Models/Forms/Types of K-12 Virtual Schools

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Introduction

Wicks (2010) explains that nearly 40 states have state-level virtual schools, more half of all states have full-time online schools that serve students state-wide, and 20 states provide both supplemental as well as full-time learning options statewide. Many states and school districts are realizing the benefits of elearning, which allows unparalleled access to high quality education that is unconstrained by time and space. The world of K-12 elearning can be viewed through several different and overlapping lenses, that ultimately lead to elearning's flexible nature in meeting modern educational needs. This paper provides an overview of these classifications and explains how these options make elearning a flexible paradigm for learner-centered education.

Fulltime vs. Supplemental Elearning

Fulltime virtual schools enable students to take all of their courses online, and therefore must address the same accountability measures as other public schools (Wicks, 2010). Full-time cyber-schools have cost associated with administering state assessments and generally need to have a more sophisticated administrative structure due to their all-in-one structure. Full-time schools typically draw students from a wider geographical area, may have a more diverse student population, and assign individual student advisors that work to craft specific graduation plans and offer support to ensure each student is successful. Supplemental elearning supplements the student's local brick-and-mortar (B&M) education with elearning courses. A student may take some of their courses at their local school, with elearning filling in gaps for courses that may not be available locally, or credit recovery for students that have fallen behind.

Reach of Elearning Programs

Barbour and Reeves (2009) explain that a variety of elearning initiatives exist that have provided a growing opportunity for secondary students to complete individual courses and in many instances complete high school diplomas. He points out the existence of state-sanctioned schools, district-level programs (single and multi-district), consortium schools, virtual charter schools, private schools, online homeschool association endeavors, university-based courses and schools, and commercial ventures like APEX Inc. and Class.com Inc. Which options is utilized depends on policy, resources, and needs of learners and schools.

Curricula

Elearning allows for expansion of course choice particularly for students in rural or inner city schools, which may not offer all courses locally (Barbour & Reeves, 2009). Expansion of curricula is possible by piggy-backing on other schools within the district or state, university-backed consortia that do offer advanced or more specific courses, or commercial outsourcing without need for local design, maintenance, and teachers. Where and when shortages of high-quality teachers for particular courses exist locally, supplemental elearning can be used to offer better course choice by collaborating with other schools or purchasing courses from commercial vendors. Policies may need to be modernized to allow for all of these efficiencies to be routinely realized.

(Wicks, 2010)

Delivery Options

Barbour and Reeves (2009) explain that some schools operate much like traditional correspondence courses with more independence and less communication on part of the learner with their teacher or classmates. Next level is asynchronous delivery, which allows for more communication but does not limit learning to particular times or days. Learning can occur by way of email, threaded discussions, assignments, and assessments. It also allows for school administrators to easily drop into discussions and assess how a course is progressing, for parents and learners to access grade information and for teachers to communicate with parents (Barbour & Reeves, 2009; Wicks, 2010).

Synchronous is real-time: it includes video and audio chat, text chat, and electronic whiteboards where the class interacts together at the same time. Teachers can create workgroups within the whiteboard environment or even give control to a particular student to make presentations to his or her classmates (Barbour & Reeves, 2009). Each method has its own set of benefits and while asynchronous is more popular and allows for greater time flexibility, synchronous can also be used when feasible to enhance the communal aspects of the class and deliver lectures and allow real-time participation and question and answer sessions. Configuration of the delivery methods may depend on resources that are available and circumstances of learners.

Mobile technology is an exciting development that has already shown significant promise for education: 2009 K-12 Horizon Report predicts that it will enter mainstream use within 2-3 years; 70% of students in grades 9-12 express that they have access to mobile technology and would like to use it for school work; Project K-Nect provided 100 smartphones to 9^{th} graders with a teacher using them as supplemental curriculum

resource, and showed a 100% proficiency rating compared to only 70% for traditional learners with both groups being taught by the same teachers; a rural Ohio school provided mobile learning devices to students and staff members in grades 3-7 and reports increased motivation to learn and more interest in writing; 5th graders in a Texas school scored significantly higher in state math and science tests compared to the previous year after being provided with mobile devices to use at home and 50% of the time in their academic classes (Wicks, 2010). Mobile technology has also been effectively used in special needs populations. Davis (2011) reports that an autistic child has been able to use an iPad and a $1.99 app to drag and drop words and letters, letting his teacher know he can spell and use language that she was previously unaware of—"it's another avenue into his mind and abilities that we didn't have before" (p. 3). A speech-language pathologist explains that the mobile technology appears to be a motivating tool and parents are now requesting it as part of their children's individualized education programs (Davis, 2011).

Access and Equity

A concern is whether all students, including those is lower socioeconomic status will be able to access elearning. Wicks (2010) explains that "the cost of broadband access will continue to fall and broadband penetration will increase" (p. 38). Computers in PC and tablet form continue to become more powerful and drop in price, which will enable wider access. Barbour and Reeves (2009) also explain that elearning is "a way to provide equity and access to students from small and rural schools, and to students who are typically disadvantaged due to their ethnicity" (p. 6).

Compared to B&M settings, elearners have a better environment to think about their responses and take their time before contributing: students that are shy or different

may not face the same barriers that they might face in physical classrooms (Barbour & Reeves, 2009; Wicks, 2010). Online classes may also be comprised of students from diverse geographical communities and backgrounds, which may contribute positively to diversity awareness compared to B&M settings in smaller markets (Barbour & Reeves, 2009; Wicks, 2010).

