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Literature Review of Project Based Learning

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State University of New York
College at Buffalo
Department of Career and Technical Education

Literature Review of Project Based Learning

A Thesis in
Business and Marking Education

By

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Abstract

The information gathered leads to an improved definition of project based learning. For students to gain a greater understanding of classroom content they need to experience a hands-on environment that allows for a challenge and problem solving opportunities. It is recommended that a project based learning environment be used in Business and Marketing Education. Students are given opportunities to apply information learned in the classroom to real world situations and make deeper connections with the material. This real-world application will allow students to strengthen their skill sets and further prepare them for their lives after school. They have learned how to collaborate, make connections and self-manage. Students provided with project based learning opportunities will be able to hone their problem solving and critical thinking skills as well. Students will be better prepared for the work force.

Acknowledgements

I would like to extend a thank you to family and friends for being so supportive of me during this process. This especially extends to my husband Kevin, who has been incredibly supportive of me during this time. I would also like to thank my thesis committee, especially Dr. Steve Macho, for being incredibly helpful and encouraging during the writing of this thesis.

Contents

INTRODUCTION

Project-Based Learning, or PBL as it is commonly referred, is not a new concept in the world of education. It has been utilized for decades in a variety of content areas and in a variety of settings. Project based learning provides students with practical applications of concepts that allows for them to make connections between the content being learned and the real world. The connections produced allow students to see there are opportunities for them to use information gathered in the real world, especially in the realm of Business and Marketing Education. Students are more likely to retain material and understand abstract concepts due to the more hands on environment that project based learning creates.

Project based learning also provides students with multiple opportunities to enhance skills that will be needed in the future. Students learn how to collaborate and bounce ideas off of each other. They will develop their critical thinking and problem solving skills. This allows them to learn different ways of thinking and how to come to conclusions more efficiently and effectively. Skills gained through project based learning and Business and Marketing Education are those that employers look for. With ample project based learning opportunities students, can succeed in multiple content areas in the classroom, along with building upon and honing skills that they can utilize to be successful.

Problem Statement

What is project-based learning? How does it aid in the development of critical thinking and 21st century skills?

Method

The method utilized in the thesis is literature review. Articles and information were obtained through various online databases such as ERIC and the Buffalo State Library Database. Articles, studies and other published documents will be analyzed in order to produce recommendations that can be applied to Business and Marketing Education.

Limits

This literature review is limited to the scope of research gathered in the United States. It is also limited to the focus of project based learning and how it applies to Business and Marketing Education.

Assumptions

It is assumed that the information gathered is unbiased. The information is assumed to be 100% factual.

- The information gathered is 100% factual
- The information gathered is unbiased

Definitions

21st Century Skills: Umbrella term that includes the following skills: critical thinking, collaboration, communication, creativity and innovation, self-direction, global connections, local connections, and using technology as a tool for learning.

Autonomous Learning: the process by which students have a choice in what and how they learn (Chalupa and Haseborg, 2014: pg. 56).

Critical Thinking: describe forms of learning, thought, and analysis that go beyond the memorization and recall of information and facts. In common usage, critical thinking is an umbrella term that may be applied to many different forms of learning acquisition or to a wide variety of thought processes (Great School Partnership, 2015: ¶ 1).

Constructivism: a paradigm or worldview posits that learning is an active, constructive process. The learner is an information constructor. People actively construct or create their own subjective representations of objective reality. New information is linked to prior knowledge (Learning Theories, 2017: ¶ 1).

Differentiation: wide variety of teaching techniques and lesson adaptations that educators use to instruct a diverse group of students, with diverse learning needs, in the same course, classroom, or learning environment (Great School Partnership, 2015: ¶ 1).

Extrinsic Motivation: being motivated by an external stimulus to achieve a specific outcome, reward, or standard (Sibold, 2016, pg. 79).

Experiential Learning Theory (ELT): the process of learning where knowledge is created through the transformation of experience (Kolb & Kolb, 2005: pg. 194).

Higher-Order Thinking: takes thinking to higher levels than restating the facts; understand them, infer from them, connect them to other facts and concepts, categorize them, manipulate them, put them together in new or novel ways, and apply them as we seek new solutions to new problems (Thomas & Thorne, 2009: ¶ 4-5).

Intrinsic Motivation: being motivated by an internal stimulus to perform a behavior because it is personally rewarding, interesting, and satisfying (Sibold, 2016: pg.79).

Metacognition: ability to think about your thoughts with the aim of improving learning (Wilson: 2014: ¶ 3).

Project-Based-Learning (PBL): teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging and complex question, problem, or challenge (BIE, 2015: ¶ 1).

