



Effect of Students' Collaboration on Academic Achievement at Undergraduate Level

¹Alishba Kiani

^{*2}Dr. Erum Shahzadi

¹MPhil Scholar (Education), Women University of Azad Jammu & Kashmir Bagh

^{*2}Assistant Professor, Department of Education, Women University of Azad Jammu & Kashmir, Bagh, Pakistan

*2drerum@wuajk.edu.pk

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Corresponding Authors*: Dr.
Erum Shahzadi

Abstract

The research aimed to examine the effect of students' collaboration on their academic performance at the undergraduate level in Azad Jammu and Kashmir. The core purpose of the study was to explore how specific collaboration skills such as communication, teamwork, leadership, emotional intelligence, conflict resolution, and problem-solving contributed to students' academic success. A descriptive survey research method was adopted to conduct the study. The target population comprised BS-level students from the Faculty of Arts and Social Sciences at two public sector universities: Women University of AJ&K, Bagh, and the University of AJ&K, Muzaffarabad. A sample of 330 students was selected through a simple random sampling method from five different departments within the social sciences. Data was collected using a self-developed questionnaire. The gathered responses were analyzed through the Statistical Package for Social Sciences (SPSS), version 23. The results revealed that students' collaboration had a positive influence on academic achievement. Collaboration skills such as communication, leadership, teamwork, and emotional intelligence demonstrated a stronger relationship with higher academic performance, whereas conflict resolution and problem-solving skills had a moderate effect. The study concluded that effective collaboration among students led to improved academic outcomes. In light of these findings, it was recommended that universities encourage collaborative learning methods, including group assignments and peer interaction, to help students strengthen their collaboration skills and enhance academic performance.

Keywords: Students collaboration, academic, achievement, communication, leadership.



INTRODUCTION

Nowadays, teamwork and collaboration are trends and necessities in the twenty-first century that are vital in many areas of life. The skill set required for the twenty-first century includes a variety of skills, such as emotional intelligence, leadership, problem-solving, teamwork, and communication. These are critical and essential skills for pupils to succeed in the twenty-first century and meet the demands of the modern world. 21st century skills are critical for learners to survive in the labour market after completing their education. In order to attain great accomplishments and outcomes, it is necessary for society to think and act collaboratively when it comes to education.

An essential educational approach and style to the teaching and learning process that involves several groups and teams of students working together to tackle several challenges is learning through collaboration. Finding answers to issues, finishing a task, and producing a product together are all part of it. Through the exchange of varied and opposing viewpoints, students can express and defend various ideas while also comparing, contrasting, and opposing them with their classmates. In this manner, students are able to actively participate and challenge the theoretical and conceptual frameworks of others.

Collaboration is the ability of an individual to collaborate with others in a process that necessitates dependency in order to solve an issue, accomplish a goal, or finish a task. Communication plus extra skills in decision-making, problem-solving, negotiation, and conflict resolution can be viewed as collaboration (Lench, 2015). Collaboration may be viewed as a process or as the result of collaborative activity; the former is usually more consistent with its use in the 21st century skills movement (Kuhn, 2015).

There are three ways that a student can behave differently from other learners. In certain cases, groups or teams may not have any positive or negative impact on the success or failure of other students. In other cases, a single student's activities might both effectively help and hinder the achievement of other learners. To put it another way, students may be working and learning something together in order to meet common learning objectives and working against one another in order to reach a goal that only a few or one learner can reach (Johnson's, 2009).

The larger-scale 21st-century learning skill set has to be able to teach and guide students to think more critically and have strong teamwork abilities in order to finish the assignment (Evans, 2020). Collaboration can be viewed as communication plus extra skills in decision-making, negotiation, problem-solving, and conflict resolution. (Soland et al., 2013). Collaboration is when two people work together in a coordinated effort where the performance of the group and/or the individual members that follow surpasses what each member contributed to the group. (Littleton, 2011)

Collaborating is necessary when achieving a goal calls for more resources than any one person could provide on their own and thus demands pooling them (Care et al., 2018). The ability to participate in a process where two or more agents try to solve a problem by sharing the understanding and effort necessary to arrive at a solution and pooling their knowledge, skills, and efforts to reach that solution is known as collaborative problem solving competency. (OECD 2017). In collaborative problem solving, two or more individuals work together to contribute resources that they alone control in order to move through a series of cognitive states that include information gathering and analysis as well as the development of a hypothesis that they jointly set out to test. (Hesse, Care, Buder, Sassenberg, and Griffin (2015).



