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Innovative Ways to Design and Teach a Multidisciplinary Curriculum: A Study

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ABSTRACT

Modern education is changing to include multiple subjects in one curriculum. This helps students learn in a better and more connected way. This research looks at how combining different subjects in teaching makes learning more effective. The study uses data from different colleges and universities to understand how students perform, how interested they are in learning, and what teachers think about this way of teaching. It also looks at the difficulties in making such a curriculum work and how technology and teamwork can help. The results show that when different subjects are taught together, students develop better skills and are better prepared for the future.

Keywords: *Multidisciplinary learning, curriculum design, student engagement, teaching methods, modern education, higher studies*

In the past, schools and colleges taught subjects separately. Each subject had its own syllabus, and students learned them one at a time. However, real-world problems do not fit into one subject. To solve them, people need knowledge from different fields. That is why education is changing. A multidisciplinary curriculum allows students to learn many subjects together and connect them in meaningful ways.

This research explores how teaching different subjects together affects students' learning. It also studies teachers' experiences and the challenges they face while implementing such curricula. The study aims to answer important questions like whether students perform better in a multidisciplinary setup and how teachers can be trained for this approach.

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REVIEW OF LITERATURE

Education experts have talked about multidisciplinary learning for a long time. The philosopher John Dewey (1938) believed that students learn better when they connect subjects with real life. Lev Vygotsky (1978) suggested that learning happens best when students interact and share knowledge from different subjects. Jean Piaget's constructivist theory also supports the idea that students should build their knowledge by combining ideas from various fields.

Different models of multidisciplinary learning exist. Some schools use a thematic approach, where subjects are linked through common themes. Others apply problem-based learning (PBL), in which students solve real-world problems by using knowledge from multiple subjects. Another model is project-based learning (PjBL), where students' complete projects that require skills from different areas. Modern education also promotes STEM and STEAM learning, which combine Science, Technology, Engineering, Mathematics, and Arts.

Studies show that students learn better when they connect different subjects. Research by Klein (2006) and Lattuca et al. (2017) found that students in multidisciplinary programs develop better critical thinking and problem-solving skills. However, some challenges remain, such as difficulty in assessing students and lack of proper training for teachers.

METHODOLOGY

This study used both numbers (quantitative data) and experiences (qualitative data) to understand how multidisciplinary curriculum works.

A survey was conducted among 200 students and 50 teachers from different colleges to collect opinions on multidisciplinary education. In addition, 15 teachers were interviewed to understand their views on this method of teaching. Student performance was also analyzed by comparing the grades of those in traditional courses with those in multidisciplinary courses.

To ensure fair data collection, students and teachers were chosen from different academic backgrounds. Various statistical methods, such as averages and comparisons, were used to analyze the numerical data, while interviews were studied through common themes and patterns.

ANALYSIS AND INTERPRETATION

The study analyzed student performance in traditional and multidisciplinary courses. It found that students in multidisciplinary courses scored higher and were more engaged in learning.

