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Relationship of Student-Centered Learning Approaches with Students' Academic Performance at The Secondary Level in Haveli Kahuta AJ&K

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Abstract

Student-centered learning (SCL) approaches have gained extensive appreciation in secondary education due to their ability to engage students actively in the learning process. The main purpose of this research is to check the relationship between student-centered learning and with academic performance of students at the secondary level in Haveli Kahuta AJ&K. The objectives of this study are:-1. Examine whether SCL approaches improve students' ability to develop effective learning strategies. 2. To evaluate students' perceptions of student-centered learning approaches. The study significantly examines project-based learning and cooperative learning problem-solving approaches, studying their significance in enhancing critical thinking, creativity, motivation, and self-directed learning. A structured questionnaire was developed using a Likert scale and employed as a research instrument for data collection. The questionnaire consisted of 18 closed-ended questions. The data was analyzed utilizing SPSS software. Pearson's correlation coefficient was used to examine the relationship between SCL approaches and students' academic performance. The findings reveal an important positive correlation between the implementation of SCL strategies and improved student accomplishment in academics. The study highlights the significance of SCL as a powerful tool for improving the educational performance of learners and advises that educators should participate in SCL techniques to foster better academic outcomes.

Keywords: Student-centered learning (SCL), Academic performance, Project-based learning (PBL), cooperative learning (CL), and Problem-solving approach (PSA)

Introduction

Modern education focuses on student-centered active learning, in which the teacher plays as a facilitator, guide, or mentor rather than a typical teacher. Students take responsibility of their learning by using this method of learning also making designs and handling their development. Enhancing skills like critical thinking, problem-solving, and self-directed learning change education according to demand. The use of student-centered learning allows students to face future challenges and develop their skills to come up with new and advanced solutions by addressing real-life issues in the classroom. The main objective of the up-to-date education system is teaching students how to acquire and preserve knowledge rather than providing it to them directly, which strives to evolve or change. Students who are still acquiring knowledge, abilities, skills, attitudes, and habits should be fully taken into attention, and it is essential to ensure their emotional, mental, and physical health. Certainly, student involvement in the effectiveness of this method is undeniable. Scholars propose that when students hold a subject, they understand it more effectively (Johnson, D.W., Johnson, R.T., & Smith, K.A., 1991). The simplest definition of student-centered learning is an approach to education in which students can choose not only why to learn, but also how and why that subject could be exciting to them. In SCL, learners have more independence to decide the method of learning, and this will be helpful for both the teacher and the students (Rogers, 1983). In student-centered learning, the teacher's responsibility is to inspire students to learn through discovery and cooperation. To make it happen, the instructor pays attention to creating faithful assignments and activities that encourage student's participation in class to learn effectively (Weimer, 2002).

In recent years, the shift from traditional instructional methods to student-centered learning has grabbed greater attention. The agenda change has encouraged a learner as a co-worker in the teaching and learning process rather than as an unreceptive receiver of knowledge and constructed more understanding and knowledge (Barr, R., & Tagg, J., 1995). According to the framework, learning is an active, valid, and positive process that is linked to the learner's past involvements and knowledge and is relevant and meaningful to them. The learning atmosphere strengthens productive connections between students and provides a safe house where they may feel respected, valued, comfortable, and approved. The learner can control his or her reality via the natural process of learning, as opposed to trying to "fix" it (McComb & Whistler, 1997). The student-

centered teaching approach encourages teamwork, creativity and participation by redirecting the attention of students. Through the course of learning, students link what they've learned with what they already know, fostering a deeper sympathy for the subject matter (Moffet, J., & Wagner, B. J., 1922).

Challenges of Student-Centered Learning

Despite the benefits of student-centered learning approaches, several experiments hinder their full implementation. These include a lack of teacher training, time limitations, and difficulties in assessing student progress efficiently. Moreover, technological barriers and varying levels of student motivation can impact the success of these methods (Rusman, 2012). Addressing these trials requires continuous teacher development and the integration of digital tools to support student engagement.