The soft-skill are seen as very important components of employee growth. Workers' attitudes and behaviours can change as a result of acquiring these skills, which also boosts their well-being and productivity (Sitthisom Jin et al., 2014). Effective collaboration, which is essential to the performance of many professions, is made possible by soft skills (Vaughan et al., 2019).

Preparing students for their chosen professional path and giving them the practical skills they need to succeed in their chosen fields are two of the main goals of higher educational institutions. Collaboration has always been a crucial part of professional work, but as society and our professional sector are shaped by the rapid advancement of technology, these skills are becoming more and more important (Levy and Murnane 2012). Teamwork is consistently cited in educational research as a critical element of success in today's professional sector, as evidenced by the shift towards a more complex skill set with an emphasis on defining essential 21st century skills (Dede 2010). Still, teamwork is hard to measure because it needs to be derived from a wide range of interconnected attitudes and behaviours. The ability of teachers and students to monitor the growth and effectiveness of teamwork in the classroom is made more difficult by this. Inconsistencies in the way collaboration is conceptualised also make measuring and evaluating it more difficult (Careau, Vincent, and Swaine 2014).

Considering the term "teamwork" can be used to refer to different things in different circumstances, it is theoretically ambiguous. Effective teamwork, for instance, can be defined as a successful product created by a group of people cooperating to accomplish a shared objective (Linda Riebe et al. 2010). In contrast, teamwork can also refer to the type and calibre of individual contributions made to a group endeavour when a process-oriented approach is taken (Hughes and Jones 2011). Studies indicate that working on actual projects with peers might help IDs develop their teamwork abilities (Brill, 2016).

This enables them to exchange expertise, receive feedback, and learn from one another. Feedback is essential for IDs to evaluate their work, identify areas of strength and weakness, and make suggestions for changes (Topping, 1998). Even with the advantages, students could shy away from group projects (Brill, 2016). Educators can overcome this by creating learning activities that promote teamwork and offer chances for peer evaluation. This will assist IDs in acquiring critical career competencies. (Brush & So, 2008).

STATEMENT OF THE PROBLEM

Although research has acknowledged the importance of collaboration and teamwork, limited studies have explored the specific processes through which these skills influence undergraduate academic achievement. Key aspects of collaboration—such as communication, role distribution, problem-solving efficacy, and consideration of cultural diversity—remain underexplored. The lack of collaboration skills among undergraduate students often results in weak communication, ineffective teamwork, and poor problem-solving abilities, all of which negatively affect academic performance. Many undergraduate students prefer competition over collaboration, which reduces their chances of working in teams and developing essential interpersonal skills. Despite existing evidence suggesting that teamwork enhances learning, a significant number of students still choose to study independently. This preference may contribute to reduced academic outcomes. Therefore, it is important to examine how collaborative abilities impact students' academic success. This study investigates the relationship between students' collaboration skills and their



academic achievement, while also exploring strategies to enhance teamwork and reduce competition in educational environments.

OBJECTIVES

1. To identify collaboration skills among students at the undergraduate level.
2. To measure the effect of collaboration on the academic achievement of students at the undergraduate level.
3. To examine the effect of collaboration on the academic achievement with respect to demographic variations at undergraduate students.

LITERATURE REVIEW

In educational research, cooperation contributes to theoretical and technological advancements (von Davier & Halpin, 2013). Computer-based collaborative learning, problem-based collaboration, and collaborative learning have been the subjects of a large portion of collaboration research. The concept of cooperation encompasses much more than just cooperating with others. From a straightforward description of group work, the literature currently defines collaboration as an activity in which two or more students combine resources, knowledge, and expertise from many sources to accomplish a shared objective. Some understanding of the nature of collaboration can be gained from the contrast between independence and interdependence. Independent teams with learners working in relative isolation have been the main focus of team or group work literature. Collaboration involves similarity of information, symmetry of status, and similarity of aims, yet each member of the collaboration may have distinct roles and responsibilities, according to Dillenbourg (1999).

