International Journal of Social Science And Human Research

ISSN(print): 2644-0679, ISSN(online): 2644-0695

Volume 04 Issue 03 March 2021

DOI: 10.47191/ijsshr/v4-i3-06, Impact factor-5.586

Page No : 256-263

Exploring Blended Curriculum to Enhance Adult High School Learning

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ABSTRACT: At the study site school for this research, the online curriculum in the current blended learning program was not promoting the desired student achievement outcomes. It was unknown if and how research-based best practices associated with blended learning were being implemented. This qualitative case study explored which elements of blended learning best practices were currently implemented in the online blended curriculum at one school to understand the factors enhancing or constraining student learning outcomes. A communities of inquiry framework was used to explore which blended learning best practices were currently implemented and which of those elements enhanced and constrained learning based on teacher and student perspectives. Data were collected using a whole population questionnaire, individual student/teacher interviews, and classroom observations. Three students and five teachers participated in the interviews and five classrooms were observed. Data were analyzed using a combination of open coding and a priori codes. Findings indicated that while teacher presence was evident in the blended learning curriculum, the focus on self-paced assignments limited the social and cognitive presence needed in blended learning best practices. Results were used to design a blended learning professional development course to help prepare teachers to implement missing elements of blended learning best practices. This research study can create social change by increasing teachers' understanding of blended learning and providing student learning data to help educational leaders close the achievement gap at the local site. Increasing student success could lead to lower dropout rates and enhance students' abilities to become more successful members of society.

KEYWORDS: Adult learning, blended learning, online learning, online blended curriculum, communities of inquiry, teaching and learning.

I. INTRODUCTION

Blended learning, curriculum and instruction combining traditional brick-and-mortar and online education, can offer students a personalized curriculum while still providing coverage of core content knowledge in real-world settings. When blended learning is implemented with attention to best practices, increases in student achievement occur[1]. In blended learning, *implementation* refers to the design and contents of the course shell that students interact with as well as teachers' interactions with students and content to promote learning[2]. Blended learning best practices can be grouped into the three main elements of a communities of inquiry (CoI) framework: (a) cognitive presence, (b) social presence, and (c) teaching presence[3]. Cognitive presence is evidenced by such practices as questioning, exploring, making connections, and applying new ideas. Social presence appears through emotional expression shared by teachers and students, open communication, a risk-free environment, encouragement, and collaboration. Teaching presence includes everything from the beginning stages of planning and selecting curriculum to facilitating discussions, assigning groups, building understanding, and direct instruction.

Blended learning curriculum and instruction, implemented with attention to blended learning best practices, should promote a CoI that actively involves students and their teachers in the learning process and provides them various ways to interact with the curriculum materials. Blended learning programs should promote a CoI that focuses on social presence, teacher presence, and cognitive presence as blended learning best practices through a variety of activities from planning to implementation[3]. CoI promotes active learning, making connections among concepts, and the exchange of ideas by allowing learners to interact with teachers, peers, and the community to enhance learning[3]. Constructing a CoI in an online, blended curriculum requires teacher presence, social presence, and cognitive presence to implement tools and assignments that depict the role of teachers and students in online

learning, connecting face-to-face and online components, embed frequent online interactions with and between students and vary the types and technological tools of learning[4,5]. Some best practices are associated with how the online course materials have been designed (such as embedding frequent opportunities for collaboration in materials), and others relate to how the teacher implements these materials[6]. When blended learning best practices are implemented, active learning occurs and student achievement is greater than in traditional courses[7]. Conversely, a lack of frequent interaction among students and teachers in online courses leads to failure and eventual drop out[5].

II. RESEARCH PROBLEM

At Career High School (pseudonym), a nontraditional adult high school in central Colorado, a blended learning model is used to increase student achievement and develop students who can apply content knowledge to real-world situations. The administration at Career High implemented blended learning specifically to ensure more students complete high school and can apply content in career and other real-world situations (principal, personal communication, August 20, 2018). The problem at Career High School is that the online curriculum in the blended learning program is not promoting these desired student outcomes, and no data have been collected to explore if and how the research-based blended learning best practices (as discussed above) have been implemented in the blended learning online curriculum. These blended learning best practices, known to increase student outcomes, include establishing the role of teachers and students in online learning, connecting the face-to-face and online components of learning, embedding frequent online interactions with and between students, and including real-life problems in the curriculum[3,5]. Two department chairs at Career High School (English & Science department chairs, personal communications, August 21, 2017) stated that a problem exists with the online curriculum used for blended instruction, and the current practice is failing to promote active learning. This problem is further evidenced at the local site by the 11% graduation rate in 2016 and a dropout rate of 48%[8]. Students at the school do not score well on standardized tests when compared to their peers around the state or when evaluated by the state for workforce readiness. Attendance is also a major issue at Career High school and the result of many possible factors, one of which may be the blended curriculum[8].