Research Gap

While broad research defends the effectiveness of student-centered learning (SCL) approaches in improving the academic performance of students, several gaps remain unknown. Most existing studies focus on Western education systems, leaving a lack of research on the implementation and impact of SCL in developing regions, including Pakistan, mainly in Haveli Kahuta AJ&K. The cultural, economic, and infrastructural changes may affect the effectiveness of SCL methods, needing localized studies to measure their applicability.

Additionally, subject-specific research gaps exist. Many studies emphasize SCL in science and mathematics education, but limited research discovers its effectiveness in other subjects such as social sciences, languages, and humanities at the secondary level. Investigating SCL's impact across varied disciplines can provide a more comprehensive understanding of its benefits and boundaries.

Problem Statement

In conventional teacher-centered learning, students were uninterested and bored in the classroom. They often experience a lack of motivation and limited chances for active learning. Passive learning damagingly impacts students' academic performance, critical thinking, and different skills. As a result, students were not enthusiastic, pretended to listen but were quiet, and became passive in learning. This study aims to explore the "relationship of student-centered learning approach with academic performance among secondary school students in Haveli Kahuta".

By using student-centered learning methods such as cooperative learning, project-based learning, and problem-solving methods in the classroom, students learn more efficiently, cooperate with others, and become more involved and

passionate about their studies. Students take control of their education in a more energetic and creative learning environment.

Research Questions

• What is the relationship between SCL approaches and the academic performance of students at the secondary level?

• Examine whether Student-Centered learning (SCL) approaches contribute to developing effective learning.

Literature Review

Education is shifting from traditional teacher-centered methods to self-motivated, student-centered learning (SCL) approaches. SCL highlights active engagement, problem-solving, and association, empowering students to take possession of their learning (Weimer M., 2013). Unlike passive learning, where students merely captivate information, SCL fosters critical thinking and deeper understanding through hopeful inquiry, discussion, and hands-on activities. Research specified that these methods significantly enhance academic achievement, particularly at the secondary level, by improving motivation, retaining, and application of knowledge (Freeman et.al, 2014). Catubig, (2023) examined the use and effects of student-centered approaches in mathematics teaching through document analysis, classroom explanations, and interviews. It focused on educational motivation, challenges, strategies, and the outcomes of above-mentioned methods in various educational settings. Above mentioned strategies promote academic success, motivation, and general development by considering the cognitive measurements, learning preferences, and developmental necessities of elementary school students. Nunan, (2009) explained that students can apply language effectively through the task-based learning method, which integrates seven concepts such as scaffolding, active learning, autonomy, authenticity, task-based learning, collaborative learning, reflection of learning, and integration of form and function. This method is based on the understandable output and input theories of Swain and Krashen as stated by (Nunan, 2009). Abdigapbarova, U, & Zhiyenbayeva, N, (2023) concentrated on the promotion of primary school students' freedom and self-confidence. Children formulate objectives, monitor their progress, and check their performance when self-directed learning is heartened. Student-centered learning (SCL) method fosters the critical thinking, problem-solving, and self-confidence that are necessary for making logical decisions. Johnson et al, (1991) focused on active learning, critical thinking, and the development of social skills. Student-centered learning (SCL) has shattered a lot of attention in modern education. A

vital element of SCL is cooperative learning, which involves students working in groups to achieve mutual objectives while encouraging constructive interdependence, personal responsibility, and communication.

Theoretical Background

 Senemoğlu, (2002) recommended that to stay ahead in today's rapidly developing world, cultures need to change according to the needs of society. To do this, education must change and adopt a constructivist methodology. By making connections between new and prior knowledge, constructivism enables students to create their understanding. Dunbar, K., & Yadav, A., (2022) studied that at the elementary level, student-centered learning is acknowledged for its many benefits. This study promotes academic success, motivation and general development by taking into account the cognitive abilities, learning preferences, and developmental requirements of students. Mascolo, (2009) explained that students take charge of their education by reconvening and producing new knowledge. This student-led method encourages critical thinking, creativity, and self-assurance in students.

