

The Study on The Impact of Learning Revised Bloom's Taxonomy Through E-Content Among the Prospective Teachers

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Abstract—The post-pandemic effect has brought remarkable changes in the attitude, behaviour, and study habits among learners. Specifically in the analysis of the study habits of Gen Z learners, they are prominently inclined towards online learning through their smartphones in their own space. Personalised learning is of great interest among the present generation. The researchers had a thirst for addressing such needs and took the initiative in preparing the modules based on the topic Outcome Based Education. The choice of the topic was done focusing on the demanding need and importance of Revised Bloom's Taxonomy in writing the lesson plans and subsequently appraising OBE. The researchers have prepared an online course on Outcome Based Education with eight modules. The sample chosen for the study was 130 prospective teachers. The researcher conducted a pre-test, shared the e-content modules in equal intervals, and administered a post-test. The scores were analysed and the findings revealed that there was a significant difference among the prospective teachers in learning through e-content.

Index Terms—E-content, Outcome-based Education, Revised Bloom's Taxonomy

I. INTRODUCTION

A synergy between the salient features of the anytime-anywhere format of online learning on the topic Outcome Based Education orienting with Revised Bloom's Taxonomy among the prospective teachers is very vital in the present scenario. Technology has impacted almost every aspect of life today, and education is no exception. In the words of Plato - Necessity is the mother of invention, hence the diversified learner scenario emerges the need for transformation. Technology has always been at the forefront of human education. A tech-enabled

education system will be a proven solution. The traditional classroom-based chalk-and-talk method needs to be restructured using technology to develop a unique content delivery mechanism, which is responsive to learners' needs and ensures seamless knowledge transfer across geographical boundaries. There is also a need to put in place a regulatory mechanism that would allow seamless connections between online learning and regular classroom learning. There emerges a need to create digital content and deliver it through an asynchronous platform such as MOOCs. To facilitate teaching, learning, and assessment for diversified learners in Higher Education Institutions the attempt of online learning approach through e-content is inevitable.

II. LITERATURE REVIEW

Mohd faizah Ros et al., (2024) in the study of The Need for Cognitive Domain in Islamic Education Subjects explored the importance of the cognitive domain by studying the usage of Bloom's taxonomy as a framework for creating objectives and assessments in education, as well as by conducting a literature review as the data for this research study obtained from Web of Science, Google Scholar, and Scopus searches. This article emphasizes the importance of critical thinking, analysis, and synthesis in Islamic education allowing students to apply their knowledge in real-world circumstances and constructively contribute to society.

Abbasi Mahmoud et al., (2023) in their study on the title Impact of teaching, learning, and assessment of medical law on cognitive, affective, and psychomotor

skills of medical students: a systematic review evaluated the impact of teaching, learning, and assessing medical law on medical students' cognitive, emotional, and psychomotor skills. A systematic review was undertaken using the databases PubMed, Embass, and Web of Science, as well as the Google Scholar search engine. The study discovered that written assessments were employed for cognitive and affective domains, while performance was tested using an OSCE, simulated court, and patient referral evaluation.

Eadie Patricia et al., (2022) performed research on the Domains of quality in early childhood education and care: A scoping review of the extent and consistency of the literature. Quality in early childhood education and care is conceptualized in three areas. A search of the peer-reviewed literature revealed 85 meta-analyses and systematic reviews that fulfilled the inclusion criteria. The research most closely aligns with pedagogy, professional development and support, and programs, interventions, curricula (process quality), and learning environments (structural quality) that influence early childhood education programs and practices.

George Annie Jasmina (2022) in the study Assessing affective domain in higher education: educators' Perception analysed the various techniques of evaluation in the affective domain were investigated, as well as educators' views toward evaluating affective domains in the classroom. The study's participants were a random sample of 120 teachers from a private institution in Malaysia. The study found that instructors were open to studying their students' affective domain behaviour in class. According to the study, schools should focus on measuring students' affective domains to grow them into well-rounded personalities.

Karta Wayan et al., (2022) conducted research on Online Assessment of Primary Students' Cognitive, Psychomotor, and Affective Domains: Practices from Urban and Rural Primary Schools in Indonesia. This study provides assessment methodologies for young children' online learning with 15 primary school administrators and 35 teachers who agreed to participate after following comparable procedures such as class observation and interviews. The data

indicate that the various evaluation processes used have reduced the negative washback from online exams.