Scaffolding: a variety of instructional techniques used to move students progressively toward stronger understanding and, ultimately, greater independence in the learning process (Great Schools Partnership, 2015: ¶ 1).

Self-Determination Theory: examines social and environmental factors that affect and subsequently lead to optimal and sustained human motivation (Sibold, 2016: pg. 79).

Social Constructivism: level of potential development is the level at which learning takes place. It comprises cognitive structures that are still in the process of maturing, but which can only mature under the guidance of or in collaboration with others (Berkley University, 2017: ¶ 2).

LITERATURE REVIEW

Many theorists are credited with the development of project based learning, most credibly Piaget, Vygotsky, and Dewey. A mass of information has been gathered to develop key features and aspects of project based learning for it to be implemented in a variety of classrooms. Learner autonomy and motivation are increased through project based learning curriculums. There are many advantages to project based learning. Teachers have concerns and hesitations regarding project based learning as well.

Theoretical Framework

There are multiple theories that reside at the base of project-based learning (PBL). The main theories are embedded throughout are Piaget's theory of Constructivism and Vygotsky's theory of Social Constructivism. John Dewey's Pedagogical Creed played a major role in development as well.

Piaget's

In Piaget's *The Child's Concept of the World* (2007), he discusses that an individual is born with schemas in their brain. These schemas are what allow one to go through the processes of both accommodation and assimilation. Through the process of assimilation new information is added and adapted to existing schemas. Therefore, unless schemas are being reshaped or new ones are formed the student will only understand the information as the existing schema allows. (Schcolnick, Kol, Aberbanel, 2006: 13). Piaget's theory has been adjusted and adapted by many constructivist theorists. However, one thing remains a constant: students construct their knowledge by building up existing knowledge and through experiences.

Although Piaget's never directly associated his theories with education, it is easy to see where it can be applied. One way constructivism can be applied to education is through discovery learning. Discovery learning is the idea children learn best by actively exploring and physically doing (McLeod, 2015: ¶ 35). The practice of constructivist theories allow for the creation of an environment that is conducive for project-based learning.

Vygotsky

One thing that Piaget's theory did not account for is the social aspect of the learning environment. The addition of the social aspect would lead to the further development of constructivism into social constructivism by Vygotsky. Vygotsky believed in learning by experience and doing through social and interpersonal interaction (Schcolnick, Kol, Aberbanel, 2006: 13). Vygotsky led the development of the Zone of Proximal Development (ZPD). The ZPD is described as "the current or actual level of development of the learner and the next level attainable through the use of meditating semiotic and environmental tools and capable adult or peer facilitation" (Shabani, Khatib and Ebadi, 2010: 238). A student is only able to accomplish so much individually. They are able to accomplish a higher-level task, which may be on the outside of their ZPD, by collaborating with higher level peers or an adult. The next time this same student needs to accomplish this higher-level task, it will be within their ZPD and they will be able to accomplish it on their own.
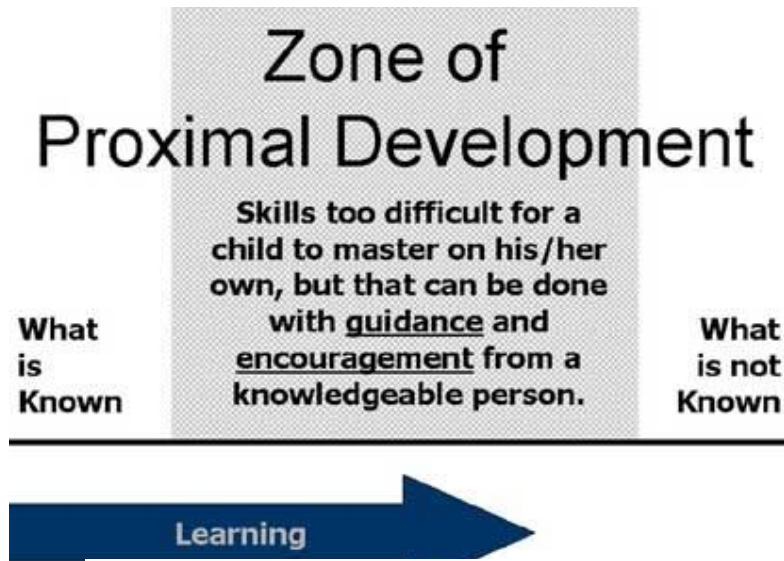
Zone of Proximal Development

Skills too difficult for a child to master on his/her own, but that can be done with guidance and encouragement from a knowledgeable person.