Collaboration involves symmetry of information, symmetry of status, and symmetry of aims, yet each member of the collaboration may have distinct roles and responsibilities, according to Dillenbourg (1999). Despite the fact that each person has a unique perspective, symmetry of knowledge dictates that they must apply their separate expertise. The term "symmetry of status" describes peer cooperation as opposed to hierarchical oversight. In collaboration, symmetry of goals means that participants have similar objectives rather than conflicting or opposing ones. Additionally, the distinction between collaboration and cooperation was emphasized by Dillenbourg (1999). The foundation of cooperation is symmetry of action, where students complete tasks in parallel before combining the two into a single unit. Students must collaborate by working on a single activity where labor division is entwined and interdependent tasks are necessary (Lai, 2011).

Collaboration in education refers to students working together in a shared learning environment to accomplish a common objective (Underwood & Underwood, 1999). Theorists who contend that social interaction promotes learning, such as Vygotsky (1986) and Piaget (1983), have had a significant influence on studies of collaboration. The sociocultural viewpoint of Vygotsky emphasized how social contact is internalized, leading to transformation and new insights. His idea of zone of proximal development (ZPD) measures the gap between what a student can accomplish on their own and what they can accomplish with the assistance of a mentor, who is typically an adult like a parent or teacher. Piaget's socioconstructivist methodology delineates the phases at which children's cognitive abilities develop. It also emphasizes cognitive conflict, which occurs when students notice a gap between what they already know and what they have learnt, as being essential to spurring development. When comparing and discussing our own knowledge or understanding with someone who are less skilled than us, this disparity is particularly



prevalent (Piaget, 1983). The ability to learn from the interacting scenario is therefore typically the main focus of collaboration (O'Neil et al., 2004).

The need to collaborate well with others and work internationally is growing (O'Neil et al., 2004). Therefore, it has been determined that cooperation skills that enable productive group work are becoming more and more crucial for success in both academic and professional settings (Singh-Gupta & Troutt-Ervin, 1996). Working together has been shown to improve students' cognitive development (Webb et al., 1998; Zhang, 1998) and to have benefits for fostering students' accountability, flexibility in problem-solving, ability to ask questions and defend answers, and reflective skills (Baghaei et al., 2007; Webb et al., 2004). Therefore, it has been determined that cooperation skills that enable productive group work are becoming more and more crucial for success in both academic and professional settings (Singh-Gupta & Troutt-Ervin, 1996).

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Social interaction or awareness during cognitive tasks like problem-solving has long been thought to be beneficial. A number of well-known researchers have focused on the learning advantages of interacting with other people, arguing that putting students in a social setting is a key tactic for developing complex cognitive skills like problem-solving competency (Glaser, 1992). When students collaborate to solve problems, they think through the problem and the processes more explicitly during their interaction with others, which results in a greater conceptual understanding and helps learners manage tasks more effectively (Darling-Hammond, 2003). According to research, students' information processing differs when they work in groups as opposed to alone (King et al., 1997).

Students can enhance their knowledge by talking, elaborating, and negotiating with others to obtain a shared understanding. Social interactions help learners make their learning apparent (Van Boxtel et al., 2000). According to King et al. (1997), collaborative activities including questioning, peer mentoring, and giving feedback can assist students in completing tasks or solving problems that they might not have been able to do on their own, enabling them to advance to greater competence levels. In order to complete complex activities, social engagement might yield extra ideas and shared meaning that one could not obtain without speaking with others (OECD, 2017).

Collaboration skills are increasingly vital for academic success, particularly in higher education where teamwork is essential for learning and overall academic performance. In recent years, collaborative learning has gained prominence in academic settings, leading to improved student engagement and success. With a rising focus on group projects, peer learning, and cooperative problem-solving in colleges and universities, the impact of collaboration skills on academic performance has emerged as a significant area of research. Laal and Ghodsi highlight that collaborative educational contexts foster greater mental engagement, which aids students in retaining and understanding academic content. Their findings suggest that group activities not only boost academic achievement but also cultivate important social skills such as leadership, communication, and conflict resolution, all of which enhance the learning process. Laal and Ghodsi (2012).



Research reveals that students participating in collaborative activities gain deeper insights into the subject matter while also developing crucial life skills like leadership, emotional intelligence, and conflict management. This is especially relevant in today's educational landscape, where group-based learning takes center stage, and academic performance is often assessed through collaborative tasks. Skills such as problem-solving, leadership, and teamwork core to collaboration are instrumental in enhancing academic results. They enable students to tackle complex issues from varied perspectives, leading to more creative solutions. Laal and Ghodsi (2012).