Fitriani Sarah Siti et al., (2021) investigated the cognitive domain of Bloom's taxonomy used in questions asked by lecturers to their students at two public universities in Banda Aceh, Indonesia in the article titled -The use of cognitive domain in questions: The perception of students and lecturers of public universities in Aceh. 218 students and 19 lecturers were involved in this survey as the respondents. According to the findings, lecturers should maintain the quality of questions in classes to develop students' critical thinking by utilizing all cognitive domains of Bloom's taxonomy, which would consistently increase the quality of teaching and learning.

Dorji Phub and Yangzom (2021) in their study Affective Domain: The Uncharted Area of Teaching and Learning in Tertiary Education examined Learning opportunities and instructional designs were structured, and teachers' duties were outlined to help students develop affective skills. Data collected from a comprehensive literature research and structured interviews were analyzed using the content analysis technique. The findings revealed that the emotive domain remains one of the learning areas that receives the least attention in the curriculum and from instructors which could be overcome by impeding the acquisition of affective skills.

Kumar Pradeep et al., (2021) in the research on Learner-content interaction in e-learning- the moderating role of perceived harm of COVID-19 in assessing the satisfaction of learners examined the relationship between learner-content and e-learning quality to assess the impact of e-learning quality on learner satisfaction while accounting for the moderating effect of perceived harm from COVID-19. A systematic questionnaire was utilized to collect data from 435 graduate and undergraduate management students (both international and indigenous) at Indian universities. The findings show that there are statistically significant correlations between e-learning material and e-learning quality, as well as between e-learning quality and student satisfaction.

Encarnacion Riah F. Elcullada et al., (2020) performed a study on The Impact and Effectiveness of E-Learning on Teaching and Learning. Using online survey, the study used the five elements to obtain the teachers' and students' consensus measures on the success of E-Learning. E-Learning was rated positively by teachers and students as an excellent instrument for improving the transmission of instruction and developing knowledge acquisition abilities through the transfer of learning.

III. NEED FOR THE STUDY

This research aspires to train young, energetic, and passionate learners who have an interest in updating their knowledge in teaching, learning, and assessment by fine-tuning their skills and to equip them to

- Reflect on global complexities and address the needs of diverse learners.
- Use various innovative methods thereby thriving for excellence in education.
- Explore more responsibility as a faculty to upgrade with technological advancements.
- Integrate emerging techniques and strategies for holistic development

IV. METHODOLOGY

An experimental design was used by the researchers. Experimental research allows testing the intervention (treatment) in a controlled environment. Moreover, it provides the best method to test the effectiveness of an approach because of the following advantages:

- Researchers have firm control over variables to obtain results.
- The subject does not impact the effectiveness of experimental research.
- Anyone can implement it for research purposes.
- The results are specific.
- Researchers can identify the cause and effect of the hypothesis and further analyze this relationship to determine in-depth ideas.
- Experimental research makes an ideal starting point. The collected data could be used as a foundation to build new research ideas for further studies.

One group pre-test and post-test research design was used for the study. The researchers

meticulously prepared eight modules for e-content on the following titles:

1. Introduction to domains
2. Cognitive Domain
3. Revised Bloom's Taxonomy-1(Introduction to RBT)
4. Revised Bloom's Taxonomy-2
5. Revised Bloom's Taxonomy-3(Role of RBT in writing learning outcomes)
6. Revised Bloom's Taxonomy-4(Lesson Planning with RBT)
7. Affective Domain
8. Psychomotor Domain

Each Module was structured with enriched material, activity, video by the researcher, and reflection time. Sample: 130 prospective teachers of St. Christopher's College of Education were the group selected for the study. A tool with forty items (each module 5 items) based on the content was prepared by the researcher. The tool was validated by the experts for content validity. After the commencement of the pre-test, each module (Video, enrichment material, and activity) was posted to the students through Google Classroom. Post-test was conducted with 20 items, twice after four modules each. The pre-test and post-test mean scores of the prospective teachers were analysed.

V. HYPOTHESES OF THE STUDY

- There is no significant difference between the pre-test and post-test scores among the prospective teachers on Outcome Based Education based on qualification.
- There is no significant difference between the pre-test and post-test scores among the prospective teachers on outcome-based education based on a stream of study.
- There is no significant difference between the pre-test and post-test scores among the prospective teachers on Outcome Based Education based on locality.
- There is no significant difference between the pre-test and post-test scores among the prospective teachers on Outcome Based Education based on the father's qualification.
- There is no significant difference between the pre-test and post-test scores among the prospective

teachers on Outcome Based Education based on the mother's qualification

- There is no significant difference between the pre-test and post-test scores among the prospective teachers on Outcome Based Education based on the types of Institution.
- There is no significant difference between the pre-test and post-test scores among the prospective teachers on Outcome Based Education.