As discussed above, the effective implementation of blended learning best practices has the potential to improve these student outcomes. According to recent research on blended learning, using blended learning best practices, such as establishing the role of teachers and students in online learning, connecting face-to-face and online components of learning, embedding frequent online interactions with and between students, and varying the types of technological tools of learning is crucial to enhance student learning[5]. A gap in practice exists at the local level. Research asserts that when students experience blended learning best practices, both their achievement on standardized tests and their ability to apply content knowledge to real-life situations occur[1,4]; however, at the local study site, these outcomes are not occurring. As evidenced by low test scores, low graduation rates, and statements from teachers and school leaders, the online curriculum is not promoting the desired outcomes for students. Hence a study was needed into the elements of blended learning best practices being implemented by teachers in the current online curriculum and to gather the information about adult students' perspectives on what factors enhance and constrain their learning outcomes from the current online curriculum at Career High School.

For this study, the research questions were as follows:

RQ1: What elements of blended learning best practices from the CoI framework are inherent in the current online curriculum at Career High School?

RQ2: What elements of blended learning best practices from the CoI framework are being implemented by teachers in the current online curriculum at Career High School?

RQ3: From the teacher and adult student perspective, what elements of blended learning best practices enhance and constrain student participation in a CoI while learning from the online curriculum at Career High School ?

III. LITERATURE REVIEW

Blended Learning

Blended learning takes the advantages of both online instruction and face-to-face instruction to create a more effective learning environment to promote communication, interaction, and higher-order thinking and learning[3]. Research indicates that blended learning helps to increase student engagement and improves achievement outcomes, but most research related to blended learning has been conducted with teachers at the college level. Researchers have found that blended learning enhances student achievement and engagement when blended learning best practices elements are implemented effectively[9]. With an increase in the use of technology in education, online curriculum is an important element of 21st-century learning[9].

Blended learning programs are becoming more popular, and research shows that student engagement is pliable and based on many factors, including curriculum[10]. Pugliese[11] found that students performed better in grammar, vocabulary, reading, and comprehension when the curriculum was presented in a blended learning format. Finding tools to enhance student participation in the rapidly changing educational setting is important to student success[9]. Students who were not involved were at a higher risk of

not completing school[5]. Many researchers have cited student participation as an important element in classroom success, and in Colorado, engagement is one of four criteria alternative schools must document for accreditation[12].

Blended learning has many benefits, but it also presents challenges for teachers and students. Many teachers did not feel that adequate preparation and resources were available to create the needed community within the blended curriculum[13], which may lead to inadequate implementation of blended learning best practices. Even when creating a community was a focus of the program, many felt that a solid community network was missing. With the formatting of blended programs, teachers felt that they did not have the ability to guide the curriculum, and students did not participate actively during blended courses[13]. Teacher and student involvement are important to academic success; however, students and teachers are not using the resources available through a blended program to facilitate deeper learning.

Preparation to create and implement an online curriculum that includes the elements of blended learning best practices is important to the success of a blended program. Research indicated that there is often a lack of understanding needed to navigate online resources[10]. When teachers do not understand the collaborative tools of the digital curriculum, it is difficult for them to explain to students how to interact with the resources available[9]. Students do not seem to prefer a certain collaboration tool over others but must understand the tools they are using to benefit from them. Teachers tend to have limited knowledge of online teaching methods and struggle to provide a social presence. Student and teacher familiarity with the digital tools are a limiting factor for active learning in an online curriculum, along with unclear expectations and content.

IV. CURRICULUM

How the curriculum for a program is designed influences how effective the program is at helping the students learn, how effective it is at engaging students in the activities, and how students feel about engaging in the learning process. A curriculum that facilitates exploration and construction of meaning through reflection, discussion, and application presents a cognitive presence[2]. The curriculum should also create an environment that brings students together in a safe and open setting[14]. Students' understanding of the program, perception about the curriculum, and the ability to construct meaning from the curriculum all influence students' attitudes and willingness to engage in the learning process. The following sections look at what research says about curriculum design, perceptions of students about curriculum, constructing meaning from the curriculum, and tools to improve the curriculum.

