THE PROJECT BASED LEARNING FOR 21ST CENTURY

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Abstract:

Project based learning is an innovative approach to learning that teaches a multitude of strategies critical for success in the 21st century. Students drive their own learning through an inquiry as well as work collaboratively to research and create projects that reflect their knowledge. From gleaning new viable technology skills to becoming proficient communicators and advanced problem solvers, students benefit from this approach to instruction

Key Words: *Project Based Learning, Inquiry, Authentic Learning, 21st Century Skills*

Introduction:

In active learning, motivating and engaging students is challenging for the most experienced teachers. Due to students' different learning styles, cultural and ethnic backgrounds, prescriptions of either a 'one size fits all' approach or the cookie cutter approach do not necessarily gear them towards achieving high standards. Project based learning is important in the learning process. Moving away from rote learning and memorisation Project based learning builds on individual strengths and allows individuals to explore their interests in the framework of a defined curriculum. Project based learning is holistic in nature and incorporates the principles of providing challenging and complex work, interdisciplinary and encourages cooperative learning.

Project based learning also lends authenticity to learning. While in practice, practitioners plan, implement and evaluate projects in real world situations beyond the classrooms.

What is Project Based Learning?

Project based learning is a model for classroom activity that shifts away from the usual classroom practices of short and isolated teacher centered lessons.

Project Based learning activities are long term interdisciplinary, student centered and integrated with real world issues and practices.

It is a method that fosters abstract, intellectual tasks to explore complex issues. It promotes understanding which is true knowledge. In Project based learning students explore, make judgments, interpret and synthesize information in meaningful ways.

Kilpatrick defines Project Based Learning as a set of meaningful activities in a social environment that focus on a specific content or on a theme. As such, Project Based Learning focuses on learning by doing, experimenting, problem solving, team work, social skills, understanding, collaboration and partnership and taking responsibility.Project based learning is an institutional approach designed to give students the opportunity to

develop knowledge and skills through engaging project sets around challenges and problems they may face in the real world.

The Buck Institute for Education explains with Project students how to investigate and respond to an authentic, engaging and complex problem or challenge with deep and sustained attention.

Project Based Learning is 'learning by doing'. Project based learning is interdisciplinary. A Project draws from multiple content areas in order to create a full and complete project.

Characteristics of Project Based Learning:

1. Project based learning is organized around a problem or challenge without a predetermined solution.
2. Project based learning creates a need to know of essential content and skills.
3. In Project Based learning students design the process for reaching a solution.
4. Project Based Learning requires critical thinking, problem solving, collaboration and various forms of communication.
5. Project based learning provides the opportunity for students to examine the task from different perspectives using a variety of resources, separate relevant from irrelevant information and manage the information they gather.
6. In Project based learning students learn to work independently and take responsibility when they are asked to make choices.
7. In Project based learning students reflect on what they are doing.
8. In Project based learning a final product is produced and evaluated for quality.
9. In Project based learning the classroom has an atmosphere that tolerates error and change.
10. In Project based learning the teacher takes on the role of a facilitator rather than a leader.

Why A Project Based Learning?

1. A project based approach to learning can help educators engage students in thinking deeply about content, while also learning essential critical thinking, communication and collaboration skills.
2. Project Based learning connects students to their learning in ways that traditional instruction often does not do.
3. By bringing real life context and technology to the curriculum through a Project based learning approach students are encouraged to become independent workers, critical thinkers and lifelong learners.
4. Project based learning lends itself to authentic assessment.

Learning outcomes of Project Based Learning:

1. Long term retention of content.
2. Helps students perform better than traditional learners in high stakes tests.
3. Improves problem solving and collaboration skills.
4. Develops a positive attitude in students toward learning.

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(Reference:https://www.google.com/search?q=project+based+learning&sxsrf=ALiCzsY-Fo-OiHGmeuG4dc6-MtmhSX9oA:1659538808627&source=lnms&tbm=isch&sa=X&ved=2ahUKEwj5kbfp96r5AhW3w4sBH)

Purpose of the Study:

1) To discuss the Philosophical basis of Project Based Learning.

