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Research Article

Strategies for Enhancing the Use of Bloom's Taxonomy in Curriculum Management in Khyber Pakhtunkhwa, Pakistan

[*1]Fahmida Bibi | [2]Sana Ullah | Asghar Ullah Khan

[*1]Assistant Professor Institute of Education and Research, Gomal University, Dera Ismail Khan
Email: fahmida942@yahoo.com
[2]Communication and Media Studies, Gomal University, Pakistan
Email: sanaullahadinf@gmail.com
[3]Independent Researcher
Email: asgharullahadvocate@gmail.com

Correspondence
Fahmida Bibi
Email: fahmida942@yahoo.com

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ABSTRACT

The use and applicability of Bloom's Taxonomy in the administration of science curricula in Pakistan's Khyber Pakhtunkhwa is examined in this review. Bloom's Taxonomy has been widely used in educational settings around the world. It divides cognitive learning objectives into six levels: Remember, Understand, Apply, Analyze, Evaluate, and Create. This study explores its incorporation into secondary science teaching in KP, evaluating its efficacy, difficulties, and potential to improve scientific learning results for students. The review offers insights into how well Bloom's Taxonomy aligns with the changing educational demands of Khyber Pakhtunkhwa by highlighting empirical studies, curriculum frameworks, and the experiences of educators in the area.

KEYWORDS

Bloom's Taxonomy, Curriculum Management, KPK, Pakistan

1 | INTRODUCTION

Overview of Bloom's Taxonomy: Created by Benjamin Bloom in 1956, this framework uses a hierarchical structure to classify cognitive skills. The taxonomy is frequently used in educational contexts to direct teaching practices, curriculum development, and evaluation (Churches, 2008). Significance in Science Education: A balanced strategy that develops both topic knowledge and higher-order thinking skills is necessary for science education, particularly at the secondary level. In this sense, Bloom's Taxonomy is very helpful since it offers a methodical way to gradually acquire certain abilities (Hassan & Ahmed, 2017). Khyber Pakhtunkhwa context: The Pakistani province of Khyber Pakhtunkhwa faces particular educational difficulties, such as sociopolitical unrest and a lack of funding. Recent reforms, however, have focused on contemporary educational approaches in an effort to raise the standard of education. The application is evaluated in this review of Bloom's Taxonomy within this context (Bloom, 1956; Swart & Daneti, 2019).

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2 | Research Methods

This is a review study and PRISMA method was used. The articles, books, thesis were collected from web of science, Scopus, EBSCO. PRISMA methodology is considered one of the most relevant methodology for review and systematic studies.

2 | Inclusion and Exclusion Criteria

Studies which were published in English were included, secondly, studies published on Bloom's taxonomy and curriculum development and management were included. Moreover, those studies which were published in KPK Pakistan were focus of this study but studies form other countries were also included. Those studies which were not in English were excluded, studies which were not matching the search terms were also excluded from the study.