Impact of SCL Approaches on Academic Performance

Student-centered learning (SCL) approaches have gained widespread recognition in secondary education due to their ability to engage students actively in the learning process. Unlike traditional teacher-centered methods, SCL approaches inspire collaboration, problem-solving, and critical thinking, essential for academic success. This literature review explored the impact of three prominent student-centered learning approaches on academic achievement at the secondary level: Project-Based Learning (PBL), Problem-Solving Approach (PSA), and Cooperative Learning (CL).

Project-Based Learning (PBL)

 Project-based learning (PBL) is an instructional method in which students actively discover real-world problems and challenges to gain deeper knowledge. According to Blumenfeld et al. (1991), PBL enhances student motivation and critical thinking by mixing practical learning experiences. Research suggested that PBL improves academic achievement by nurturing students' engagement and knowledge retention (Kızkapan O. & Bektas, 2017). Furthermore, Karacalli, S. & Korur (2014) found that students involved in PBL proved higher academic performance and long-term knowledge retention compared to those in traditional classrooms. Bilgin, (2015) examined the impact of project-based learning (PBL) on student achievement in a diversity of academic fields, especially scientific

education, which has been widely studied. The study highlighted that PBL enhances different skills of students like critical thinking, practical skills, and communication. Lazic, (2021) studied how PBL contributes to enhancing students' learning performance by improving engagement and comprehension.

According to Zmuda (2009), Project-based learning (PBL), another name for student-centered learning (SCL), has become more standard in education in the twenty-first century. SCL appears to improve secondary pupils' academic performance and skill development. Moreover, According to above-mentioned study SCL encourages global literacy, teamwork, critical thinking, problem-solving, and effective communication. A British research by Boaler, (2002), as quoted in Bell, (2010), stated that pupils who received PBL instruction in mathematics scored better than those who received traditional instruction three times as many of them received the top score on national tests.

Problem-Solving Approach (PSA)

The Problem-Solving Approach (PSA) focuses on emerging students' critical thinking and decision-making skills by encouraging them to examine and solve complex problems. The study indicated that PSA improves students' ability to apply knowledge in various settings (Schmidt, 2011). Herreid, (2003) emphasized that problem-solving strategies in education enhance students' reasoning abilities and academic performance. Furthermore, Çuhadaroğlu, (2003) highlighted that PSA fosters self-directed learning and information literacy, which are essential for secondary-level students.

Cooperative Learning (CL)

Cooperative Learning (CL) is an instructional strategy where students work in small groups to attain a common academic goal. Cooperative learning improves learning productivity, time on task, attitudes toward school, self-efficacy, motivation, relationships, and self-esteem, according to several studies (Onwuegbuzie, 2001). Nevertheless, little is recognized about the use of SCL in social studies instruction, particularly in Iran.

According to Johnson, D.W., Johnson, R.T., & Smith, K.A., (1991), cooperative learning enhances learning productivity, critical thinking, and social skills. Research conducted by Qureshi, (2021) proved that cooperative learning significantly improves student engagement and academic performance. Additionally, Namaziandost, E., & Cakmak, F., (2020) found that Cooperative learning fosters better communication skills and teamwork leading to enhanced overall academic performance of students. Aporbo, (2023) examined the impact of

a cooperative learning strategy on students' learning efficiency. Study results showed an increase in academic output, particularly in higher education. Moreover, research showed that cooperative learning, in which students actively work together in small groups, improves engagement and academic development. Simesso, et al, (2024) discovered that cooperative learning strategies improve students' performance. Study results were consistent with a study by (Sibomana A., 2021-2022). She found a significant difference in average achievement scores between cooperative learning and standard teaching techniques. This suggests that, in contrast to traditional teaching methods, collaborative techniques may improve students' understanding and long-term memory of the content.