What is Known

What is not Known

Learning

Figure 1: Zone of Proximal Development, (McLeod, 2015)

While the term was never directly used by Vygotsky in his writings, ZPD is the beginnings of scaffolding. Scaffolding, by definition, is the variation in instruction techniques which are used to assist students in developing a greater understanding of a content so that, in the end, they will achieve more independence in their learning. When providing this type of assistance, a teacher will provide successive levels of temporary supports for a student. As the student gains the skills necessary for the task and begins to further comprehend the material the teacher provides less and less support allowing for the student to assume responsibility for their learning. It is often used when there are gaps in learning among students in the same classroom. A teacher can provide the supports needed at each learning level, allowing the higher-level students to work independently (Great Schools Partnership, 2015: ¶ 1). This can also feed into ZPD and Vygotsky's social constructivism by allowing higher-level students to work with struggling students. They can collaborate and while the higher-level student is further engraining the information by explaining it to another student, the

struggling student is able to accomplish a more advanced task with appropriate assistance.

In all areas of the constructivist theory there is a reflection component. In order for the newly acquired knowledge to be applied to a learner's already existing knowledge based they need to have time to reflect on the new information. This allows for synthesis to occur and for the knowledge to be readily available for the learner to utilize in the future (Schcolnick, Kol, Aberbanel, 2006: pg. 14).

Dewy

It is often said that John Dewey is the father of project-based learning. He believed students should have opportunities to take part in their own learning. He believed that students would succeed in environments where they are able to have interaction, both socially and with curriculum, and are able to learn through experience (Talebi, 2015: pg. 4). In is Pedagogical Creed, Dewey states there are two sides to the educational processes, psychological and sociological. While the psychological side is the basis, neither side is more important than the other. "Without insight into the psychological structure and activities of the individual, the educative process will, therefore, be haphazard and arbitrary" (Dewey, 1897: ¶ 3).

Dewey also discusses the sociological aspect of the educational process. This side of the educational process is there for the preparation of future life. A student is trained to be able to "…have the full and ready use of all his capacities…" (Dewey, 1897: ¶ 6). Many of the key points in Dewey's creed center on the total development of the child. In order for a child to become successful and a functioning member of society

they need to be well rounded and have experiences that allow for the full development of skills needed in the world after the completion of their education.

Key Features and Aspects

The Buck Institute of Education has done an extensive amount of research on project-based learning. They have developed curriculums, curriculum additions and resources, along with writing many articles and creating informational videos on the use and implementation of project based learning. According to the Buck Institute there are eight essential elements of project design, the basis for project-based learning. Theses essential elements are as follows:

1. Key knowledge, Understanding, and Success Skills

   a. A project should be focused on student learning goals. It should also include standards-based content and skills. These skills include critical thinking, collaboration and self-management.

2. Challenging Problem or Question

   a. The challenge level of the problem or question should be appropriate for the student(s) working to solve it. The problem or question should also be meaningful to the student(s).

3. Sustained Inquiry

   a. A continued process of student(s) asking questions, finding resources to answer the questions and applying the new information.

4. Authenticity

    a. A project should contain a connection to the real world. If there is no real-world connection, there should be an impact or relation to students own interests.

5. Student Voice and Choice

    a. Students should have a say in what they create and how it is created.

6. Reflection

    a. Students and teachers both reflect on the project. What was effective? What obstacles were encountered and how were they overcome?

7. Critique and Revision

    a. Feedback is given and received by students. It is then used to improve the project process and product.

8. Public Product

    a. Students work becomes public through display/presentation. (BIE, 2017).
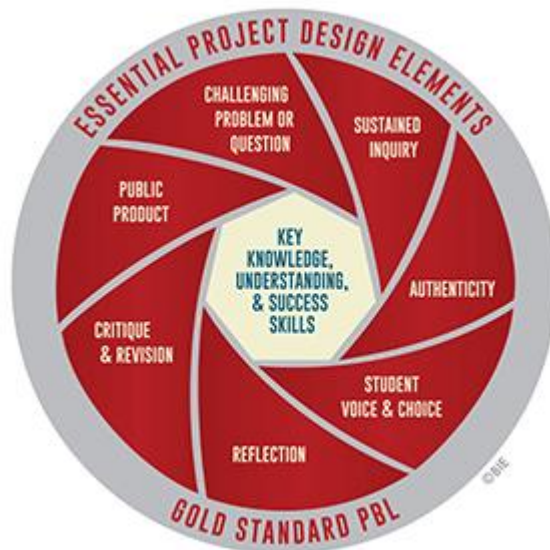
Figure 2: Essential Project Design Elements (Larmer and Mergengoller, 2015)

The Buck Institute created a similar model for best project-based teaching practices. This model assist teachers in making the transition to a project-based style from a traditional style of teaching. It shows there are many traditional methods that make the transition from traditional to project based. This model comes with seven aspects, as opposed to the eight used in the project design model.

