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A CRITIQUE OF THE BRAVE NEW WORLD OF K-12

By

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ABSTRACT

Over the past few decades life style has changed so rapidly that remote areas of the Earth are now inhabited by human beings. Technology has also developed and people can stay at home and have access to virtual schools. This has stimulated the need for K-12 Education. K-12 Education has emerged from the no-child-left-behind concerns of governments for educating the younger population of their countries. This paper is a critique of such an educational system. It begins with a definition of K-12 distance education, and notices the five most popular K-12 systems: Statewide supplemental programs, District-level supplemental programs, Single-district cyber schools, Multi-district cyber schools, and Cyber charters. It then describes the most popular instructional practices within these K-12 systems and identifies them as: Instructor-led Training (ILT), Collaborative Learning, Computer-based Training (CBT), Web-based Training (WBT), and Electronic Performance Support System (EPSS). Then the paper compares K-12 education to traditional educational systems and identifies their advantages and disadvantages. Finally it concludes that computer or mass media technology has no special powers to enhance and facilitate learning, unless it is embedded with instruction that addresses social and cognitive processes of knowledge construction.

Keywords: *K-12 distance education, CBT, ILT, EPSS, WBT, Collaborative learning, Computer-mediated communications, (CMC).*

INTRODUCTION

As the world develops, new technologies are invented with the hope of introducing welfare to the lives of human beings. Many people now prefer to stay at home and access education through home-based technologies like the Internet. The growing number of educational systems in recent years have moved towards cost-effective distance-education programs at all levels of education from kindergarten (K) to grade twelve (12) hence, termed as K-12 Education. K-12 is a cover term that stands for distance education that includes kindergarten, primary and secondary levels of education (Collins, 2001; Fulton, 2002; Herring, 2004).

This paper discusses the main features of K-12 education, presents the different models and methods of K-12 education, and elaborates on the advantages and disadvantages of K-12 distance education by comparing it to traditional classroom-based instruction.

1. Distinctive features of K-12 education

K-12 education is not the only term that is used to refer to distance education and other coterminous terms which include are distance learning, e-learning, online learning, Web-based learning, virtual schools, distance education, etc (Saba, 2005). Schlosser and Simonson (2002, p. 1) defined K-12 education as "Institution-based, formal education where the learning group is separated, and where interactive telecommunication systems are used to connect learners, resources, and instructors". This definition reveals four main features that are critical to K-12 education:

? K-12 education differs from self-study in that it is not controlled and managed by individual learners but is institutional based;

? K-12 education, teachers and learners are separated in terms of knowledge of the content and concepts to be taught, time, and geography.

? K-12 education requires that some form of telecommunication hardware and software (electronic or otherwise) should be available for students to interact with the learning materials,

teachers, and peers.

? K-12 education employs learning and instructional environments that are conducive and facilitative to learning.

Moreover, K-12 education may be self-paced by the learners, structured to fit into the traditional academic calendar, or fall anywhere in between. In addition, instruction in K-12 programs may be delivered with students and teachers communicating and interacting synchronously in real time, with students working at different times, or any combination of the two (Rice, 2006).

It should be noted that the term K-12 distance education is used restrictively to refer young distance education programs. As such, it stands as a counterpart to adult distance education programs.

2. Models of K-12 education

Rice (2006, p. 426) noticed that, as in adult distance education programs, K-12 distance education exists on a continuum from traditional "home study" or text based correspondence programs to programs that utilize the full potential of technology-mediated instruction. According to Fulton and Kober (2002) (cited in Rice, 2006), distance education programs that target at grade levels K-12 are often called virtual schools or cyber schools. They are operated by a variety of entities that may include states, school districts, non-profit organizations, etc.

Models of K-12 programs are based on two dimensions: (a) how the program operates in the educational hierarchy, i.e., statewide, multi-district or single district; and (b) whether the program operates as a cyber school (where learners are enrolled and garner diplomas as well as credits) or provides supplemental online courses to students who are enrolled in another school (Price, 2006, p. 427).