2) To explain the Psychological basis of Project Based Learning.

3) To explain the Principles of Project Based Learning

4) To explain the Key Elements of Project Based Learning.

5) To identify the Steps of Project Based Learning.

6) To describe the Role of Teacher and Student in Project Based Learning.

7) To assess the advantages and challenges of Project Based Learning.

8) To apply Project based learning to enhance 21st century skills.

Principles of Project Based Learning:

1. The Project Based Learning is learner driven and gives learners choice:

It is vital that teachers trust their learners ability to complete the project and that they provide positive reinforcement and support to learners. Giving up a measure of control is essential if the learners are to fully benefit from the experience and claim ownership of the project. Learners choice does imply total learner freedom as the project operates within the expectations of set outcomes and standards of work.

2. The Project Based Learning is realistic:

The method of obtaining and communicating the information, a research project leading to a public poster presentation, was based around real-life scenarios that the learners will encounter in their upcoming undergraduate studies. Establishing links and emphasizing the current or future utility of knowledge, skills,

competencies and attitudes developed through the project are likely to increase learner engagement and motivation.

3. **The Project based learning embraces teamwork and collaboration:**

Project based learning is a team centered activity which encourages learners to form communities of enquiry to answer their question or solve their problem. Successful teamwork requires many skills and attitudes and implicit in the nature of teamwork is that different members bring different attributes to the team and project leading to its success. The team based nature of the project and its outcome need not stop the individual assessment of learners and certainly some will bring more to project than others. It therefore needs to be considered how the information will be captured to make these assessments and the rubrics produced should reflect this.

4. **Project Based Learning requires high quality work:**

There is expectation in the project Based Learning reinforcing the message of growth mindset, that learners expand effort and apply themselves to produce work that leads to high quality outcomes is another driving factor encouraging high quality work. Project rubrics should emphasize the expected quality of the work.teamwork and crucially the public nature of the outcome.

5. **The Project Based Learning provides a public forum for the project outcome:**

Learners are asked to apply themselves to the project over an extended period of time, to produce an authentic , high quality outcome . It is only fitting and motivating that their work and application be acknowledged and celebrated publicly and the learners are able to present work that they can take pride in. This is the authentic outcome of an authentic task. The public display and recognition of the work also shares the message that the teacher and the institution value the principles of learner centredness embedded in the project.

6. **Key Elements of Project Based Learning:**

   1. Challenging problem or question
   2. Sustained Inquiry
   3. Authenticity
   4. Student's Voice and Choice
   5. Reflection
   6. Critique and Revision
   7. Public product

7. **Role of Teacher in Project Based Learning:**

Project Based Learning should be student centered, meaning that students spend the majority of the time working towards a goal and limited time focused on the teacher. The teacher acts to facilitate team work and not as a lecturer. In many ways the teacher acts like a Coach, encouraging students to think critically and pursue the end goal of the projects. Teachers are also responsible to assess learning from students' work during the project.

8. **Role of Learner in Project Based Learning:**

When learning is student centered students play a role in selecting learning goals and approaches to achieving those goals.

Students' role is to ask questions, build knowledge and determine a real world solution to the issue/question presented.

Students should collaborate expanding their active listening skills and requiring them to engage in intelligent focused communication.

In Project Based Learning, the learner becomes initiators of their own learning, the inquirers and problem solvers during the learning process and they are no longer passive information receivers.

Participating and initiating in the project makes the students a team member, and contributor.

9. **Advantages of Project Based Learning:**

1. Deeper engagement and interaction with learning content.
2. Encouragement of higher order thinking and problem solving skills.
3. Development of peer and professional networks.
4. Engagement with potential employers and career mentors.
5. Project based learning supports different learning styles.
6. Development of real life skills.

10. **Challenges of Project Based Learning:**

Student unpreparedness can act as a barrier in the success of Project based learning.