Methodology

Research Design

This quantitative study discovered the relationship between student-centered learning approaches and academic achievement at the secondary level in Haveli Kahuta, AJ&K. Data were collected through a self-developed questionnaire, distributed via random sampling to secondary school students and teachers. Secondary data was gathered from books, journals, and online sources. The study followed ethical guidelines and was conducted during school hours with school authority permission.

Sample and Sampling Technique

A simple random sampling technique was used to select 100 students from 2 private and 4 government schools in Haveli Kahuta AJ&K.

Research Instrument

According to Zarate et; al (2006) the questionnaire as a research tool could gratify various accurate objectives; it proves appropriate if the aim is to identify certain factors to determine their presence or absence or to assess the relevance, frequency, and generalization of information obtained.

A questionnaire with 18 closed-ended items was used to collect data. It was based on the research objectives with the guidance of a supervisor and feedback from pilot testing. The questionnaire aimed to assess factors related to student-centered learning approaches.

Scale used in the Study

The researcher used 'The Likert Scale' with a five-point option for the questionnaire in data collection. .

Pilot Testing

A pilot study is a small-scale project conducted before the final full-scale study. To find the reliability of the study pilot study was conducted.

➢ The researcher shared their questionnaire with students and secondary school teachers who were not part of the study.

➢ After pilot testing, the researcher reviewed her tool and updated it under the supervision of an advisor.

Validity

Validity refers to how accurately a method measures what it is intended to measure (Denny Borsboom, Gideon J Mellenbergh, & Jaap Van Heerden 2004). Moreover, an expert panel validated the research tool.

Reliability

Reliability refers to the consistency of measured results (Carole L Kimberlin & Almut G Winterstein 2008). The researcher used SPSS to check reliability.

For various purposes, Cronbach's alpha has become the standard on which the reliability of such measurements is judged. However, to quote the famous author, "The numerous citations to my article by no means indicate that the person who cited it had read it" (Cronbach & Shavelson, 2004).

The reliability of the students' questionnaire, in which 20 students have been selected, is: -

Reliability Statistics

Cronbach's Alpha	No of Items
0.605	18

An extensively accepted guideline recommends that Cronbach's alpha (α) within the range of 0.6 to 0.7 indicates an acceptable level of reliability, while a value of 0.8 or higher shows a very good level. However, this is guided when alpha values exceed 0.95, as such raised values might propose redundancy in the measurements (Hulin et al.,2001).

Data Collection

The researcher designed and administered the questionnaire using simple random sampling to select 100 students from secondary schools. The purpose of the study was explained, and confidentiality was assured. The researcher collected data during class hours, with respondents informed that the data were for research purposes. Completed questionnaires were collected after the selected time to assess

the relationship between student-centered learning approaches and academic performance.

Data Analysis

The researcher applies correlation to check the relationship of student-centered learning approaches with academic performance.

Table: Relationship of student-centered learning approaches with academic performance.

S.no	Items	Pearson Correlation	Sig. (2-tailed)
1	The SCL approach helps to improve your academic performance.	1	-
2	SCL approaches enable you to take responsibility for your study.	.219*	.028
3	SCL approaches increase your self-confidence.	.271**	.006
4	SCL approaches enable you to manage time.	.083	.410
5	In SCL different tasks enhance your creativity.	.172	.088
6	SCL enables you to set the goals for your education.	.234*	.019
7	SCL approaches motivate you towards learning.	.233*	.020
8	Do you improve your grades in the last exams using SCL approaches?	.214*	.033
9	Do you agree that cooperative learning enhances your communication?	.251*	.012
10	The project-based learning approach allows you to relate theoretical knowledge to real-world situations.	.238*	.017
11	A problem-solving approach improves your critical thinking to help me find better solutions.	.236*	.018
12	Your teacher often uses SCL approaches in the classroom.	.283**	.004
13	SCL approaches enable you to ask questions about the topic.	.229*	.022
14	Do you feel comfortable sharing concepts with fellows?	.198*	.048
15	SCL approaches are challenging in adaptation.	.075	.460