Type of Instruction

Wicks (2010) explains that while most elearning programs were in the past fully online, many programs now combine the best aspects of face-to-face and elearning into a blended mode. Research shows that students who took all or part of their class online performed better than their face-to-face counterparts, and those that utilized blended learning did even better than online or face-to-face alone. Blended learning enables a flexible and more learner-centered approach vs. purely face-to-face where the teacher is typically the focus of attention. Blended learning is facilitated by effective combination of different modes of delivery, models of teaching, and styles of learning and is therefore poised to be the most flexible and effective mode of learning yet particularly in K-12 settings where learners may not as independent compared to college and university elearning. Opposition to earning some credits online is softening while opposition to earning most credits online is growing stronger—hybrid learning can address this concern (Barbour & Reeves, 2009).

Type of Student

A particular strength of elearning within the K-12 context, is that it enables students that have special needs (physical or mental), alternative progression (whether advanced or falling behind), and special family circumstances that may not allow full-

time B&M school attendance to continue their education (Barbour & Reeves, 2009). Students can take Advanced Placement courses through university-based online AP courses otherwise not available at the school, and students that have fallen behind due to low performance can recover their credits by using elearning to take the courses they need to catch up (Wicks, 2010).

Because elearning is learner-centered, each student's path within a course or overall program can be more precisely defined based on their learning level and progression, with additional instruction used for students that need it (Wicks, 2010). Another important consideration is the level of comfort and skill that each learner may have for elearning. Barbour and Reeves (2009) recommend assessments to gauge this level, and training for learners that require additional help to feel comfortable.

Special Education Populations

One of the most important uses of elearning is to help students with special education needs. Davis (2011) explains that autistic students and those with its milder form Asperger's Syndrome often have difficulty in the loud and over-stimulating environment of schools, and are bullied by other students for being different. Elearning allows these students to be able to focus better learning at home. Additionally since they may be hyper-focused in specific academic areas, they are able to utilize additional resources for those subjects that interest them most via elearning. Online learning is supplemented by therapists that visit the home to work on social skills, or by way of social-networking resources within the online school that are monitored by adults to promote positive interaction.

Davis (2011) reports that there has been a 1700% increase in the number of students diagnosed with autism spectrum disorders between 1991 and 2001 school years. 17% of Florida Virtual School students and 14% of Pennsylvania cyber charter school students have disabilities. 10% of students in NC Virtual Public School that took blended courses in 2010 have intellectual disabilities. The Federal government has published an announcement to create a Center on Online Learning and Students With Disabilities (Shah, 2011). Elearning is and will continue to be an important supplemental tool for enhancing the education of this vulnerable population.

Instructional Design

In addition to more choice in curricula offered, design of courses is enhanced with elearning. In traditional classrooms, a teacher designs curriculum on their own, without specialized help. With elearning, subject matter experts, instructional designers, web programmers, and teachers and administrators work together to create effective courses and programs whether locally designed or outsourced (Barbour & Reeves, 2009; Wicks, 2010). This allows the teacher to focus more on coaching students and interacting with them to ensure their optimal learning and progression while using expertly-designed content. Barbour and Reeves recommend a design research strategy to continually assess how the needs of learners are being met, and to make improvements that enable better learning and learning materials (2009).

Elearning is also well-suited for learning information literacy skills in a hands-on manner. Technological resources are used to access, assess, and utilize a variety of information and for outside real-world experts to interact with students and broaden the scope of information and knowledge students may otherwise access (Wicks, 2010). A

more sophisticated learning dynamic can develop that leads to a more critical view of information that is available and a more well-rounded learning atmosphere that better prepares students for information literacy demands of the professional workforce. The use of technological tools like email, chat rooms, blogs, wikis, skype, and document sharing mirror the requirements of professional life (Barbour & Reeves, 2009; Wicks, 2010).

Teachers

Elearning allows flexibility for teachers and for better teacher development. Semi-retired teachers with much experience can be more effectively used to teach part-time and schools that have a shortage can tap into geographical areas where they may be a surplus. Teacher support and development is enhanced by practical inclusion of mentors and learning communities (Wicks, 2010). Although learner-content and learner-learner interaction are part of elearning, the required individualized teacher attention calls for training and developing teachers to be most effective in online settings. Elearning programs have professional development requirements, and some universities have begun to offer programs in online teaching (Wicks, 2010). The training is often conducted online or in hybrid settings so that teachers can gain appreciation for elearning students (Wicks, 2010).

Cost

Wicks (2010) explains that overall, elearning has lower costs than B&M schools: multiple surveys and analyses across multiple state online schools have demonstrated the per-student cost of elearning to be approximately half of B&M schools. Another important consideration is opportunity cost: elearning makes a variety of things possible,

not the least of which is access to courses in smaller regions, rural areas, and poorer schools as well as pooling and sharing of resources that may otherwise not be possible. The cost of offering online AP courses is lesser than offering it in B&M settings particularly in smaller markets (Barbour & Reeves, 2009; Wicks, 2010). When schools band together to purchase courses or course content from vendors, they may be able to negotiate a lower bulk cost (Wicks, 2010).

Conclusion

Wicks (2010) explains that currently the number of K-12 students participating in elearning in the US is less than 5% of total K-12 population, while is it expected that by 2019 half of all high school classes are expected to be online. Understanding various parameters, configurations, and options in elearning is useful not only for effective advocacy for elearning but is also necessary for ensuring that a flexible and learner-centered elearning culture will meet the needs of the large student population in the coming years.

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