To date, five models of K-12 education have been developed and implemented in the United States of America, and are being adopted by countries like Australia. They include:

Statewide supplemental programs (in the US and Australia)

? District-level supplemental programs (in the US and Australia)

? Single-district cyber schools (in the US and Australia)

? Multi-district cyber schools (in the US)

? Cyber charters (in the US)

All of these models exist across the two dimension explained above. Table 1 outlines the five types of K-12 programs.

According to Oblinger and Hawkins (2005), these models of K-12 distance education generally use one or a combination of the following five methods of teaching and instruction:

? *Instructor-led Training (ILT):* In this type of teaching method, students enter a virtual classroom and are taught by an instructor or a teaching assistant;

? *Electronic Performance Support System (EPSS):* These systems usually function as support programs and help applications and provide the students with vital information and materials when the need arises. The main job of these systems is to provide the support for the enhancement of the K-12 program.

? *Computer-based Training (CBT):* In this system, learning materials are usually delivered on CD-ROMs (or installed on a Local Area Network (LAN). They may

Type	Description
Statewide supplemental programs	Students take individual courses but are enrolled in a physical school or cyber school within the state. These programs are authorized by the state and overseen by state education governing agencies.
District-level supplemental programs	Are typically operated by autonomous districts and are typically not tracked by state agencies.
Single-district cyber schools	Provide an alternative to the traditional face-to-face school environment and are offered by individual districts for students within that district.
Multi-district cyber schools	Are operated within individual school districts but enroll students from other school districts within the state. This represents the largest growth sector in K-12 online learning.
Cyber charters	Are chartered within a single district but can draw students from across the state. In many cases they are connected in some way to commercial curriculum providers.

Table 1. Five Types of K-12 Programs

[Reproduced from Price (2006) - with permission]

include multimedia features such as video clips, sound files, animations, simulations, and so on.

? *Web-based Training:* In fact there is not much difference between this system and CBT. The main difference lies in the fact that, in this case, learning materials are delivered to students through the Internet.

? *Collaborative Learning*: This system is web-based and requires collaboration and interaction between learners and teachers mediated by technology.

This interaction may be synchronous or asynchronous. In the former case, teaching is conducted and controlled by the instructor and through the implementation and the use of such facilities as chat rooms, shared electronic whiteboards, video conferencing, and so on. In the latter case, the instructor is available off-line through email communication, shared database systems, educational networking systems, etc.

Closely related to collaborative learning is the concept of computer-mediated communications (CMC). CMC research has identified two broad categories of communication: real-time (or synchronous), and delayed-time (or asynchronous) (Romiszowski and Mason, 2004). Chat rooms, telephone, and instant messaging are among the typical distance education synchronous communication tools. They allow audio and video communication and even file sharing. Systems that involve a delay in when a message is sent and when it is seen or read are asynchronous in nature. They include letter writing, fax, email, and threaded discussions (Romiszowski and Mason, 2004).

3. K-12 education vs. traditional classroom

Since its advent, K-12 education has stimulated different and diverse reactions among educationalists. The proponents of this system base their support for K-12 education on the findings of empirical studies of e-learning and claim that this system is at least as effective as traditional classroom-based education. They then list the prose of this system and claim that K-12 education is a good replacement for traditional education (Buy, 2001). On the contrary, the opponents of

K-12 education base their claims on such issues as the lack of eye contact between teacher and learner and its side effects for educational outcomes, the difficulty of controlling cheating in examinations, difficulty in identifying the real identity of students, and so on (Dreyfus, 2001). Table 2 compares the two systems of education.

Table 2 indicates that traditional teaching models are bound in time and location whereas K-12 education is potentially free from time and location; this means that in K-12 education there is a great flexibility for access to teaching materials. This flexibility will also make it possible for the learners to manage their own time in such a way as to fit their schedules. A student who is, metaphorically speaking, not a "morning person" can postpone his class time for later in the evening and a "morning person" can have his classes in the morning. This is almost impossible in traditional education since students have to adhere to a very inflexible schedule (Dreyfus, 2001).