It is important for students to construct meaning from the curriculum to build a deeper connection and understanding of the content. Classrooms that encourage students to construct knowledge by interacting with one another, and the world, produce more engaged and academically successful students[4]. The online curriculum allows students to construct meaning from the content using a variety of multimedia tools[11]. Cheng and Chau[15] found that activities that promoted individual constructivism and social interaction were more successful at enhancing student learning. Online curriculum activities were divided into four basic categories by Cheng and Chau: information access, interactive learning, networked learning, and materials development. Having a variety of activities and ways for students to access the curriculum was important to increasing active learning, although not all online tools are equally successful at promoting participation and meaningful learning[16]. A strong online curriculum includes a variety of interactive and engaging activities and meets the needs of 21st- century learners.

Today's learners have technology at their fingertips[1]. Most students have a smartphone with access to networking software, as well as access to learning applications and open educational resources. Digital tools can be used in blended programs to enhance learning through a more meaningful curriculum[9]. When using collaborative online tools to enhance the curriculum, students felt more engaged when the teachers also interacted with them. Curriculum embedded with multimedia resources allowed students to view the content in multiple formats to make sense of their learning[9]. Students can build more meaning from the curriculum if they are able to access it in a variety of ways and construct meaning for themselves[1]. Many online curriculums include a combination of texts, images, audio files, and video files to help learners understand the content[16]. However, many curriculums fail to include interactive activities that involve students in learning.

V. METHODOLOGY

A qualitative case study was selected to analyze each participant's experiences and perspectives through observation, self-report questionnaires, and semi structured interviews. The setting for this study was Career High School, and the adult students participating in blended courses and the teachers for the blended courses were the case for this study. A case study was the most relevant approach to obtain perceptions of students and teachers about their experiences with the blended curriculum at Career High School[17]. A qualitative case study is used to obtain in-depth data from a small number of individuals about their perspectives and experiences. Using a qualitative study worked with the small population of Career High School and for understanding teacher and student perceptions of blended learning best practices implementation and the elements that enhance students' ability to achieve learning outcomes. The use of a qualitative case study allowed for interpretations of participants' experiences with the online, blended curriculum. A qualitative case study was selected as the best method to align with this research study because analyzing each participant's experiences and perspectives through observation, self-report questionnaires, and semi structured interviews was the goal of the research.

A. Participants

Career High School has a population of fewer than 400 students, of which an estimated 50 are adult students who are currently or have participated within the past year in blended courses at the school. Career High School has approximately 10 teachers who teach blended learning courses.

B. Data Collection

Three forms of data were collected to address the research questions in this study. Following Yin[18], an effective case study requires more than one source of evidence for the triangulation of qualitative data. Data was collected using both student and teacher questionnaires, classroom observations, and student and teacher interviews. The constructs of teacher presence, social presence, and cognitive presence that comprise the conceptual framework of CoI and the elements of blended learning best practices that promote these constructs[2] were used to create the questionnaires and observation protocol, and to guide the semi structured interview questions. Survey and interview questions were open-ended to draw the greatest amount of feedback from participants[17].

VI. DATA ANALYSIS AND RESULTS

A. ANALYSIS

Following collection, the data were prepared and then analyzed to determine the common themes in participants' questionnaires, interview responses, and classroom observations. A thematic analysis using a combination of a priori and emergent coding was used to help me determine which factors participants identify most as enhancing and constraining their learning and participation[19]. This analysis was triangulated by the analysis of the researcher's classroom observations. The constructs of teacher presence, social presence, and cognitive presence[2] used to guide the closed responses were also used as a priori codes for the open-ended responses for level one coding. In addition, the following sub codes were used within the main a priori codes for this study: teacher presence—instructional management building understanding and direct instruction; social presence—emotional expression, open communication, and group cohesion; and cognitive presence—triggering events exploration, integration, and resolution. Garrison et al.[3] found these indicators useful for assessing CoI and a valid method of data analysis. This first-level coding helped divide the data into manageable chunks of information[17]. Following first-level coding of all data, second-level codes were identified by using pattern coding[20] across open-ended questionnaires, observation, and interview data. This allowed the linking concepts that appear throughout questionnaires, in multiple interviews, and during observations to be identified. Themes emerged based on teacher and student perceptions of the current online, blended curriculum. A representative sample of the coded responses for each of the three a priori codes and the themes derived from them are given in Table 1. The procedures for each data source are given in more detail below.

Table 1. Representative Sample of Coded Responses

A priori codes	Sub a priori codes (second-level codes)	Third-level codes	Example	Themes
Teacher presence	Instructional management	Own pace	Your own pace but if you get stuck, the teachers, right there to help you	Self-paced and personalization is important and successful, but students also like some interaction with peers
Social presence	Open communication	Preparing students	School is all about how to prepare the student so they can make that engagement	Real world scenarios and examples help students relate to content and understand the application
Cognitive presence	Integration	Application	The goal of not just knowing those facts, but then being able to then have a conversation with an airplane professional, so that they can then be an edge, so they could have educated	Real world scenarios and examples help students relate to content and understand the application

	the questions when they talk to them

B. RESULTS

RQ1: What elements of blended learning best practices from the CoI framework are inherent in the current online curriculum at Career High School?