1. Design and Plan
   a. Based on content and students, a teacher develops a project that allows for student choice.
2. Align to Standards
   a. Content standards are used in the creation or adaptation of a project to ensure that key aspects from the content area are included and addressed by the project.
3. Build the Culture

    a. Student inquiry and independence are promoted by the teacher. Collaboration and high quality of the work completed are also encouraged.

4. Manage Activities

    a. Tasks, schedules, checkpoints and deadlines are all set by the teacher working with the students. The finding and utilizing of resources and the creation of the final product are also done by the teacher working with the student.

5. Scaffold Student Learning

    a. In assisting students in reaching their project goals, the teacher utilizes a variety of tools and strategies for support based on student(s) need(s).

6. Asses Student Learning

    a. Both formative and summative assessments are used by the teacher to assess the students both on an individual level and as a collaborative team. Peer evaluations are completed as well.

7. Engage and Coach

    a. Teachers work alongside students. They identify student needs and provide support they need. They also supply the student with encouragement and redirection as needed.

Figure 3: Project Based Teaching Practices (BIE, 2015)

Differentiation vs. Scaffolding

Contrary to popular belief the terms differentiation and scaffolding in the world of education are not synonymous. They can, however, be used simultaneously. The major difference between differentiation and scaffolding is the scale to which they are used in the classroom. Differentiation is used more on an individual level. It allows a teacher to meet the needs of individual students. It allows for students to have the opportunity to take different paths to achieve learning goals (Mentoring Minds, 2014: ¶ 2).

Differentiation can occur in three different ways. There is content, process and product differentiation.

1. Content Differentiation- changing how content is presented to a student

2. Process Differentiation- changing of activities used to master content

3. Product Differentiation- changing how student demonstrates what they learned

(Tennessee DOE, 2014).

Unlike differentiation, scaffolding is mostly utilized in a large group, or whole classroom setting. Differentiation can assist in determining needs of the classroom in order to provide students with proper scaffolding. Scaffolding can be utilized in a number of different ways. Some examples include:

1. Pre-teaching vocabulary,

2. Breaking one large lesson into multiple smaller ones,

3. Use of visual aids,

4. The "I Do, We Do, You Do" teaching technique,

5. Examples and models, and

6. Start small and build onto the concept as time progresses.

(Tennessee DOE, 2014)

Project-Based Learning and Skill Development

21st Century Skills

There are many skills required in today's society that are not necessarily imparted through the use of traditional teaching methods. These skills are often referred to as 21st century skills. Skills in this bracket include things like communication, collaboration, critical thinking and problem solving, and self-direction skills (Ravitz, Hixson, English, and Mergendoller, 2012: pg. 2).

A study that was published in 2012 looked at the impact of a professional development program that took place over the course of a week during the summer. This professional development was designed to assist teachers in developing effective project-based learning lessons that would emphasis the development of 21st century skills by the students. The study found there was a statistically significant difference in the amount of teaching and assessing of 21st century skills by teachers separated into three categories:

1. Do not use project-based learning,

2. Use project-based learning but have had limited professional development, and

3. Use project-based learning and have had extensive professional development.

While most believe that project-based learning is mostly a STEM (science, technology, engineering and math), or hands on content teaching technique, this study showed the teaching of 21st century skills through project-based learning is applicable in a wide variety of content areas (Ravitz, Hixson, English, and Mergendoller, 2012: pg. 5-6).

There is also further evidence to show that social learning provides ample opportunity for students to develop and become proficient in skills such as communication and collaboration. Project-based learning provides these students with the opportunity to take part in social learning situations. Collaboration and social learning also provides students with the chance to assume responsibility. They learn to be more independent and accountable for their work. In project based learning situations, students become accountable to their peers. When students do not follow through with their responsibilities to their peers they often experience greater consequences than if they just held a responsibility to the teacher (Bell, 2010: pg. 40).

Students have a greater motivation to take responsibility because they do not want to let their peers down. There is a greater consequence to letting peers down than there is to letting the teacher down.