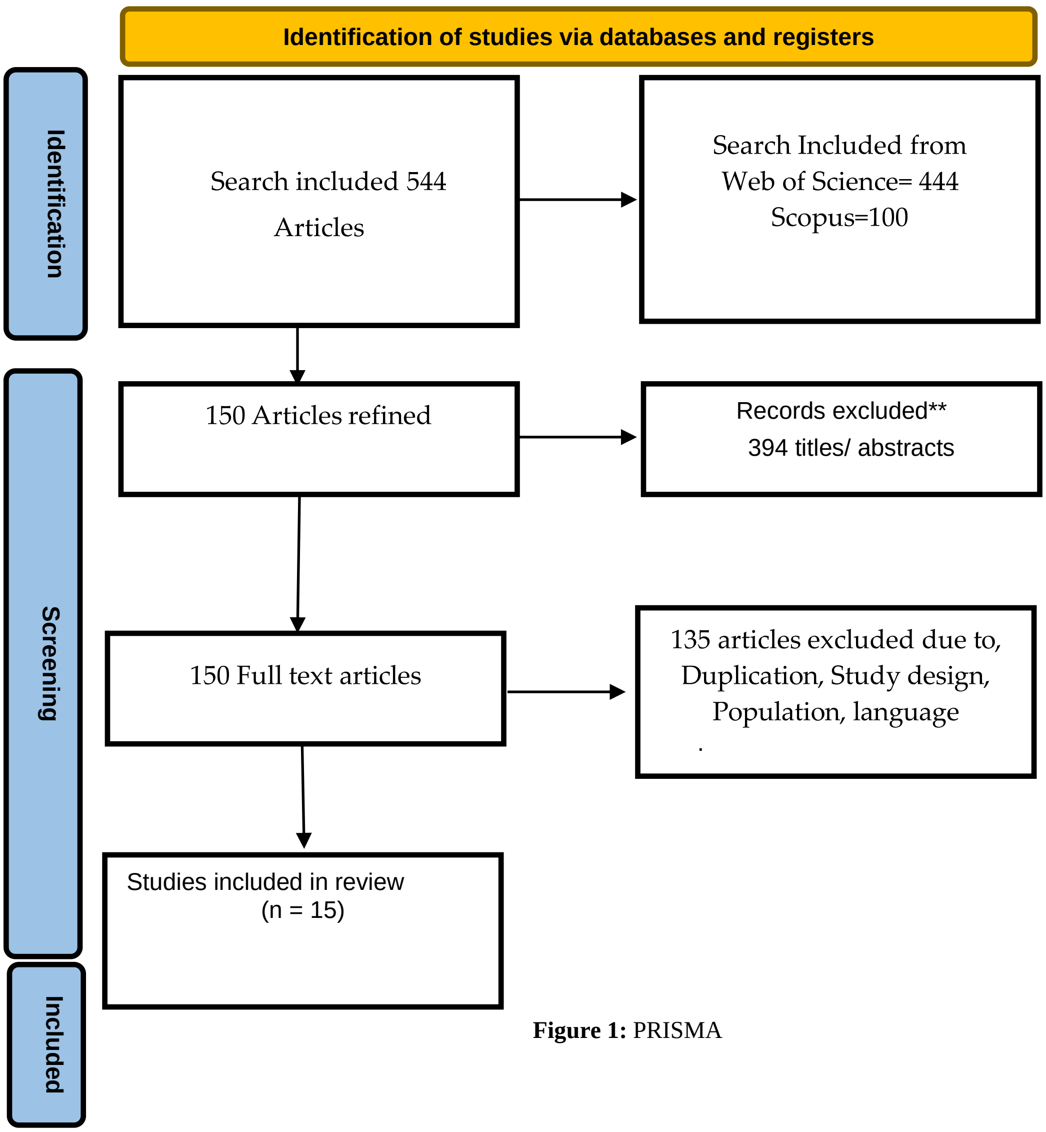

Figure 1: PRISMA

3 | Relevance of Bloom's Taxonomy to Secondary Science Curriculum

Curriculum Goal Alignment: KP's Secondary School Science Curriculum aims to give pupils a solid foundation in topics like biology, chemistry, physics, and environmental science. The objectives of promoting critical thinking, problem-solving, and analytical abilities in science are well-aligned with Bloom's Taxonomy, which places a strong focus on higher-order thinking (Santos et al., 2021).

4 | Curriculum Design and Bloom's Levels:

Remembering & Understanding: The first two levels of Bloom's Taxonomy are in line with science courses, which frequently place an emphasis on rote memorization of definitions and concepts. But the focus on these levels has come under fire for failing to promote more profound cognitive involvement (Anderson& Krathwohl, 2001; Nkhoma et al, 2016). Applying & Analyzing: In addition to memorizing, KP's science curriculum has begun to include real-world applications through field research, lab work, and problem-solving activities. This shift is facilitated by Bloom's Taxonomy, which encourages students to apply ideas and evaluate information. Evaluating & Creating: Fostering abilities like evaluation and creativity is a challenge for KP science educators. The traditional curriculum, which is more content-focused, frequently underemphasizes these sophisticated cognitive abilities (Thompson, Luxton-Reilly, Whalley, Hu, & Robbins, 2008, January). delivery. Bloom's Taxonomy offers a framework for integrating these higher-order cognitive tasks into lesson plans and assessments.

5 | Empirical Studies and Applications

Local Research and Insights: o Research from Pakistan (e.g., Hassan et al., 2017) indicates that Bloom's Taxonomy can enhance science instruction by helping students comprehend difficult scientific ideas and solve problems. These studies do, however, also highlight the dearth of teacher preparation on the proper application of the taxonomy (Krathwohl,2002). Because of the strict curricular structure and dearth of resources, teachers in KP have frequently complained about having trouble implementing Bloom's higher-order thinking levels (Churches,2008). Teacher Training and Curriculum Support: According to research by Khan et al. (2019), in order to improve the quality of scientific teaching, KP teacher professional development programs need to be in line with contemporary educational frameworks like Bloom's Taxonomy. Including Bloom's Taxonomy in teacher preparation programs can allow educators to design more engaging and intellectually stimulating lessons (Hassan & Ahmed, 2017; Yildirim, Baur, 2016).

6 | Challenges in Implementing Bloom’s Taxonomy in KP

Socio-Cultural Barriers: The KP educational system is beset by socio-cultural issues such gender inequality and a dependence on conventional teaching techniques. The complete application of progressive frameworks such as Bloom's Taxonomy is impeded by these considerations (Churches, 2008). Curriculum Restrictions: It is challenging to integrate all six levels of Bloom's Taxonomy into regular teaching methods due to the curriculum's strict structure and the short time allotted for science courses. Restrictions on Resources: The use of Bloom's higher-order cognitive talents in experiential and practical learning is further limited by a lack of suitable lab space and instructional materials (Bloom, 1956; Momen Ebrahimi,& Hassan, 2022).

6.1 | Strategies for Enhancing the Use of Bloom’s Taxonomy

6.1.1 | Curriculum Reforms

Legislators ought to support curriculum changes that prioritize creativity and critical thinking. When updating the curriculum to incorporate activities that promote higher-order thinking, Bloom's Taxonomy can be used as a guide (Churches,2008).

6.1.2 | Teacher Training

Improving educational outcomes will require teachers to get ongoing professional development that focuses on Bloom's Taxonomy and how it applies to teaching science (Hassan& Ahmed, (2017).

6.1.3 | Assessment Procedures

Using Bloom's Taxonomy in the classroom can be facilitated by switching from rote memorization tests to more flexible, problem-solving assignments (Anderson & Krathwohl, 2001; Ajayi, 2024).

7 | CONCLUSION

By encouraging higher-order thinking abilities, Bloom's Taxonomy has a great deal of promise to improve the science curriculum in Khyber Pakhtunkhwa, Pakistan's secondary schools. Despite obstacles like sociocultural considerations and resource constraints, incorporating Bloom's approach can help create a more comprehensive, contemporary science education system. To fully implement Bloom's Taxonomy in Khyber Pakhtunkhwa's educational system, these issues must be resolved through curricular modifications, teacher preparation programs, and policy changes.

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