16	Do you actively participate in all activities?	.205*	.041
17	In SCL approaches, you often use technology to support your learning.	.207*	.039
18	Do you recommend SCL to other students?	.252*	.011

The correlation analysis displays a significant positive relationship between several aspects of Student-Centered Learning (SCL) and students' academic achievement. The strongest correlation is noticed with teachers regularly using SCL approaches in the classroom (r = .283, p = .004), signifying that regular implementation of SCL improves student performance. Furthermore, SCL approaches that raise self-confidence (r = .271, p = .006), cooperative learning and communication skills (r = .251, p = .012), goal-setting (r = .234, p = .019), and motivation toward learning (r = .233, p = .020) are significantly linked to better academic progress. Besides, students who engaged in problem-solving activities to increase critical thinking (r = .236, p = .018) and those who reported upgraded marks through SCL (r = .214, p = .033) also exhibited positive academic development. Though some features, such as time management (r = .083, p = .410) and challenges adapting to SCL (r = .075, p = .460), did not correlate significantly with academic performance. These findings highlight the importance of SCL strategies in nurturing vital skills that contribute to students ' academic success while emphasizing areas where SCL might have a narrow impact.

Conclusion

The research findings show that the implementation of SCL approaches has a profoundly positive impact on both academic achievement and effective learning methods. The study has highlighted that a combination of motivation, confidence, collaboration, problem-solving, and active participation are the key factors for the improvement of academic achievement. The implementation of SCL approaches at the secondary level improves students' academic performance and also develops skills. The findings support the effectiveness of SCL approaches in developing a dynamic and interactive environment that enhances student engagement in productivity.

Discussion

Research question 1: What is the relationship between SCL approaches and the academic performance of students at the secondary level?

The study provides solid proof of a positive relationship between Student-Centered Learning (SCL) approaches and students' academic performance at the secondary level. The Pearson correlation analysis shows that some elements of

SCL particularly correlate with academic performance. The correlation between SCL approaches enlightening students' self-confidence and academic performance (r = .271, p = .006) shows a statistically significant positive correlation. This recommends that students who improve greater confidence through SCL methods are more likely to do better academically. The current study results are consistent with Nayanika Singh (2011) who recommended providing a self-learning environment to students increases their self-confidence and enables them to improve their academic performance.

In the same way, motivation toward learning (r = .233, p = .020) is an alternative crucial element in academic success. Current study findings display that students who are more motivated through SCL methods tend to get better marks. The results of the current study align with previous research by Cheang, (2009) who declared that motivation plays an important role in continuing effort, engaging with learning materials, and ongoing through challenges, all of which provide better academic outcomes. The student-centered approach effectively boosted different domains of motivation and learning methods to enhance learners' academic achievement.

Cooperative learning, a vital part of SCL, also shows a significant correlation with academic performance (r = .251, p = .012). This proposes that students who engage in collaborative activities, discussions, and group-based learning tend to do better academically, likely due to improved knowledge sharing, problem-solving, and peer support. Moreover, the ability to set educational goals (r = .234, p = .019) is positively correlated with academic performance, showing that students who take possession of their learning and set academic goals tend to achieve higher results. The current study results parallel the previous study (Fariha Gull, 2015). She found Cooperative learning activities had a positive impact on the overall progress of students.

Project-based learning (r = .238, p = .017) and problem-solving approaches (r = .236, p = .018) further demonstrate an important relationship with academic achievement. These methods allow students to apply theoretical concepts to real-world situations, nurturing a deeper understanding and maintenance, which translates into better academic performance. PBL is an instructional approach that helps students develop a better understanding to achieve their academic goals (Hmelo-Silver, 2004).

Moreover, students who acknowledged improved grades in their last exams due to SCL approaches (r = .214, p = .033) support the argument that these teaching

methods have a direct impact on academic performance. Active participation in activities (r = .205, p = .041) and the use of technology in SCL (r = .207, p = .039) also show positive correlations, stressing the role of engagement and digital tools in enhancing the academic performance of students. The current results are in line with the existing literature of a study that declared that student-centered learning is successful and effective as a technique for better academic performance (Muhammad H Asoodeh, 2012).