VI. ANALYSIS AND INTERPRETATION

Hypothesis1:

There is no significant difference between the pre-test and post-test scores among the prospective teachers on Outcome Based Education based on qualification

Table 1a: Mean scores of Pre-tests and post-test of prospective teachers based on Outcome Based Education based on UG qualification

Variables -UG	N	Mean	SD	t-Value	p-Value
Pre-test	71	12.55	3.706	9.404	0.000
Post-test	71	19.34	7.087		

Table 1b Mean scores of Pre-tests and post-test of prospective teachers based on Outcome Based Education based on PG qualification

Variables - PG	N	Mean	SD	t-Value	p-Value
Pre-test	59	14.41	4.391	9.983	0.000
Post-test	59	23.46	7.229		

From Table 1a, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test mean scores of the prospective teachers on Outcome Based Education based on UG qualification. The mean scores of the prospective teachers are comparatively high in the post-test (19.34) when compared with their pre-test mean scores (12.55)

From Table 1b, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on PG qualification. The mean score of the prospective teachers is

comparatively high in the post-test (23.46) when compared with their pre-test score (14.41)

Hypothesis 2:

There is no significant difference between the pre-test and post-test scores among the prospective teachers on outcome-based education based on a stream of study.

Table 2a: Mean scores of Pre-tests and post-test of prospective teachers based on Outcome Based Education based on Arts stream of study

Variables - Arts	N	Mean	SD	t-Value	p-Value
Pre-test	72	13.06	4.427	9.237	0.000
Post-test	72	19.94	7.457		

Table 2b Mean scores of Pre-tests and post-test of prospective teachers based on Outcome Based Education based on science stream of study

Variables- Science	N	Mean	SD	t-Value	p-Value
Pre-test	58	13.81	3.701	10.137	0.000
Post-test	58	22.78	7.118		

From Table 2a, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on outcome-based education based on Arts stream of study. The mean score of the prospective teachers is comparatively high in the post-test (19.94) when compared with their pre-test score (13.06)

From Table 2b, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on outcome-based education based on Science stream of study. The mean score of the prospective teachers is comparatively high in the post-test (22.78) when compared with their pre-test score (13.81)

Hypothesis: 3

There is no significant difference between the pre-test and post-test scores among the prospective teachers on Outcome Based Education based on locality.

Table 3a: Mean scores of Pre-tests and post-test of prospective teachers based on Outcome Based Education based on Urban locality

Variables	N	Mean	SD	t-Value	p-Value
Urban					
Pre-test	95	13.65	4.397	11.884	0.000
Post-test	95	22.02	7.641		

Table 3b: Mean scores of Pre-tests and post-test of prospective teachers based on Outcome Based Education based on Rural locality

Variables	N	Mean	SD	t-Value	p-Value
Rural					
Pre-test	35	12.69	3.206	6.782	0.000
Post-test	35	19.00	6.352		

From Table 3a, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on Urban locality. The mean score of the prospective teachers is comparatively high in the post-test (22.02) when compared with their pre-test score (13.65)

From Table 3b, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on Rural locality. The mean score of the prospective teachers is comparatively high in the post-test (19.00) when compared with their pre-test score (12.69)

Hypothesis: 4

There is no significant difference between the pre-test and post-test scores among the prospective teachers on Outcome Based Education based on the father's qualification.

Table 4a: Mean scores of Pre-tests and post-test of prospective teachers based on Outcome Based Education based on father's qualification as graduates.

Variables	N	Mean	SD	t-Value	p-Value
Graduates					
Pre-test	15	13.27	3.788	6.543	0.000
Post-test	15	20.33	5.615		

Table 4b: Mean scores of Pre-tests and post-test of prospective teachers based on Outcome Based Education based on father's qualification as non-graduates.

Variables	N	Mean	SD	t-Value	p-Value
Non-Graduates					
Pre-test	115	13.41	4.178	12.430	0.000
Post-test	115	21.32	7.631		

From Table 4a, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on the father's qualification as graduates. The mean score of the prospective teachers is comparatively high in the post-test (20.33) when compared with their pre-test score (13.27)

From Table 4b, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on the father's qualification as non-graduates. The mean score of the prospective teachers is comparatively high in the post-test (21.32) when compared with their pre-test score (13.41)

Hypothesis: 5

There is no significant difference between the pre-test and post-test scores among the prospective teachers on Outcome Based Education based on the mother's qualification.

Table 5a: Mean scores of Pre-tests and post-test of prospective teachers based on Outcome Based Education based on mother's qualification as graduates.