The participants' responses showed that teachers are working on teacher presence over social and cognitive presence. The main factor that students and teachers mentioned was the instructional management and how teachers select topics, form classes, and prepare content. In the initial questionnaire, all but one teacher indicated that teachers provide structure for the course within the online platform. Four out of six teachers also indicated that teachers explain about online materials, that teacher interactions promote students to ask questions, that the assessments align with the objectives, and that teachers have designed meaningful objectives. All five students agreed that teachers were doing a good job of explaining the online materials. During interviews, all three students and four of the five teachers mentioned that they liked the self-pacing that the blended model provided for students. Students felt that they were able to get done more quickly in a self-paced model. Many participants also mentioned the use of direct instruction, but there were mixed feelings as to the quality of the instruction in the online portion of the class. During observations, most teachers explaining online material, promoting communication, asking students questions, supporting the online curriculum, and interacting with students demonstrating teacher presence was witnessed. However, most of the conversation and interactions between teachers and students occurred in-person and not actually in the online platforms was observed.

During the eight interviews and five observations, it was apparent that most of the modeling, explaining, and discussion happened one-on-one in the classroom and not as part of the online curriculum. During the observations, there was no observation of any teachers or students sending or receiving emails or digital messages about the course content. Further, there was no observation of any students participating in online discussions or peer interactions. Peer interactions facilitate deeper understanding and greater retention of content[15]. There was observation of a few students discussing the material in the physical classroom. Discussing concepts and clarifying misconceptions and assumptions helps students to improve their understanding through evaluation and reflection. During observations on December 13, the teacher specifically offered a time for students to ask questions or share ideas about the material they were to view online prior to class. On December 4, the teacher had a student pull-up the online material to show her what she was struggling with so that the teacher could better reexplain the material.

In the initial questionnaires, zero out of six teachers believed that their class promotes inquiry to solve problems or opportunities to apply content to real-world situations. Students were slightly more optimistic in their initial questionnaires about cognitive presence, with 60% of them believing that problem-solving, inquiry, real-world experiences, and applications were present in their classes. All the students indicated that the curriculum promotes critical thinking. During interviews, three of the teachers mentioned real-world problem-solving and application in the form of projects and looking at current events. Palmer et al. [21] explained the importance of real-world application of content. During observations, cognitive presence was seen by asking students to recognize problems, ask questions, and apply concepts. One teacher was observed prompting students for corrections when they would miss a question. This seemed to engage the students in understanding why they missed the question while helping them find the correct answer. Problem-solving and applying concepts seemed to be more common in the Physical Education (PE) courses than in other content areas. Both students who have taken a PE course felt good about the cognitive presence, as did the teacher, but cognitive presence was not well represented in the other courses. Two courses observed required students to solve some sort of problem while present during observation. Observations of two courses had students working to construct meaning from the content and two courses that related the content to real-world experiences. These were not all the same two courses. Various classes demonstrated cognitive presence during my observations in different ways.

Throughout interviews and during observations, it was apparent that the online curriculum does not inherently contain much social presence. However, teachers are using the face-to-face portion of class to add some social presence. Social presence was not well represented in the responses for the initial questionnaire, with five out of eleven participants saying there was time for students to ask peers questions and fewer participants answering positively about experiencing other indicators of social presence in the classroom. During interviews, all three students and five teachers stated that they interact very little outside the physical classroom. This was also apparent during five observations where no online interactions were witnessed. During interviews, two teachers stated that they have had a few students who email them with questions or discussion points but that it is not the norm. Marcus stated that he usually just waits until he gets to class to talk to the teacher instead of doing so digitally.

RQ2: What elements of blended learning best practices from the CoI framework are being implemented by teachers in the current online curriculum at Career High School?

Teachers appear to be working to increase teacher presence beyond what is built into the course. One participant stated that online discussions do not work and do not accomplish her goal. She believed that they are a "big farce." It seemed to be a common thought among teachers that students were not at Career High School to build group cohesion or communicate with peers, but instead just wanted to get in and finish. Students seemed hesitant to help one another for fear of confusing the other student, or they were embarrassed to ask for help. Participants seemed to have a good grasp on how to use cognitive presence in the face-to-face

classroom, but they have not had the time or resources available to build cognitive presence into the course shell they were given. Literature illustrates that teachers often did not have adequate resources or preparation to be successful in implementing blended learning best practices[19].

