

Review of Research on Online High School Recovery Programs

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Mastery learning is an approach used by many online programs designed to support students in gaining the content knowledge they need to successfully complete courses and earn high school credits. While this technology offers great promise, districts are purchasing licenses with vendors without considering appropriate methods of implementation for this new pedagogy. Mastery learning embraces the notion that “all children can learn (Hattie, 2009).” Online mastery learning based programs can be effective tools in credit recovery for at risk students when implemented with fidelity to ensure students earn course credit. The criteria for this to occur are specific and include a set of clear expectations and specific learning conditions. Mastery learning requires heavy doses of feedback from teacher to student. This feedback is more than just praise, it is specific and targets areas of concern and must be a fluid conversation between the student and teacher. With mastery learning, students do not move forward to the next area of learning until they demonstrate confidence with knowledge and skills acquired in their current focus area. This means that timing and pacing can vary. For this teaching approach to work effectively information is chunked into smaller portions and taught with pre and post assessments for each portion to determine what students know and what they don't. In this way, more time can be spent on the weaker areas identified. These are the types of elements districts must consider while developing an effective plan of implementation. There is not much research to guide the implementation process currently as online credit recovery programs in high schools are a relatively new concept being explored.

The Appeal of Online Programs

Online, virtual, and blended programs are becoming a key method in providing instruction to today's youth. There are various methods of use by districts while many systems in the United States seek to identify the issues and dangers of administering online high school recovery programs carelessly. Districts may latch onto online courses

to provide education to students beyond what their budgets or system would otherwise allow, but care must be considered in defining what is taught and learned -- the curriculum. Most systems appear to use a systems approach in implementing these online programs.

The aims of online K12 education demonstrate an awareness of the necessity to prepare all students to enter society with an adequate education and independent learning skills. The goals of this contemporary type of education are to provide extensive educational access to meet the needs of students and to provide an effective alternative to the traditional classroom setting. Objectives of online K-12 education vary to some extent dependent on the model used. Within the computer-based module model, the objectives may include things such as utilizing online education programs to decrease high school dropout rates to below 10%, or a program objective may be to increase high school graduation rates to above 90%, for example (Dijkstra, Krammer, Merriënboer, 1992). Whereas the objectives of online programs targeted at high achieving students may include increasing enrollment in online dual credit courses by 20% by 2017 as an example.

The impact of online K-12 education on school structure is dependent upon a few key factors; the population served, location of the program (on or off campus), and student outcome data. Models that seek to improve graduation rates target students that have not been successful in the traditional school setting either in their academics or behavior, or both. Providing this alternative can result in decreased discipline infractions, increased standardized test pass rates, and graduation rates. Dependent upon program design, students may take courses in a computer lab as part of their regular schedule, as part of an after school online initiative at their school, in at a Performance Learning Center, or in a virtual high school.

Online/Virtual (or blended) high school courses can address and solve many issues that school districts have struggled with in the past. In adopting online/virtual-learning programs schools must develop a sound plan for implementation and design based on the needs of the district. Regardless of purchasing the complete package from Pearson (i.e. NovaNet) or whether providing virtual classrooms with a live teacher (i.e. Blackboard), districts must review and evaluate the curriculum to gauge the alignment to their goals and standards. They cannot assume items they purchase from vendors will be provided ready to go. Steps must be taken to ensure the curriculum is of the quality desired and that it aligns with state guidelines, standards, and pacing.

In the year 2000 there were approximately 45,000 K12 students in online programs and by 2010 there were in excess of 4 million students participating in some type of online learning system (Christensen, Horn, & Johnson, 2008). As such, schools across the nation are inspecting new and evolving online methods to meet all children where they are to promote an alternative-learning platform towards student achievement. In doing so, inquiry that questions the equality between online and traditional teaching methods suggests that the fast transition to online learning may mistakenly leave the good qualities that were found in traditional learning settings behind.

K12 institutions have a number of ways instruction can be offered to students. It is known that some children are audible learners while some thrive on visual stimulation for progressive learning (Staker, H., 2011). It would then seem logical that having more choices in how educators may deliver content would be an inviting scenario for educators concerned about reaching all children. In general, there are four categories of learning as depicted in Table 1.0.