Learners involved in collaborations not only deepen their understanding of the material but also acquire essential life skills, including conflict resolution, leadership, and emotional intelligence. This recognition is particularly important in modern educational environments that value collaboration and often assess academic achievement based on teamwork. Furthermore, skills integral to collaboration like problem-solving and teamwork enhance students' abilities to approach challenging issues with diverse perspectives and innovative ideas, resulting in better academic performance. Conflicts are inevitable in collaborative settings, so resolving them amicably is crucial for maintaining effectiveness. Laal and Ghodsi (2012).

METHODOLOGY

This study used a quantitative method approach. The descriptive design of the research was applied in this study. A cross-sectional survey was utilized. The study was descriptive in nature. The population of the present study consisted of undergraduate students who were enrolled in the Faculty of Arts and Social Sciences at two institutions: the University of Azad Jammu and Kashmir, Muzaffarabad, and the Women University of Azad Jammu and Kashmir, Bagh. The total population included 1, 872 students 996 from University of AJ&K Muzaffarabad and 876 from Women University of AJ&K Bagh. These students belonged to various academic disciplines, including English, Economics, International Relations, Sports Sciences, and Education. A total sample of 330 students from both universities was selected. To determine the sample size for the present study, the method of determining sample size suggested by Yamane (1967; 886 as cited in Israel, 1992) was used. The researchers had identified communication skills, teamwork skills, leadership skills, emotional intelligence, conflict resolution skills, and problem-solving skills as the main indicators of the instrument. These indicators were chosen because they represented the key parts of students' collaboration and showed how students interacted, worked together, took lead, managed emotions, solved conflicts, and handled problems while working in groups. These indicators were also measured along with students' academic performance, especially their Grade Point Average (GPA), to see the effect of collaboration on academic achievement.

Data collection was the act of acquiring and measuring information on variables of interest in a systematic and defined manner. The term 'data collecting tools' referred to the tools/devices that were used to gather data, such as a paper questionnaire or a system. Data was collected through a questionnaire about the effect of student's collaboration on academic achievement at undergraduate level. The researcher personally visited the sampled universities and provided the pupils with the questionnaire. They were asked and instructed to read and fill out the questionnaire carefully. They were assured that the information they provided in the questionnaire would be kept confidential.



RESULTS

Table 1: *Descriptive Statistics of Collaborations Skill*

S. No	Collaboration Skills	N	Mean	Std. Deviation
1.	Communication Skills	330	18.58	3.908
2.	Teamwork Skill	330	19.37	3.919
3.	Problem solving skills	330	18.86	3.719
4.	Leadership skills	330	18.77	3.796
5.	Conflict Resolution Skill	330	18.42	3.836
6.	Emotional Intelligence	330	18.99	3.935

The table above presents the descriptive statistics for communication skills based on responses from 330 undergraduate students. The mean score of 18.58 shows a moderate level of communication skills, and the low standard deviation indicates that most students gave similar responses. The descriptive statistics for teamwork skills collected from 330 undergraduate students. The mean score of 19.37 suggests a good level of teamwork skills, while the small variation in scores shows that students' responses were fairly consistent. The descriptive statistics for problem-solving skills based on input from 330 undergraduate students. The mean score of 18.86 reflects a moderate ability to solve problems, and the scores are closely grouped, showing similar levels among students.

The descriptive statistics for leadership skills from 330 undergraduate students is mean score of 18.77 indicates a moderate level of leadership skills, and the low standard deviation shows little variation in responses. The descriptive statistics for conflict resolution skills gathered from 330 undergraduate students. The mean score of 18.42 shows a moderate ability to handle conflicts, with students showing similar response patterns. And the descriptive statistics for emotional intelligence based on the responses of 330 undergraduate students. The mean score of 18.99 represents a moderate level of emotional intelligence, and the small standard deviation indicates consistent responses among students

Table 2: *Effect of Students Collaboration on Academic Achievement**Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.560a	.313	.311	.841

a. Predictors: (Constant), total

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	105.935	1	105.935	149.647	.000 ^b
	Residual	232.190	328	.708		
	Total	338.124	329			

a. Dependent Variable: GPA

b. Predictors: (Constant), qtotal

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.556	.263		-2.112	.035
	qtotal	.028	.002	.560	12.233	.000

a. Dependent Variable: GPA



To examine this objective, a simple linear regression analysis was conducted. The results revealed that the correlation coefficient (R) was .560, which indicated a moderate positive relationship between students' collaboration and their academic achievement. The coefficient of determination (R^2) was found to be .313, which suggested that approximately 31.3% of the variance in academic achievement (GPA) was explained by the level of students' collaboration.

