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INDEX

Effectiveness of Project Based Learning in Enhancing 21st Century Skills of Student Teachers

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Abstract

Project Based Learning (PjBL) is an active student-centered form of instruction which is characterized by student autonomy, constructive investigations, goal setting, collaboration, communication and reflection with real world practices. The aim of the study was to study the effectiveness of Project Based learning in Enhancing 21st Century skills among student teachers pursuing first year of the Teacher Education Program. Quasi Experimental design was used for the study. Convenient sampling was used for college selection & Cluster sampling was used for students selection.   ANCOVA was used for Data Analysis. The results of the study revealed that PjBL was effective in enhancing 21st Century Skills of Student teachers.

Introduction

In today's classrooms students need more than academic knowledge to thrive in colleges, careers and beyond. As a result, educators are dually tasked with increasing core subject comprehension and developing 21st Century Skills. Project based learning is designed to do both. By inviting students to solve real world challenges in their own community, we can draw the connection between these modern skills and changing the world around us. What exactly are the skills that young people need to master to be successful after school.

The National Association of Colleges and Employees identified key College and Career competencies as soft skills such as problem solving, leadership and work ethic in addition to basic technical skills such as digital fluency. It can be helpful to remember these focus areas as the four C's of 21st Century Skills when outlining Project Based Learning approach and activities

Critical thinking, Creativity, Collaboration, Communication. PjBL is a student driven, teacher facilitated approach to learning. Learners pursue knowledge by asking questions that have piqued their natural curiosity. The genesis of a project is an inquiry. Students develop a question and are guided through research under the teacher's supervision. Discoveries are illustrated by creating a project to share with a select audience. Organizers support systemization of the processes that will be implemented throughout the research and project phases of PjBL. Students' choice is a key element of this approach. Teachers oversee each step of the process and approve each choice before the student embarks in one direction. Children with similar inquiries may elect to work cooperatively, thereby nurturing 21st Century Collaboration and communication skills and honoring students individual learning styles or preferences. Project Based Learning is not a supplementary activity to support learning it is the basis of Curriculum. Most project include reading, writing and mathematics by nature. Many inquiries are science based or originate from current social problems. The outcome of PjBL is greater understanding of a topic, deeper learning, higher level reading and increased motivation to learn. PjBL is a key strategy for creating independent thinkers and learners. Children solve real world problems by designing their own inquiries, planning their learning, organizing their research and implementing a multitude of learning strategies. Students flourish under this child driven motivating approach to learning and gain valuable skills that will build a strong foundation for their future in our global economy.

Objectives of the Study

The following objectives were formulated for the present study

1. To develop a program based on Project Based Learning.

2. To compare the 21st Century Skills of student teachers of experimental and control groups.

3. To compare the critical thinking skills of student teachers of experimental and control groups.

4. To compare the collaboration skills of student teachers of experimental and control groups.

5. To compare the communication skills of student teachers of experimental and control groups.

6. To compare creativity and innovation skills of student teachers of experimental and control group.

Methodology of the Study

For the present study an experimental method was used to study the effectiveness of Project Based Learning on 21st century skills of student teachers. Quasi experimental design was used. Two group non-equivalent group design was used.

Sample for the Study

The sampling technique used for the study was Convenient Sampling for College selection and Cluster sampling for Students selection. First year B.Ed. Students teachers were selected for the Study. Total 75 student teachers were selected for the study.

Research Instrument and Procedure

A Survey for measuring 21st century Teaching and Learning prepared by Hixson N. Ravitz J. & Whisman A. (2012)

Data Analysis and Results

The data was analyzed using ANCOVA

There is a significant difference in the achievement of 21st Century Skills of student teachers of Experimental group. The posttest means scores 21st Century Skills of the experimental group are higher than the Control group therefore it can be said that there is significant increase in achievement of 21st Century Skills after implementation of the program.

Table 1

Relevant Statistics for the ANCOVA for the scores of 21st Century Skills

Source	SS	DF	MS	F	Level of Significance
Adjusted means	42.72	1	40.87	120.25	
Adjusted error	23.14	72	0.34		0.01
Adjusted total	65	73			

There is a significant difference in Critical thinking skills of the students' teachers of Experimental and Control group. The post-test mean score of Critical thinking skills of the experimental group are higher than the Control group therefore it can be said that there is

significant increase in Critical thinking skills of students after implementation of the

Program.

Table 2

Relevant Statistics for the ANCOVA for the Scores of Critical Thinking Skills

Source	SS	df	MS	F	Level of significance
Adjusted means	42.87	1	42.87	133.44	
Adjusted error	23.13	72	0.32		0.01
Adjusted total	66	73			

There is a significant difference in Collaboration skills of the students' teachers of

Experimental and Control group. The post-test mean score of Collaboration skills of the

experimental group are higher than the Control group therefore it can be said that there is

significant increase in Collaboration skills of students after implementation of the Program.