The latest literature regarding K12 online learning notes that guidelines must be put in place to assist with decisions made regarding appropriate placement of students into the correct program according to student needs and success criteria (CCRC, 2011). For virtual schools such as Colorado Virtual Academy (COVA), JeffCo Virtual

Type of Course	Typical Description
Traditional	Courses devoid of online technology content are delivered in writing or orally.
Web Facilitated	Courses that use web-based technology to facilitate what are essentially a face-to-face course. Uses a course management system or web pages to post the syllabus and assignments.
Blended/Hybrid	Courses that blend online and face-to-face delivery. Substantial proportion of the content is delivered online, typically uses online discussions, and typically has some face-to-face meetings.
Online	A course where most or all of the content is delivered online. Typically have no face-to-face meetings.

Table 1.0. Categories of K12 Learning Delivery

(Allen; Seaman 2007)

Academy, New Hampshire Virtual Learning Academy, and Massachusetts Virtual High School Network steps taken were inline with the opening of a charter school (Bolton, 2010). This entailed creating a mission, vision, and adopting or developing a curriculum that aligned with state standards and allowed students to become confident in taking end of course testing after participating in the program suited for them (CCRC, 2011). In virtual schools such as these live teachers taught courses and used online tools to facilitate and present lessons (Pandolfo, 2012). Teachers had the ability to interact with students and parents to give feedback and provide a blended learning experience. Many prepackaged online programs, like that of Pearson, create and design online programs that are specified for school districts according to their state standards. These prepackaged programs do not provide interaction with a teacher and often students are left to their own devices and must advocate for themselves

when additional supports are needed (CCRC, 2011). Virtual programs continue with the curriculum in place within the district, however, the framework of the virtual program has to be developed (Pandolfo, 2012). Using the systems approach in a progressive school system will allow appropriate implementation to lead to a successful roll out. In both types of programs training is key. All stakeholders require training for either program to be successful.

Mastery learning model programs can have proven success when implemented with fidelity. Lewis, Whiteside, and Garrett (2014) presented a three year, mixed methods case study of an online high school. The online program is designed using the mastery learning approach. Students begin each unit, or module, by taking a pre-assessment before any instruction begins. This pre-assessment determines the type of information that will be presented to the student. If the student reaches a pre-determined grade level, they may skip the portions of the module that they were successful with in the pre-assessment. In this case study, students could skip an entire module if they received an 80 or above to move on to the next instructional level. The teachers' role was identified as assisting students in answering questions, providing one-to-one feedback that was consistent, and to motivate students. Students worked at their own pace in completing the modules and the overall program to earn credit for high school courses.

In reviewing this case study Lewis, Whiteside, and Garrett (2014) found many areas for online learning to occur successfully. One is support for students especially for students with special needs or those identified as at-risk. They require online learning training that could be in the form of an orientation. This allows them to get adjusted to the type of behaviors that are required to learn in this manner. Some students in this case study revealed that they felt alone during the initial course taken. The researchers specifically stated, "At-risk students need a strong foundation in online learning readiness and a solid orientation to the online learning environment (Lewis, Whiteside, Garrett, 2014)." Supports should also be provided in maintaining technology or tools to access the online

program. This assists in relieving the barrier that could obstruct access to the online coursework. It is further noted that there must be certain and specific activities in place at the right times for particular situations and students for online programs to have an effect on student performance.

The research concluded that students required supports to be successful with online high school programming such as online readiness assessments, student orientations, technology support, and mentoring (Lewis, Whiteside, Garrett, 2014). The benefits of online high school programs were identified as appreciation of having control of the pacing and the ability to work ahead. The challenges were identified as students having issues with responsibility and time management. Some additional items cited were the benefit of being able to retake courses failed in the past and the ability of students with disabilities being able to graduate. Guidance and monitoring has also been cited as vital to the success of at-risk students using online programs. The researchers agreed that the process and procedures to which the online program is hosted should align with the mastery learning approach that the program (and most online programs) uses. Teacher feedback and check-ins are vital to students' progression through to completion. Face-to-face time is necessary for clarity, motivation, and improved attitudes about learning.