Higher-Order Thinking

Higher order thinking can be described in many ways. For the purposes of this literature review in the context of project-based learning we will look at that higher-order thinking in terms of how it applies to problem solving. Higher-order thinking is also often associated with the higher levels of Bloom's Taxonomy, both in the original sense and the new revised version. The process of higher order thinking occurs when a student analyzes, evaluates and then creates.
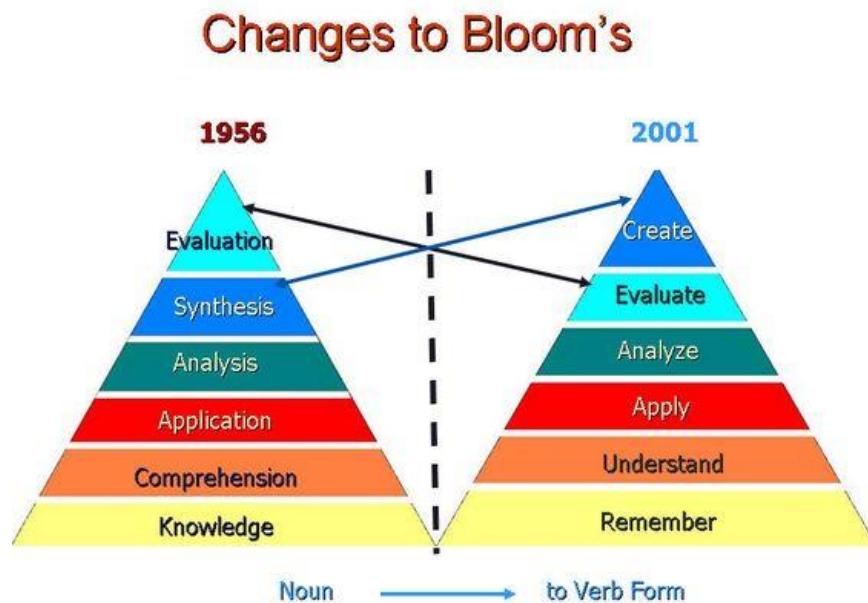

Figure 4: Changes to Bloom's Taxonomy (Wilson, 2001)

Like 21st century skills, higher-order thinking skills are best developed in a project-based learning environment. When problem solving students utilize analytical

and creative thinking skills. The combination of the two, fostered in a project-based learning environment, allow for the best solutions to be created.

Metacognition

When achieving a higher order thinking students develop their metacognitive abilities. The success of a student often relies on their ability to think effectively. Students are ones who rely less on teacher guidance and can learn independently. The ability to increase one's metacognition can be learned through being taught directly and when it is practiced. This can happen across content areas and in different contexts. Students will experience greater metacognition when they are genuinely interested in the material and motivated to learn, which more often than not occurs when they are able to take responsibility of their learning and make choices regarding how and what they will learn. A project based learning environment contains the necessary elements conducive to metacognition occurring (Wilson, 2014).

Part of developing metacognitive skills is the ability to recognize one's strengths and weaknesses. One needs to monitor how they learn and what tactics are most effective. A person needs to know how to be able to capitalize on their strengths while compensating for the weaknesses. This leads to being able to self-manage (Thomas & Thorn, 2009: pp. 54-58). Self-management is essential to project based learning, as it involves choice, motivation and autonomy.

Motivation and Autonomous Learning

Motivation

Motivation can be broken apart into two components, intrinsic and extrinsic. When it comes to project-based learning and learner autonomy intrinsic motivation is what is strived for, as opposed to extrinsic. The diagram below published by Pete King and Justine Howard (2016, pg. 63) in their article, *Free Choice or Adaptable Choice Self-Determination Theory and Play*, shows the continuum between the two types of motivation. It is designed to be used for younger children and their choice in how they play, but it can easily be adapted to many situations.
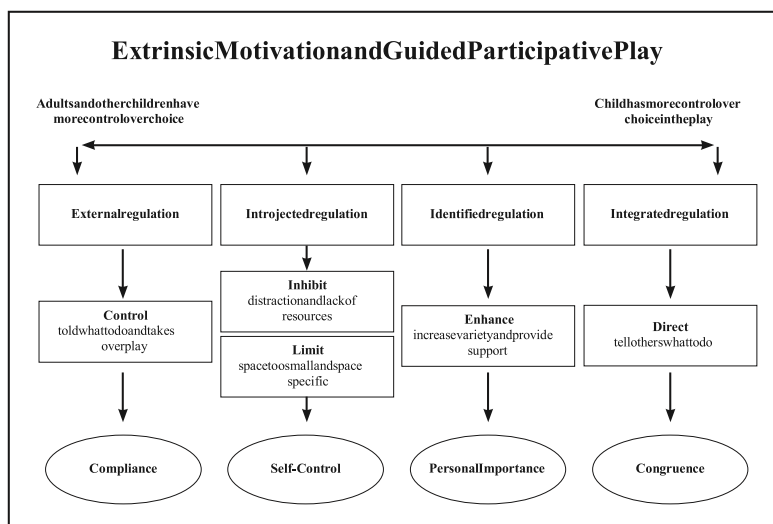

Figure 5: Extrinsic Motivation and Guided Participative Play (King and Howard, 2016: pg. 63)

Students are intrinsically motivated when they are interested in the content. Content needs a connection to the real world or their life for students to be intrinsically motivated which leads to them being more engaged in learning.