Another advantage of the K-12 system is that it has a lot of potentials to share teaching materials among a wide range of states and school districts. This will definitely lower the cost of materials and the expenses of education ministries. Therefore, K-12 education is really cost-effective. Moreover, the flexible nature of the materials

	Education System		
Feature	K-12	Traditional	Ideal
Flexibility	Independent from time and/ or location	Time - and location-bound	independent from time and/ or location
Hidden Expenses	High	None	None
Ease of Updating Content and Materials	Difficult	Quite easy	Quite easy
Feedback	Low and deferred	Class-bound	Complete and clear
Development of Learners' Social Skills and Personality	Very low / none	Very high	Very high
Possibility of Individualization	Exists with the use of new technologies	Very low; depends on teacher	Very high with great depth

Table 2. Comparison of Traditional School-Based Education with K-12 Education

makes it possible to easily update them when the need arises. One point of caution is that, however, this flexibility depends on the availability of the needed infrastructures, and the required hardwares and softwares the absence of which may mean a huge cost.

Perhaps the most serious drawback for K-12 education is that in many developing countries, and in almost all underdeveloped ones, these infrastructures either do not exist or exist in a very primitive form. Moreover, with the fast development of science, the materials that are modern and new today, will become stale and old tomorrow. This means that teaching materials should be kept up-to-date unfailingly, which, in turn, means a provision of budget. This is almost impossible in many underdeveloped countries and in some developing ones.

Another drawback of the K-12 system is that it makes it quite difficult, if not impossible, to detect instances of cheating in computer- and Internet-based tests. In fact, the Internet has been described as the best place for lack of identity, fake identity, or lack of commitment (Dreyfus, 2001). In this connection, K-12 education may face the problem of identifying the real identity of the learners who take part in web-based classes and exams.

Still another problem is that, unlike in traditional classes where teachers and students have real interaction, eye contact, and opportunity for adjustment, this is not the case in most K-12 programs. Whereas in the former teachers can adjust their teaching practices to the level of ability of their students and can reshape them when the need arises, in K-12 programs such an adjustment may at best be possible through highly expensive accommodations and hardware (Dreyfus, 2001).

Moreover, a very vital role of education is to make students ready for entering the society and for accepting its norms. This is often called socialization, and educational outcome that requires socio-educational models of teaching to be at work (Gardner, 1985). Traditional classrooms and schools where students interact with their peers, school staff, and teachers in their own real identities have the potential of developing students culturally, socially, and personally. This socio-

cultural awareness may come about quite subconsciously or it may be quite conscious. K-12 education systems, however, fail to do this since in such systems students are detached from reality by entering a virtual world (Dreyfus, 2001).

Along the same lines, Carr (2000) noticed that preventing dropout behavior is a critical concern of online programs. K-12 virtual schools and programs have relatively high dropout and failure rates (Roblyer and Elbaum, 2000; Simpson, 2004). The reason for this lies in the fact that students have a real need to make connections with their peers and teachers. In traditional school systems, however, faculty-to-student and student-to-student interactions function as a socialization and unifying tie that prevents a high rate of dropout (Stein, Wanstreet, Calvin, Overtoom, and Wheaton, 2005). They are the most important factor in student satisfaction and persistence (Lee and Burkham, 2001).

Anyway, Rice (2006, p. 440) argues that the success and effectiveness of K-12 education "has more to do with who is teaching, who is learning, and how that learning is accomplished, and less to do with the medium".

Conclusion

Computer or mass media technology in and of itself has no special powers to enhance and facilitate learning. When embedded with instruction that addresses social and cognitive processes of knowledge construction, however, distance technologies may offer powerful learning opportunities. The question of the effectiveness of student supports is, therefore, critical in the K-12 context (Lin, 2003). Any attempt at utilizing the K-12 system without a concern for its benefits and drawbacks may be counter-productive.

It should be noted that the education systems are nowadays faced with a wide range of students with diverse personal, social, educational, cultural and ethical characteristics. As Rice (2006, p. 442) rightly noted, K-12 education should at least:

? draw on quality research results that have examined the critical components of learning directly related to younger learners,

? continue and expand on the development of prediction instructions that help to identify successful learner attributes,

? investigate the social and cognitive aspects of distance education and the effect on knowledge construction, and

? develop valid and reliable tools for identifying interactive qualities in course design and instruction.

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