Variables	N	Mean	SD	t-Value	p-Value
Graduates					
Pre-test	79	12.37	3.446	9.757	0.000
Post-test	79	20.14	7.687		

Table 5b: Mean scores of Pre-tests and post-test of prospective teachers based on Outcome Based Education based on mother's qualification as non-Graduates.

Variables	N	Mean	SD	t-Value	p-Value
Non-Graduates					
Pre-test	51	14.98	4.589	9.777	0.000
Post-test	51	22.86	6.714		

From Table 5a, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on the mother's qualification as graduates. The mean score of the prospective teachers is comparatively high in the post-test (20.14) when compared with their pre-test score (12.37)

From Table 5b, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on the mother's qualification as non- graduates. The mean score of the prospective teachers is comparatively high in the post-test (22.86) when compared with their pre-test score (14.98)

Hypothesis: 6

There is no significant difference between the pre-test and post-test scores among the prospective teachers on Outcome Based Education based on the types of Institution.

Table 6a: Mean scores of Pre-tests and post-test of prospective teachers based on Outcome Based Education based on aided type of Institution.

Variables-Aided	N	Mean	SD	t-Value	p-Value
Pre-test	91	12.27	3.493	10.635	0.000
Post-test	91	20.10	7.355		

Table 6b: Mean scores of Pre-tests and post-test of prospective teachers based on Outcome Based Education based on private type of Institution.

Variables - Private	N	Mean	SD	t-Value	p-Value
Pre-test	39	16.00	4.335	8.910	0.000
Post-test	39	23.79	6.982		

From Table 6a, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on the aided type of Institution. The mean score of the prospective teachers is comparatively high in the post-test (20.10) when compared with their pre-test score (12.27)

From Table 6b, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on the private type of Institution. The mean score of the prospective teachers is comparatively high in the post-test (23.79) when compared with their pre-test score (16.00)

Hypothesis: 7

There is no significant difference between the pre-test and post-test scores among the prospective teachers on Outcome Based Education.

Table 7: Mean scores of Pre-tests and post-test of prospective teachers based on Outcome Based Education based on Outcome Based Education.

Variables -Outcome Based Education	N	Mean	SD	t-Value	p-Value
Pre-test	130	13.39	4.121	13.564	0.000
Post-test	130	21.21	7.415		

From Table 7, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education. The mean score of the prospective teachers is comparatively high in the post-test (21.21) when compared with their pre-test score (13.39)

Findings

From Table 1a, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on UG qualification. From Table 1b, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on PG qualification. From Table 2a, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on outcome-based education based on Arts stream of study.

From Table 2b, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on outcome-based education based on science stream of study.

From Table 3a, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on Urban locality.

From Table 3b, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on Rural locality.

From Table 4a, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on the father's qualification as graduates.

From Table 4b, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on the father's qualification as non-graduates.

From Table 5a, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on the mother's qualification as graduates.

From Table 5b, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on the mother's qualification as non-graduates.

From Table 6a, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education based on the aided type of Institution.

From Table 6b, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and

post-test scores of the prospective teachers on Outcome Based Education based on the private type of Institution.

From Table 7, the p-value (0.000) is less than 0.05, hence the framed null hypothesis is rejected. So, there is a significant difference between the pre-test and post-test scores of the prospective teachers on Outcome Based Education.

VII. DISCUSSION

All the above hypotheses result clearly reveal that there is a significant difference among the prospective teachers in learning Revised Bloom's Taxonomy through E-Content. This proves that the present generation of learners has a great interest in online learning via e-content, as it enables personalized remote learning. The study done by (Kumar Pradeep 2021) titled Learner-content interaction in e-learning-the moderating role of perceived harm of COVID-19 in assessing the satisfaction of Learners revealed that the quality of e-learning has a significant positive relationship with the students' satisfaction, and this relationship is not affected by the threat of being infected on the campus during the pandemic of COVID-19. This result helps to prove our study that the present generation of learners has a positive approach to e-content learning.

VIII. SUGGESTIONS FOR FURTHER STUDY:

- This study can be further extended for D El Ed prospective teachers and M. Ed students under any topic through e-content.
- This study can be further extended to other programmes of Arts and Science Colleges also.
- The study can be done with the samples of prospective teachers from other Colleges of Education also.

IX. CONCLUSION

This study has a great relevance and importance in the present scenario to the diversified Gen z learners. The following are the reflections of the study;

Prospective teachers have to,

- Be proficient in using digital tools is crucial for effective teaching.

- Balance work, studies, and personal commitments.
- Be passionate in enhancing engagement and make learning more enjoyable and impactful.
- Improve individual learning styles and needs.
- Be proficient to choose resources that resonate with them, allowing for a more tailored learning experience.

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