In summary, the findings show that SCL approaches positively impact students' academic performance. The results confirm that increased motivation, confidence, collaboration, goal-setting, problem-solving skills, and active participation—key elements of SCL—are all associated with better academic achievement at the secondary level. The significant correlations between these aspects and academic performance recommend that applying SCL methods in secondary schools can lead to improved student success.

Research question 2: Examine whether Student-Centered learning (SCL) approaches contribute to developing effective learning or not.

The correlation analysis provides a strong indication that student-centered learning (SCL) approaches contribute to the progress of effective learning by encouraging essential academic and cognitive skills. A significant correlation was found between students recommending SCL approaches and their academic progress (r = .252, p = .011), indicating that those who observe these methods as beneficial tend to perform better. The findings of this research are similar to the study of Arne Sorensen, (2023) which recommended the implementation of the SCL approach as a pedagogical method for student learning.

Several aspects of SCL were positively related to key learning outcomes. Cooperative learning demonstrated a significant correlation with enhanced communication skills (r = .251, p = .012), representing that peer connections within an SCL context enhance students' ability to express their thoughts and collaborate effectively. Likewise, project-based learning was linked to the ability to apply theoretical knowledge to real-world situations (r = .238, p = .017), reinforcing its role in making learning more practical and expressive. The current study supports the findings of Akilan, M., (2024) who explored how social variables impact students' engagement and collaborative learning to determine how these factors affect students' achievement at the end of the academic session. According to the results, peer contact greatly improves collaborative learning, emphasizing that a positive learning environment depends on students' interaction

with one another. Furthermore, student attendance has a beneficial impact on collaborative learning as it shows active engagement and reflectivity inside the classroom.

Also, SCL approaches inspire students to take responsibility for their learning (r = .219, p = .028) and raise motivation toward academic improvement (r = .233, p = .020). These findings suggest that when students are actively engaged in the learning process, they develop a greater sense of possession over their academic performance. Furthermore, a strong correlation was detected between SCL and self-confidence (r = .271, p = .006), as well as goal-setting behavior (r = .234, p = .019), both of which are serious for independent and lifelong learning. Study results are consistent with the study (Sudarsono, 2025). It focused on the importance of shifting towards SCL from a teacher-based learning environment to make an environment responsive, relevant, and engaging for students.

Overall, these correlations offer empirical support for the effectiveness of SCL approaches in nurturing active contribution, motivation, communication, and problem-solving—key pointers of effective learning. The results recommend that assimilating SCL methods into educational settings can improve student participation and academic achievement, making learning more energetic, meaningful, and effective.

Recommendations

Encourage Features to Implement SCL Approaches:

School should provide training programs, internships, and workshops to teachers to enhance their teaching skills in the application of SCL methods.

Promote Cooperative Learning

Teachers should adopt a cooperative learning teaching strategy to enhance students' understanding and also encourage them to work together.

Integrate Technology into Learning

Schools should invest in providing digital tools for advanced interactive learning. Schools should arrange training sessions for teachers and students so that they will be able to use digital tools.

Encourage Active Students' Participation

Teachers should encourage students' participation in the classroom. Teachers should create a good environment in which students can feel safe in comfortable, asking questions and sharing their ideas.

Enhance Self-Confidence and Motivation

Teachers should design different activities and assignments for students in which they can work properly so that these activities can enhance their self-confidence and give them motivation.

Address adaptation Challenges

School should provide regular interactive sections and continuous code to help teachers and students in SCL-based education, especially for those who face difficulties adapting.

Teacher's Experience

Teachers should be experts in creating a conducive environment so that students can interact with teachers and fellow students. Additionally, teachers should prepare material in tools related to the topic because it can positively influence the successful use of this learning.

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