Autonomous Learning

Autonomy and motivation play large roles in project-based learning. Autonomous learning refers to the process by which students not only have a choice in what, but how they learn. A key aspect of this autonomy is the willingness of the learner. They need to be willing to take responsibility for their learning. While the student had choice, and taken responsibility there still is a reliance on the teacher. There needs to be ongoing interaction between the teacher and student. The autonomy of a learner also has a profound impact on their motivation (Chalupa, Haseborg, 2014: pp. 55-56, 70-71).

Self-Determination Theory

Self-Determination Theory looks further into motivation. Self-determination theory has identified motivation is composed of three primary factors: competence, autonomy and relatedness. Students are more likely to be motivated to learn when these three factors are met. Students want to feel as though they are capable of completing the tasks at hand. The students want to have an interest in or have a connection with the context of the task. They also want to feel as though they have some control, or choice in the completion of the given task. When a student is provided with these factors they experience an increase in their intrinsic motivation and want to be more engaged in the content. When students are motivated and engaged an environment of competence is created and the feeling of being able to master the content is cultivated (Sibold, 2016: pp. 79-80).

Experiential Learning Theory

Experiential Learning Theory is built upon the basis that learning is a process.

Through this process different concepts are derived, modified and manipulated by

experiences (Kolb, 1984: pg. 26). There are many scholars who have done work with

experiential learning theory. However, they all have the following six concepts about

learning in common:

1. Learning is best conceived as a process, not in terms of outcomes.
2. All learning is re-learning.
3. Learning requires the resolution of conflicts between dialectically
   opposed models.
4. Learning is a holistic process of adaptation.
5. Learning results from synergetic transactions between a person and the
   environment.
6. Learning is the process of creating knowledge.
       (Kolb and Kolb, 2008: pp. 4-5)

As previously mentioned, learning is the process of creating knowledge. Knowledge,

according to Experiential Learning Theory, is created from grasping and transforming

experiences.

The Experiential Learning Theory model is composed of four segments, two related to grasping experience and two related to transforming experience. The four components are: concrete experience, abstract conceptualization, reflective observation and active experimentation. Together the four components are often referred to as the Cycle of Experiential Learning. In the cycle, concrete experiences are building blocks for observation and reflection. This reflection is then used to form abstract concepts, which can then be the basis for experimentation. This experimentation then provides the opportunity for new experiences to draw upon (Kolb and Kolb, 2008: pg. 6).
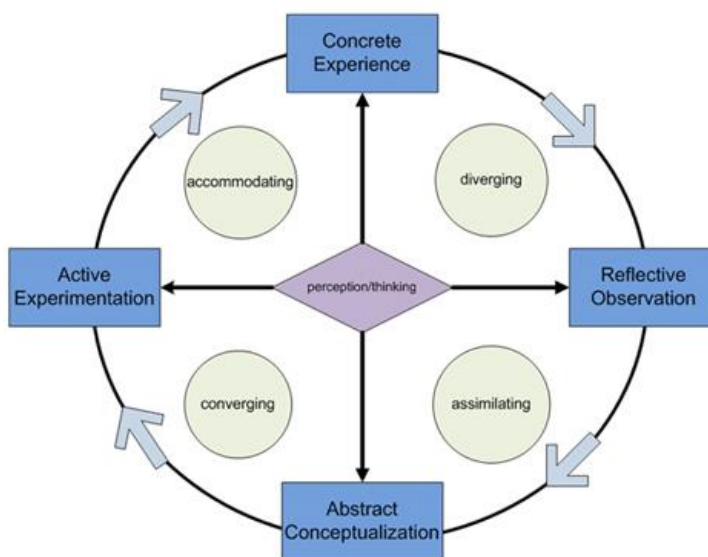
Figure 6: Cycle of Experiential Learning (Davenport University, 2009)

Experiential Learning Theory can also be aligned with team or group learning. A project based learning environment will utilize the concepts in Kolb's Experiential Learning Theory. Students collaborate on a problem drawing from experiences that they have had. They can then reflect on and conceptualize the new information that has been presented to them in their problem or challenge. This then allows them to find solutions for the problem or challenge creating new experiences.

Project-Based Learning at Different Age Levels

Elementary

There are often arguments against project based learning due to its time-consuming nature. Teachers are often not sure how to incorporate state learning standards into a project based learning curriculum. These arguments are often made at the elementary or primary school level. The teachers at this level have the responsibility of teaching all core subjects, instead of just focusing on one, like a middle school or high school teacher. They also argue their students may not be up to the challenge associated with project based learning, especially those with learning disabilities. This however, provides the perfect argument for project based learning. Even though it is time consuming to complete a project and to plan the project, project based learning allows teachers to combine subjects and to implement more than one set of standards at a time. It also allows for scaffolding to the different development levels. Students get the opportunity to interact and learn from each other. Project based learning allows for the closing of the gap between higher performing and lower performing students.