Program of Context

The district in context for this research uses the Edgenuity online credit recovery program. The Edgenuity online high school course program uses Benjamin Bloom's concept of mastery learning (Bloom, 1973; Killinger, 2015). The Edgenuity program is a web-based program that offers credit-bearing courses that are aligned to the Virginia Standards of Learning (Killinger, 2015). Some of the courses include: World History, Virginia U.S. History, Spanish, Art courses, Algebra I, Algebra II, Geometry, Ecology, Earth Science, Biology, Chemistry, American Literature, British Literature, and Health. The courses and course work are asynchronous; they are completely on-line without a live teacher (Killinger, 2015). A teacher is assigned to a student as a facilitator. Instruction is provided to the student via a series of videos, written text,

and activities for practice. In the way that a subject's textbook is broken into chapters, the course work on Edgenuity is broken into modules (Killinger, 2015). At the end of each module the student must be successful with all of the corresponding assessments to be able to move forward to the next module. The facilitator assigned must move the student to the next module or release the student to repeat the module if not initially successful (Killinger, 2015). Once all modules are completed for any given subject, the program evaluates the student and provides an overall grade. This grade stands as the student's grade for the course and credit is then given to the student just as with a traditional course (Killinger, 2015).

Edgenuity is an asynchronous online high school program. This means students do not progress to the next task until their current task is complete. There are various items that students must do to have a task considered complete such as watch a video, answer questions, or research items. Teachers then must be supported with professional development that focuses on asynchronous teaching strategies (Barbour, & Mulcahy, (2008). Edgenuity continues to strive to remain competitive with its online program in grappling with the ebb and flow of the world of education, in regard to design and delivery (Killinger, 2015). Guidelines are necessary for practitioners to which there currently isn't in depth research for this to happen (Barbour, & Mulcahy, 2008).

Planning for Implementation

When implementing online courses for high school students many considerations must come into play for any online program to be successful. Hiring of the appropriate teachers, unique training for teachers as facilitators and mentors are necessary, and student training is vital (Brown, 2011). Educational leaders must redefine the role of their teachers when implementing online courses. The online program provides the curriculum content while the student moves through the course at an individual pace. The problem occurs when student do not move. They can remain stagnant. Teachers must become supporters, motivators, and sounding boards for students to progress through a program on their own (DiPietro, 2010). When students

emotional experiences are impacted positively an environment for student achievement is then developed (Kim, Seung, & Cozart, (2014). Online learning must occur with the same care and must be approach with the same care as having a live teacher (Cavanaugh, 2001). Students' individuality must be considered when developing online course programs.

Just as districts struggle to find the most appropriate online program for the delivery of their curriculum, vendors struggle to develop the one program that provides the online experience that can replicate the best practices of the classroom into the best practices of online education (Rothermel, & Eastmond, 2005). For these types of schools to function effectively there must be a level of fidelity to which they operate within a school division. There must be a accountability processes put in place. The criterion for teacher selection needs to be identified according to the type of program selected. Once teachers are selected, how teachers manipulate the program and function within the learning environment, their classroom policies must be aligned. Items such as how to report student achievement, what supplements to the program are acceptable, how assessments are administered, and how students' grades are interpreted and reported must be structured in a way that is valid and reliable (Barbour, & Hill, 2011; DiPietro, 2010). Vendors have also found difficulty in engaging students in higher level thinking skills. According to Bloom (1973), learning occurs when students are invited to evaluate, synthesize and analyze information. There are questions regarding the selection process in determining what students use the online programs. Barbour and Mulcahy (2008) contended that there is a difference in achievement when students are selected for online courses and when they are not. Students that are selected for the online courses tend to be more successful than when a selection process does not exist (2008).

The mastery learning approach is effective and has been adopted by vendors in their development of online high school recovery programs such as Edgenuity. Districts must operate these programs with fidelity to ensure that students are successful with this new pedagogy. Before

purchasing a program districts will need to gather the research regarding successful implementation of such programs although the research is limited. In doing so, districts will find higher completion rates and more credits recovered by students.

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