Table 3

Relevant Statistics for the ANCOVA for the Scores of Collaboration Skills

Source	SS	df	MS	F	Level of significance
Adjusted means	69.55	1	69.55	278.49	
Adjusted error	17.98	72	0.25		0.01
Adjusted total	87.53	73			

There is a significant difference in Communication skills of the students' teachers of Experimental and Control group. The post-test mean score of Communication skills of the experimental group are higher than the Control group therefore it can be said that there is significant increase in Communication skills of students after implementation of the Program.

Table 4
Relevant Statistics for the ANCOVA for the Scores of Communication Skills

Source	SS	df	MS	F	Level of significance
Adjusted means	71.38	1	71.38	226.68	
Adjusted error	22.67	72	0.31		0.01
Adjusted total	94.05	73			

There is a significant difference in Creativity & Innovation skills of the students' teachers of Experimental and Control group. The post-test mean score of the Creativity & Innovation skills of the experimental group are higher than the Control group therefore it can be said that there is significant increase in Creativity & Innovation skills of students after implementation of the Program.

Table 5
Relevant Statistics for the ANCOVA for the Scores of Achievements of Creativity & Innovation Skills

Source	SS	df	MS	F	Level of significance
Adjusted means	76.88	1	76.88	246.91	
Adjusted error	22.42	72	0.31		
Adjusted total	99.3	73			0.01

Discussion

The results of the study indicated that there is a significant increase in 21st Century Skills of student teachers of the experimental group after implementation of the program. The students of the experimental group worked on Projects wherein students had to compare information from different sources before completing a task or argument. Students had to draw conclusions based on analysis of numbers, facts, or relevant information. Students had to analyze competing arguments, perspectives or solutions to a problem, students solved problems wherein there are no clear-cut answers while doing so students worked in pairs and small groups to complete a task together, create joint products using contribution from each student, also student teachers had to work as a team to incorporate feedback of group tasks or products. Student teachers structured data for use in written products or oral presentations. They created charts, student teachers conveyed their ideas using posters, videos, blogs, and questions in front of an audience. Student teachers used concept mapping and brainstorming to generate their own ideas to confront a problem or question like the problem of plastic, water wastage etc. The Project given incorporated all these activities which might have led to an increase in 21st Century Skills namely Critical thinking skills, Collaboration skills, Communication skills, Creativity & Innovation skills of student teachers.

Conclusion

The research was conducted to study the effectiveness of Project Based Learning in enhancing 21st Century Skills among student teachers. The findings show that use of Project Based Learning in teaching has enhanced 21st Century Skills among student teachers. This is evident as from the data analysis. The post test scores are higher as compared to pre test scores. The results show that PjBL can significantly improve students' learning outcomes

compared to traditional teaching method. Thus schools should imply this approach as a strategy for students learning also Curriculum designers should frame the curriculum based on PjBL.

References

Basjaruddin, A. (2016). Implementation of Project-Based Learning in Mechatronic Lab Course at Bandung State Polytechnic. International Journal of Evaluation and Research in Education, 5(4), 284-291. Retrieved on February 27th, 2018, from ERIC.

Bron, C. (2019). Project-Based Learning for Teaching Transmedia Communication. Journal of Problem-Based Learning, 7(1), 141-151. Retrieved February 26th, 2018, from ERIC.

Carabba, R. (2018). The Impact of Project-Based Learning and Direct Instruction on the Motivation and Engagement of Middle School Students. Language Teaching and Educational Research, 1(2), 163-174. Retrieved February 27th, 2018, from ERIC.

Celik, S. (2018). The Impact of Project-Based Learning on Achievement and Students' View in AutoCAD Programming Course. Journal of Education and Learning, 7(6), 67-80. Retrieved February 26th, 2018, from ERIC.

Chi Syan. (2018). Peer Feedback to Facilitate Project-Based Learning in an Online Learning. International Review of Research in Open and Distance Learning, 14(5), 258-276. Retrieved on February 27th, 2018, from ERIC.

Duman, E. (2018). The Effect of Project-Based Learning on Students' Attitude towards English Classes. Journal of Education and Training Studies, 6(11), 186-193. Retrieved February 26th, 2018, from ERIC.

Hasani, A. (2017). Using PBL in Writing an Educational Article. Universal Journal of Educational Research, 5(6), 960-964. Retrieved February 26th, 2018, from ERIC.

Holmes, J. (2016). Exploring the Effect of Project-Based Learning in Maths Education. Journal of Education Research, 109(5), 449-463. Retrieved on February 27th, 2018, from ERIC.

Husren, A. (2023). High School Students' Use of Information, Media & Technology Skills and Multidimensional 21st Century Skills. Scholarly Journal. Retrieved September 8th, 2023, from ProQuest.

Joseph, A. (2020). 21st Century Skill Handbook. Laxmi Print, Delhi.

Juleha, L. (2019). The Effect of Project-Based Learning on Students' Scientific and Information Literacy in Learning Human Excretory System. Journal of Science Learning, 2(2), 33-41. Retrieved February 10th, 2020, from ERIC.