The model was found to be statistically significant, as shown by the F-value = 149.647 and p-value = .000, which was less than the standard significance level of 0.05. This indicated that the regression model significantly predicted academic achievement based on students' collaboration.

The unstandardized coefficient (B) for collaboration was .028, with a t-value of 12.233 and a significance level of .000, which confirmed that students' collaboration had a significant positive effect on their GPA. Therefore, the analysis supported the conclusion that higher levels of collaboration among students were associated with higher academic achievement at the undergraduate level.

Objective No. 3:

Table 3: Effect of Students' Collaboration with Respect to Demographic Variations

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.583 ^a	.340	.331	16.530

a. Predictors: (Constant), GPA, university, Department, Semester

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	45666.661	4	11416.665	41.783	.000
	Residual	88801.327	325	273.235		
	Total	134467.988	329			

a. Dependent Variable: qtotal

b. Predictors: (Constant), GPA, university, Department, Semester

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
	B	Std. Error	Beta			
	(Constant)	86.718	4.436		19.547	.000
	University	-4.343	1.890	-.107	-2.298	.022
1	Semester	-.080	1.011	-.004	-.079	.937
	Department	1.756	.687	.117	2.555	.011
	GPA	11.123	.975	.558	11.404	.000

a. Dependent Variable: qtotal

To analyse this objective, a multiple linear regression analysis was carried out. The correlation coefficient (R) was found to be .583, indicating a moderate positive relationship between students' collaboration and the combined demographic variables (university, department, semester, and GPA). The coefficient of determination (R^2) was .340, which



implied that approximately 34.0% of the variance in students' collaboration could be explained by these demographic factors

The ANOVA results showed that the overall regression model was statistically significant, with an F-value of 41.783 and a p-value of .000, which less than the standard threshold of 0.05 was. This indicated that the demographic variables collectively had a significant impact on students' collaboration.

The coefficients table showed that:

The variable University had a negative and significant effect on students' collaboration ($B = -4.343$, $p = .022$).

The variable Department had a positive and significant effect ($B = 1.756$, $p = .011$).

The variable GPA also had a strong positive and significant effect on students' collaboration ($B = 11.123$, $p = .000$).

However, the variable Semester did not show a significant effect ($p = .937$). These results suggested that students' university, department, and academic performance (GPA) significantly influenced their level of collaboration, while semester had no meaningful impact.

CONCLUSION

This study investigated the effect of students' collaboration on their academic achievement at the undergraduate level. The results showed that students generally had moderate levels of communication, problem-solving, leadership, conflict resolution, and emotional intelligence skills, while teamwork skills were slightly higher. The low variation in scores indicated that most students had similar levels in these skills. The analysis also revealed that collaboration played a meaningful role in shaping academic outcomes. The regression analysis established a statistically significant positive relationship between collaboration and academic performance. Collaboration was shown to account for over 31% of the variation in students' GPA, highlighting its substantial contribution to academic success. This means that students who actively engage in collaborative practices tend to perform better academically. Furthermore, demographic factors such as university, department, and GPA significantly influenced students' collaborative behaviors, whereas the semester did not have any noticeable effect. These findings underline the importance of institutional and academic contexts in shaping how students collaborate. In conclusion, collaboration is not only a crucial interpersonal skill but also a key factor that positively impacts students' academic performance. It is essential for higher education institutions to recognize the value of collaboration and take strategic steps such as incorporating group projects, peer learning opportunities, and skill development workshops to nurture collaborative competence among students. Promoting such skills will ultimately enhance students' academic outcomes and prepare them for future professional challenges.

RECOMMENDATIONS

1. Universities ought to encourage initiatives that foster collaboration among students.
2. It is important to teach students leadership and communication skills.
3. Universities should incorporate teamwork and collaboration into their curricula.
4. Teachers should give group tasks to improve students' teamwork experience.

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