In an article published in the fall of 2016, Nell Duke discusses many studies that show the success of project based learning in elementary classrooms. She specifically mentions a study completed in 48 second grade classrooms in high poverty districts. The teachers were randomly assigned a project based learning curriculum with some addition of informational texts or the standard curriculum. Some of the teachers who were assigned the project based learning curriculum, even those with little to no prior

experience with project based learning, experienced higher achievement from their students than the group that did not use a project based curriculum. The study also found that when a teacher placed more emphasis on the project students also experienced higher growth on reading and writing standards. The motivation of the students increased as well. (Nell, 2016: ¶ 8).

Other studies have had similar results as well. Project based learning often has a positive effect on a student's motivation to learn. Another study of project based learning implemented in elementary schools states that students showed improvement in their work ethic. Students also experienced an increased confidence in their work and more positive attitudes towards learning. The teachers who reported this information also reported they dedicated approximately 37% of their instructional time to project based learning (Tretten and Zachariou, 1995).

Secondary Education

Most commonly, project based learning is generally associated with STEM education and secondary schools, which overall are generally taught at the secondary level. Margaret Holm (2011, pg. 2) has done an excellent job in combining an overwhelming amount of research on project based learning and its effectiveness in the classroom. The research she analyzed was from the first decade of the 2000s. She states the main goal of the methodologies associated with project based learning is to shift education. This shift will be towards student centered methods that provide opportunity for inquiry and active learning. However, for the optimum learning environment to occur, there needs to be guidance and involvement from the teacher.

The data gathered by Holm featured information from private, public and charter schools with students in all grades at the high school level. A variety of subject areas were considered. Among the findings was an overwhelming possibility to increase academic achievement and foster greater engagement. When compared to students who were taught the same information in a more traditional sense, the student groups who were taught with the use of project based learning methods had greater gains in the realms of academic achievement. The students in these studies also claimed the following:

1. Increase in content knowledge,

2. Increase in understanding,

3. More favorable attitudes towards the content and an interest in the subject matter, and

4. More positive views of working in groups and collaborating.

Based on research gathered, it appears students tend to have more favorable views of content area and school if they are in an environment that allows for them to have choice on what they're learning and how they're learning the information (Holm, 2011: pp. 5-8).

Advantages, Concerns and Hesitations

Advantages

There are many advantages to project based learning, many of which have been mentioned above. A major advantage to project based learning is the opportunities it provides for differentiation and scaffolding. These opportunities provide the teacher

with a chance to meet the needs of all their students. It has become more apparent as students' progress into college and career after high school they benefit more from possessing 21st century skills. These necessary skills needed for success argue for the implementation of a project based learning curriculum in the classroom. Students are provided opportunity after opportunity to build upon their problem solving, collaboration and higher order thinking skills (Efstratia, 2014: pg. 1258).

There is opportunity for the standards of multiple content areas to be met. With the push to integrate more reading and writing standards into other content areas, beyond just English and Language Arts, project based learning provides ample opportunity for the implementation of standards and goals to be met. For example, students may need to complete research, which would meet informational text reading standards. They would the need to complete some sort of essay, PowerPoint, or other material to present. This will allow for writing and speaking standards to be obtained.

Concerns and Hesitations

There are many who have reservations when it comes to implementing project based learning in the classroom. A concern of teachers is they are not adequately prepared to implement project based learning into their curriculum. They feel as though they are inexperienced and need more training in the area before they can use it in their classroom. Teachers also unsure of the effectiveness of evaluation when students use technology (Efstratia, 2014: pg. 1258).

Another of the major concerns of teachers surrounding project based learning is student performance on high stakes testing. Many teachers fear if they utilize project based learning as opposed to more traditional testing methods their students will not

perform as well on standardized or state tests (Yeugn, 2008: ¶ 2). This leads to the worry of teachers and how confidently standards can be implemented into a project based curriculum. While switching to an entirely different teaching method is overwhelming, finding a way to incorporate standards into the curriculum can bring that overwhelming factor to an all-time high. This challenge or hesitation can easily be relieved by utilizing online resources, such as the Buck Institute of Education website, that provides examples of projects that can be used and adapted to fit a teacher's needs in the classroom (BIE Resources, 2017).

Time is another obstacle teachers believe they face when it comes to project based learning. It is not just the time it takes to plan a project, but the time it takes to execute a project that is the concern. After a project is planned for the first time it can easily be changed and adapted for future use. This makes the initial planning time extensive, but there is a time saver in the long run. However, what is often heard is: how can you spend three weeks on a project? The number of topics that can be covered in that time can surely exceed the topics covered on a project. A teacher from Chicago has the answer: "At first, I was concerned about spending three weeks on this project, but when I look back, I realize how much my students learned and how much time I saved by not having to reteach the same thing over and over again," This was said by Kristine Kurpiewski, who is a teacher at an early college high school in Chicago (Yeugn, 2008: ¶ 6-9).