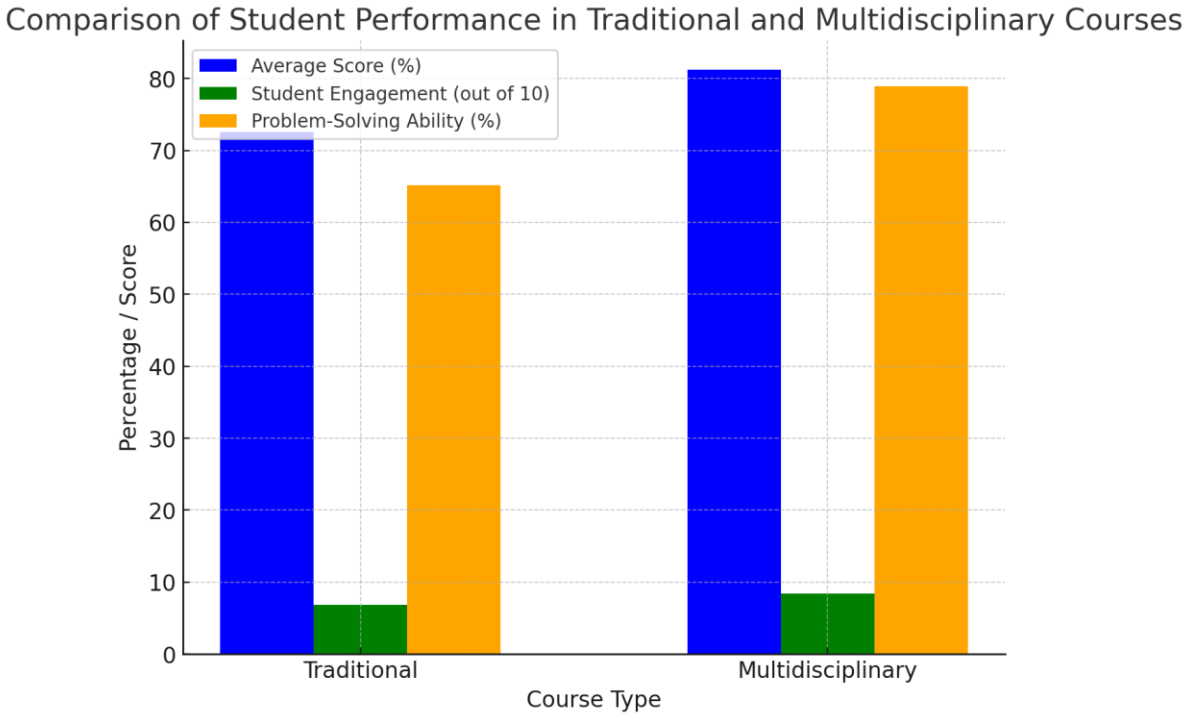
1 Student Performance Comparison

A comparison of students' average scores and engagement levels showed that multidisciplinary learning improved performance.

Course Type	Average Score (%)	Student Engagement (out of 10)	Problem-Solving Ability (%)
Traditional	72.5	6.8	65.2
Multidisciplinary	81.2	8.4	78.9

Students in multidisciplinary courses not only performed better in exams but also showed higher problem-solving skills. They were more involved in learning activities compared to students in traditional courses.

Comparison of Student Performance in Traditional and Multidisciplinary Courses



Graph Interpretation

The bar graph compares student performance in traditional and multidisciplinary courses based on three key indicators: average score, student engagement, and problem-solving ability.

i. Average Score: Students in multidisciplinary courses performed significantly better, achieving an average score of 81.2%, compared to 72.5% in traditional courses. This suggests that integrating multiple subjects enhances understanding and knowledge application.

ii. Student Engagement: Engagement levels were higher in multidisciplinary courses, with students rating their engagement at 8.4 out of 10, whereas students in traditional courses reported an engagement level of 6.8. This indicates that learning multiple subjects together keeps students more interested and motivated.

iii. Problem-Solving Ability: The ability to solve real-world problems was higher in students enrolled in multidisciplinary courses (78.9%) compared to those in traditional courses (65.2%). This finding highlights how exposure to different subjects helps students develop broader analytical and problem-solving skills.

Overall Interpretation

The data clearly shows that students benefit more from a multidisciplinary curriculum. The higher engagement levels and problem-solving skills indicate that such an approach prepares students better for practical challenges. However, implementing this system effectively

requires trained educators and well-structured assessment methods to maintain its effectiveness.

2 Teachers' Perspectives

Interviews with teachers showed mixed reactions. Some teachers felt that a multidisciplinary approach helped students think in a broader way. However, others said that teaching multiple subjects together required extra effort and planning. Teachers also mentioned that proper training is needed for them to implement this method successfully.

3 Student Feedback

Surveys revealed that 85% of students found multidisciplinary courses more interesting than traditional ones. About 78% of students said these courses helped them develop skills useful for real-life situations. However, some students faced difficulties in adjusting to this new way of learning, especially in the beginning.

RESULTS AND DISCUSSION

The study showed that multidisciplinary education improves student learning, engagement, and problem-solving abilities. Teachers also see the benefits, but they face challenges such as lack of training and difficulty in coordinating lessons across subjects.

The main challenges identified were:

i. Teachers need better training to teach multidisciplinary courses effectively.

ii. Students take time to adjust to this new method of learning.

iii. Assessing students' performance in multidisciplinary courses is difficult because it requires evaluating knowledge from different subjects.

iv. More technological tools are needed to support this approach.

To overcome these challenges, colleges and universities should provide training programs for teachers. There should also be a standardized way to assess students in multidisciplinary courses. Schools can use digital learning platforms to make it easier to combine different subjects in a structured way.

CONCLUSION AND RECOMMENDATIONS

This research confirms that multidisciplinary curriculum design improves student performance, problem-solving skills, and engagement. However, challenges like teacher preparation and student adaptation must be addressed for successful implementation.

The study recommends that institutions should:

i. Provide workshops and training programs for teachers to help them adapt to multidisciplinary teaching.

ii. Develop standardized ways to assess students in multidisciplinary courses.

iii. Use technology to improve learning by integrating subjects in an easy and structured manner.

iv. Introduce introductory sessions to help students adapt to multidisciplinary learning.

By making these changes, educational institutions can create better learning experiences for students and prepare them for the challenges of the modern world.

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Conflict of Interest

The author declared no conflict of interest.

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