Two participants noted the number of courses they are simultaneously teaching and the challenge that can present when trying to incorporate blended learning best practices. One participant pointed out that she works two other jobs and does not have time to do work she is not getting paid for. She also stated that the courses are hard for her to see what the students see and so she must wait for students to ask questions. Justin explained that the shells are mostly set up for the core classes but that they can modify and individualize courses for student needs. In science, they use labs to incorporate both social presence and cognitive presence during the face-to-face portion of the class instead of having students interact online. Tay[22] stated that networking and a community feel was often a struggle even when teachers tried to focus on creating a community feeling. Based on the observations, all but one of the teachers observed had at least four classes going during one class period. Teachers are working to include blended learning best practices in their classes, but social and cognitive presence is limited in the online portion of the class. More resources and preparation are needed for teachers to successfully implement blended learning best practices[22].

RQ3: From the teacher and adult student perspective, what elements of blended learning best practices enhance and constrain student participation in a CoI while learning from the online curriculum at Career High School?

Student responses indicated that students find cognitive presence helps to improve their understanding and retention of information. They also felt that sharing personal meaning and discussing how the content applies to them would be beneficial. Donaldson et al.[9] explained that collaborating with peers allows everyone to further their understanding and reflect on the content. This collaboration and engagement improved retention and allowed for a deeper understanding, as well as helped students apply the content later[21].

Seven out of eleven participants mentioned the importance of self-paced instruction. The self-paced format of direct instruction was believed to enhance learning, and students felt it even improved the speed at which they could accomplish a task. Students enjoyed the teachers that built a relationship with them. Destiny stated that it would be worth slowing down the pace to be able to hear from real people in the field they were studying in her fitness class. Two of the participants stated that they just want to get done.

On December 13, students were observed asking questions and relating current events to a graphic presented. This observation led to the belief that some students are interested in slowing down the pace to make real-world connections. Four of the participants mentioned that most of their students were not there to make relationships and do field trips. During participant observations, it was apparent that the format of the daytime program and the night program were different, as was the mindset of many of the teachers. A participant indicated that the real-world application was what the students were there for but that the goal of education needed to change so that they could focus on what was important to them. Teachers felt like they were teaching so many different classes simultaneously that it was difficult to improve the content and instruction. Multiple courses taking place simultaneously in all but two classrooms was observed, and one of those rooms only had one student present the day of observation. During the five observations, it was noted that attendance was a major issue in many classrooms, which related to student and teachers' interest in asynchronous courses as opposed to synchronous courses. Based on teacher feedback, most teachers would like to have more time to improve their instruction and build in more social presence and cognitive presence. The conceptual framework outlined the importance of social presence, cognitive presence, and teacher presence as elements of best practices in blended learning[2]. Andrews and Richmond[23] explained that teachers who are currently practicing are more suited to training that provide them with resources to implement right away. Teachers need training in blended learning best practices that corresponds with their current courses of instruction. From the conceptual framework, the elements of social and cognitive presence were the limiting factors in blended learning success identified from the data.

VII. CONCLUSIONS

The overall purpose of this research study was to improve teachers' understanding of blended learning best practices and provide them with resources and time to implement CoI. Successful implementation of CoI in an online curriculum has the potential to improve achievement on student outcomes and increase students' ability to apply learning to real-world situations.

In this research study, the implementation of blended learning best practices and created a professional development to help teachers improve the implementation of CoI was realized. This research study may bring social change by educating teachers and school administrators. The study findings indicated that teachers needed more understanding of how to implement CoI with a focus on social and cognitive presence. The training focuses on helping teachers learn how to implement CoI in their classrooms.

Future research could include other settings such as a traditional high school, middle school, or even elementary school. The research focused on adult high school students. Future research could build on the findings by expanding the population to understand if the same gaps exist. Future research could also evaluate implementation before and after attending a training, such as a three-day professional development.

Ongoing training is important for educators[24]. Educators want to implement the information they obtain at training, but it is often lost between training and implantation without follow-up. The importance of this research is to improve teacher implementation of CoI to improve student learning outcomes. Teachers must keep up with the changing education system.

The purpose of this qualitative case study was to explore which elements of blended learning best practices were currently implemented in the online, blended curriculum at Career High School to increase the understanding of which factors were enhancing or constraining student learning outcomes. Stakeholders can choose to use the findings to provide training for teachers to improve the implementation of best practices. Teachers must adapt to the current learning environment, which is technology-based. The results of this study can be used to train teachers in implementing blended learning best practices. Feedback from participants will help me improve the training and provide me with input for future research and training.

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