for the purpose of providing lifelong learning opportunities to the citizens.

The third generation of distance education utilizes information and communication technologies (ICT) to provide interaction in addition to content delivery. There are two aspects of interactivity in the use of ICT: the interactivity between the learner and the content as seen in interactive multimedia learning materials in CD-ROM as well as on the Web and the interactivity between teachers and students and among students. The latter interactivity makes the fourth generation of distance education, in my opinion.

The third generation of distance education allows personalization of content depending upon learners' learning preferences.

Taylor (2001) suggested five generations of distance education: First, the Correspondence Model based on print technology; Second, the Multi-media Model based on print, audio and video technologies; Third, the Tele-learning Model, based on applications of telecommunications technologies to provide opportunities for synchronous communication; Fourth, the Flexible Learning Model based on online delivery via the Internet; and Fifth, Intelligent Flexible Learning Model based on the interactive nature of the Internet. As this model was originally suggested before social media and Web 2.0 came into scenes, it is understandable that this model does not include the emerging generation of distance education, which utilizes Web 2.0 extensively.

## *2.2. Pedagogical Perspective*

Criticizing those classifications based on technologies, Anderson and Dron (2010) suggests three generations of distance education in terms of its dominant pedagogy: the cognitive-behaviorist pedagogy, the social-constructivist pedagogy, and the connectivist pedagogy of distance education. According to Anderson and Dron, the first generation, the cognitive-behaviorist pedagogy, is characterized by the thinking that learning means some behavioral changes instigated by learning stimuli, and was the dominant thinking in computer-assisted instruction and instructional systems designs. The second generation of distance education pedagogy, the social-constructivist pedagogy, was originated in the work of Vygotsky and Dewey, and focuses more on learning instead of teaching. In this pedagogy, human interaction (student-teacher and student-student) is emphasized, which makes it costly for an institution to adopt. The third generation, the connectivist pedagogy of distance education, is built around networked connections and based on the learners' ability to actively participate in networked communities of their choice.

As Anderson and Dron state that, "Connectivism is built on an assumption of a constructivist model of learning, with the learner at the centre, connecting and constructing knowledge in a context that includes not only external networks and groups but also his or her own histories and predilections," the connectivist pedagogy does not seem significantly different from the social-constructivist pedagogy, but it may be significantly different from other paradigms of teaching and learning in terms of the degree of control an institution has over students' learning. In the previous paradigms of distance education, the role of institutions in designing and evaluating students' learning is quite large while in the connectivist model where learners rely upon existing networked communities to develop their own net presence, the role educational institutions play in individual learning may be reduced to credentialing what students have learned.

## *2.3. Organizational Perspective*

So far the evolution of distance education has been classified into generations in terms of its dominant technology and its dominant pedagogy. Here it is suggested that distance education can be classified into three organizational models. The first organizational model of distance education is the "supplementary model," where distance education is supplementary or complementary to traditional education, which targeted those who were excluded from traditional education for some reasons and needed some "access and equity" in their lives (Terry Evans, 2008). As the distance education programs are supplemental to on-campus programs, the institutional investment in offering the distance educational programs is minimal and usually managed by a special office called "extension programs," "external study,"

“independent study,” etc. It also has been called “independent study,” “self-directed learning,” and “non-traditional and open education” (Saba, 2011).

After the introduction of the Internet in distance education, many existing educational institutions have taken this supplementary model as its core and started to offer dual mode (online and off-line) of teaching and learning. In many such institutions, a division specialized in helping schools and departments offer distance education classes and courses has been established and schools and departments have started to expand their student base beyond on-campus students.

The second generation of distance education is the industrial model discussed earlier. The industrial model has been associated with mass education where hundreds or thousands of students learn in the same program using the same content and the same method. In order to enable this, the institution has to have a division of labors within the institution; hence, it becomes the “industrial” model of production and delivery of courses. Those institutions who utilize educational broadcasting such as radio, television, telecommunications satellites and cable television must organize themselves into this model as it is labor intensive to produce such educational broadcasting programs and it requires different skillsets and expertise to do so. The drawbacks of this organizational model are: difficulty of responding to changing needs of learners, inflexibility of adopting new methods and content, and large organizational overhead.

The third and emerging model of distance education is the “ad hoc model,” in which institutions may play one part in the whole process of learners’ learning in various ways. In this model, the beauty of utilizing technologies should be realized in providing individualized learning programs and structures responsive to individual learners’ needs instead of one size-fits-all system. However, in order to achieve this, it becomes too costly for one institution to offer all the diverse programs and systems depending on diverse learners’ needs. Hence, an institution may offer services covering some part of the whole learning process of a learner.

For example, one institution may offer learning content while another institution may offer tutorials and student support. Yet, some other institution may offer evaluation of learning and credentialing of what students have learned. It’s a division of labor across institutions to meet the demands of learners being arranged by an ad hoc institution based on learning goals students want to achieve. This third organizational model is still emerging, and has not yet been seen beyond experimental bases. As discussed above, there are many different models (whether it is termed as “generations” or not) of distance education and it is usually the case that evolving from one generation to another, or transforming itself from one model into another requires tremendous institutional efforts. It is so much easier to start anew rather than transforming one institution into that of a different generation or model.

### **3. Conclusions**

In today’s world, distance education has been becoming more complex and multi-faceted as time has gone by with added features and technologies. Educational institutions which have been created before the times of technological availability of today have to restructure themselves in order to benefit from those technological advances. With those technologies, now it is possible to achieve the ideal learning environment for a learner, that is customizable according to the individual learner’s needs and preferences. For that end, educational institutions have to reconsider the meaning of their own existence to equip learners’ with the skills needed today and in the foreseeable future.

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