While also fearing their students are not ready to be put into to collaborating group work, the final concern of teachers is losing control of their classroom. David Ross, director of professional development at the Buck Institute of Education, states

"Control and command are not the same thing… you give up control, but you always retain command of your classroom" (Yeugn, 2008: ¶ 16). Project based learning allows for student choice, which means the teacher needs to relinquish some control, however they maintain command. They are still the overseer of the room. They provide behavioral control, academic support and guidance for the students. The teacher does not allow for the students to run them out, they still maintain the role of supporter and provide the guidance needed to meet all students' needs.

METHOD

The method utilized in the thesis is literature review. Articles and information were obtained through various online databases such as ERIC and the Buffalo State Library Database and the Buck Institute for Education's website. Articles were analyzed in order to produce recommendations that can be applied to Business and Marketing Education.

ANALYSIS

Project based learning can be utilized in a majority of classrooms at practically any age level. There are, however, six key elements necessary for the implementation of project based learning. They are as follows:

1. A focus needs to be on student learning goals.

2. Along with learning goals, learning standards need to be kept in mind so they are met.

3. The problem or question at hand should challenge students' abilities but not be overly challenging so that students are set up to fail, or not find a solution.

4. The problem or challenge needs to provide a real world connection for the students.

5. At the conclusion of the project there needs to be a time for reflection and feedback. Reflection and feedback are done by both student and teacher. A focus should be on the process and the final product.

6. The teacher must support students throughout the process. They need to be available to provide encouragement and guidance.

Summary

The information gathered leads to an improved definition of project based learning. For students to gain a greater understanding of classroom content they need to experience a hands-on environment that allows for a challenge and problem solving opportunities. It is recommended that a project based learning environment be used in Business and Marketing Education. Students are given opportunities to apply information learned in the classroom to real world situations and make deeper connections with the material. This real-world application will allow students to strengthen their skill sets and further prepare them for their lives after school. They have learned how to collaborate, make connections and self-manage. Students provided with project based learning opportunities will be able to hone their problem solving and critical thinking skills as well. Students will be better prepared for the work force.

The research gathered reveals that students do in fact want to learn. This curiosity and hunger for knowledge is present when students are provided with the opportunity to have a say in their education. This hunger for knowledge increases a students' intrinsic motivation. In correlation when a student is more intrinsically motivated they're engagement level increases as well. The combination of the increased motivation and level of engagement allows the student to reach a higher level of thinking. This higher level of thinking allows them to reach the upper rungs of Bloom's Taxonomy. Students can more effectively analyze and evaluate allowing them to reach the highest level of the taxonomy, creation.

They want choice in what they learn and how they learn, which allows them to play to their strengths and further develop their skill base. The building of this skill base permits the continued development of 21st century skills. 21st century skills are those employers look for in students coming out of high school. Problem solving, communication and collaboration are among the skills classified in the 21st century category that are developed through a project based learning environment. When students are given the opportunity to have choice they are more motivated to expand their knowledge and will produce better outcomes. They will also gain a deeper understanding of concepts presented to them, especially when these concepts are presented with a connection to the real world.

SUMMARY, CONCLUSIONS & RECOMMENDATIONS

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Conclusions

There are three main conclusions to be drawn based on the mass of information gathered on the topic of project based learning.

First, and foremost, it can be concluded project based learning works. Research shows students enjoy the opportunities for autonomy project based learning provides them. They are allowed to have choice in what and/or how information is learned. They are more motivated and they are improving their results.

Second, project based learning takes time. This time aspect is touch upon at many different stages of the process. It take time for teachers to be trained in project based learning. It takes time to develop those trainings. It also takes time to write curriculum. When implementing project based learning, curriculum needs to be essentially re-written in order to accommodate the process. The process of actually

completing a project based unit in the classroom also takes time. One project unit may take the time of one and half direct teaching units.

Finally, project based learning is flexible. Teachers can adapt a project to meet the needs of all students in a classroom. Project based learning can be adapted to be utilized at almost any age level. It can be implemented into any aspect of curriculum, or into any subject area.

Recommendations

It is recommended that further research be done on the project based learning. Research topics should include the following:

1. How curriculum can be adapted for a project based learning method,

2. Effective ways for curriculum to be implemented,

3. The training of teachers in the area of project based learning, and

4. Continued professional development for teachers regarding project based learning.

It is recommended project based learning be implemented in Business and Marketing Education classrooms.

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