Some students may struggle to grasp the concepts and identify the problem on their own. However, continuous monitoring and providing additional resources can help eliminate these challenges of Project Based Learning. While Project based learning has the ability to transform the education sector, one must keep certain limitations in mind. The amount of time consumed to plan and deliver is often a problem in Project Based Learning. Only schools and teachers with the ability to understand the deep waters of this system can do full justice to this teaching Pedagogy. Therefore, in order to make Project Based Learning successful, some points need to be noted such as monitoring tasks, the quality of those tasks and collaborating team work.
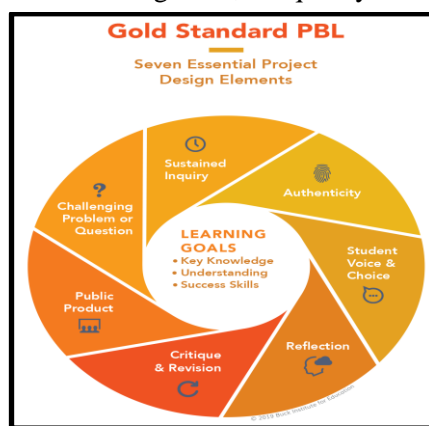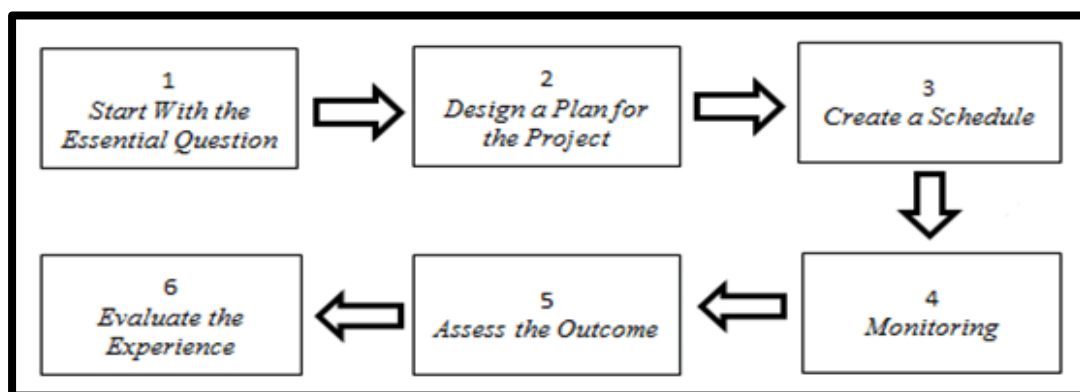

Figure: Essential Elements of Project Based Learning

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(Reference:https://www.pblworks.org/sites/default/files/2019-03/gold_standard_design_0326.png)

11. Steps of Project Based Learning

Figure: Steps of Project Based Learning

(Reference:https://www.researchgate.net/publication/331667757/figure/fig1/AS:735472821211138@15523 61793526/Step-implementation-of-project-based-learning.ppm)

1. **Essential /Driving Question:** This is an inquiry based step that requires great attention to detail and group work because the learning goals of students will be based on the precise mapping of the driving problem. It should be a real world topic and in depth investigation. The question should be based on an authentic situation or topic. The question should be selected based on an issue which will help students believe that by answering the question they will have an impact on the problem. The question should be such that it has meaning in students' lives.

   For eg:In this step the teacher asks the following driving question to the students? How can we reduce the amount of marine debris entering our oceans?

2. **Project Planning:** Designing a learning plan for the project means that the teachers assess how the problem or opportunity connects with the standards he/she is intending to teach. Students should be involved in this process so that they can feel included. Integration of multiple subjects should be done for enhanced student engagement and dynamic learning. Learning resources and content should be at students disposal while they are working on the project.

   For Eg: In this step the Teacher plans what will be required for carrying out the project i.e. resources, finance etc.

3. **Schedule:** It involves setting a timeline and schedule for the project activities. Students should be given a set date or time frame in which they will present their project work. Schedule should be flexible and the schedule should be planned by working collaboratively with the students.

   For Eg: In this the Teacher creates a schedule for the project.

4. **Monitor the Progress:** In Project Based Learning, a Teacher is engaged in the process right from the beginning to the end. The role of the Teacher in Project Based Learning is that of a facilitator who strives to make the learning experiences worthwhile for the students. Teachers should incessantly monitor

students' work and progress. The teacher should teach the students to work collaboratively. The teacher should remind the students that every part of the process belongs to each individual and needs each student's involvement. The teacher should provide resources and guidance. The Teacher should assess the process by creating team and project rubrics.

For eg: In this step the Teacher monitors the progress of the students.

5. **Assessment:** It involves assessing the learning outcomes and participation of students. Assessment provides diagnostic feedback. It helps educators set standards. It allows one to evaluate the progress and relate that progress to others. It helps the teacher design instruction to teach more effectively.Teachers can use rubrics to record students progress and their learning outcomes. Rubrics allows Teachers to grade students learning against set standards and give effective feedback to the individual student at the end of the project. The assessment helps the students in enhancing their skills and thus increases their confidence. Besides teachers, experts and the audience can also be consulted to give feedback.

For eg: In this step Teacher assesses the students work.

6. **Evaluate the experience:** It involves reflecting what worked and what did not during the whole process. Reflection helps teachers to improve their instruction in the future. Teachers are also able to incorporate changes in their teaching strategies. There should be a designated time for reflection of daily activities. Individual reflection such as journaling, group reflection and discussion should be done.

For eg: In this step Teacher evaluates the experience of the student.

12.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).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). 19 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.

21st century skills: Umbrella term that includes the following terms:

1. **Critical thinking skills** refer to students being able to analyze complex problems, investigate questions for which there are no clear-cut answers, evaluate different points of view or sources of information and draw appropriate conclusions based on evidence and reasoning.

2. **Collaboration skills** refers to students being able to work together to solve problems or answer questions to work effectively and respectfully in teams to accomplish a common goal.

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3. **Communication skills** refer to students being able to generate and refine solutions to on synthesis, analysis and then combining or presenting what they have learned in new and original ways.

4. **Self-direction skills** refer to students being able to take responsibility for their learning by identifying topics to pursue and processes for their own learning and being able to review their own work and respond to feedback.

5. **Global connections** refers to students being able to apply what they have learned to local contexts and community issues.

6. **Using technology** as a tool for Learning refers to students being able to manage their learning and produce projects using appropriate information and communication technologies.
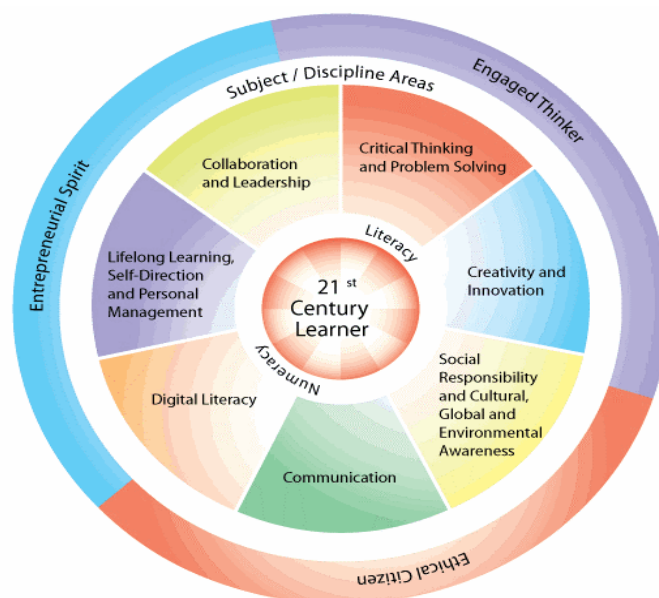
Figure: 21st Century skills

(Reference: https://3starlearningexperiences.files.wordpress.com/2016/11/21st-century-skills.png)

13. Implications and Suggestions:

Several research studies indicated that the use of Project based methods in the classroom helped the students in acquiring a better understanding of the concepts, and increased students' achievement, (Meyer, D. K., 2009), helped in retention of acquired knowledge; improved science process skills,(Moore A, 2017) critical thinking skills, communication skills, Tretten, R. & Zachariou, P. (1995), collaboration skills and enhanced students creativity.(Ravitz, J, & Larmer, J. 2006) Project Based learning . Students apply to the knowledge to solve real world problems.

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