



Performance and Learning Enhancement of Students through Blended Learning and Quality Teaching

Dr. Sonia Gouri¹, Shweta Singh², Dr. Vidushi³, Ayushi Aran⁴, Dr Bhagwanti Bishnoi⁵

¹Department of Humanities and Social Sciences, KIET Group of Institutions, Delhi-NCR, Ghaziabad, India

^{2,3}Department of Computer Applications, KIET Group of Institutions, Delhi-NCR, Ghaziabad, India

⁴Department of Management, Sunderdeep Group of Institutions, Ghaziabad, India

⁵Department of Applied Sciences, KIET Group of Institutions, Delhi-NCR, Ghaziabad, India

Abstract—

This study focuses on finding out the impact of teaching quality on students' performance. Many recent research exhibits that use of digital tools, collaborative and peers learning, flipped learning, extra effort by the teacher, and many like factors improve the performance of students. In the absence of quality teaching, students are less motivated, and their performance also falls. The present paper investigates various factors and their impact on students' performance. A thorough questionnaire was used to conduct a survey of 410 participants, including teachers and students from various private colleges. 50 questions on the survey were focused on the variables of teaching effectiveness and student learning. The outcome shows that when instruction is of high quality and effectiveness, student performance rises. The factors that can improve students' performance outcomes are suggested by this study. The survey results will aid teachers from various private institutions in implementing and carrying out strategies that will improve their instruction.

2370

Keywords— Quality teaching, students' performance, outcome, and teacher effectiveness.

DOI Number: 10.48047/NQ.2022.20.20.NQ109238

NeuroQuantology2022;20(20): 2370-2376

I. Introduction

Teaching seeks to achieve specific learning, a relatively permanent change in a student's behaviour. To maximise the results of the teaching-learning process, a teacher must use innovative instructional strategies and tools [reference]. These tools help students comprehend ideas and retain knowledge for extended periods of time. The government is continuously improving the educational system. Due to this, educational activities began to be more student-centred in the middle of the 1990s rather than the more conventional teacher-centred ones. Although there are still issues with the utility and efficacy of the teaching [reference], it is now more constructivist focused. Numerous academics have tried to determine how teacher effectiveness and student achievement are related. Numerous tactics could be used to improve the standard of educational activities in order to optimise the results. Faculty

experience, topic expertise, self-confidence, and a critical approach influence student achievement (Howard P. Tuckman, 1975). Student achievement and the efficacy of teachers are closely related. Third, both direct and indirect instructor efforts help students succeed (Parihar, 2011). Finally, the effectiveness of instruction has been identified as one of the most important factors influencing student achievement. Effective teachers frequently employ motivational strategies and outcome-based engagement of students in teaching and learning. A teacher cannot operate under the presumption that some students are unable to participate fully in class and are destined to perform poorly. Instead, they work hard to find ways to make each student successful because they believe that every student can succeed (Hadiya Habib, 2017). This study tries to pinpoint the essential elements that link education in philosophy to students' success on summative tests. Student performance will surely improve when the



dependent factors are made more severe. It also emphasises the challenges that many researchers face when doing their research (school culture, educational environment, emotional development, ethnic differences, language hurdles, and so on). Lastly, to determine the factor that will improve student performance the greatest.

The paper is divided into the following sections: Section 2 focuses on related work. The emphasis in Section 3 is on several facets of teaching effectiveness and how it relates to student achievement. Section 4 places a strong emphasis on comparative research on elements that are more connected to the study's validity by highlighting several factors and their significance in effective teaching and applied learning training, Section 4 highlights survey findings. The conclusion and future scope are highlighted in section 5, which will help the student and the teacher improve the teaching and learning environment.

II. Related Work

Present study tries to focus that quality in teaching enhances the performance of students if the latest development like use of digital tools, collaborative and peers learning, flipped learning, extra effort by the teacher, and many like factors are adopted to ensure the positive teaching and learning experiences, and foster 'learner is first' approach to meet the growing needs of the 21st century. Gouri, S., et. at. (2021) The pandemic (COVID-19) has altered the educational system globally, adding more opportunities to perform activities and classes via a virtual platform. Students and teachers alike are aware of the need to enhance the teaching and learning environment in virtual mode. To conduct a virtual classroom, a teacher must become familiar with the many platforms and technologies available. A strong online community for discussion and collaborative learning must also be formed by teachers in this environment (Dong, 2021). In response to the competitive and individualistic learning environments in North American primary schools, cooperative or peer learning concepts or structures were created starting in

the 1960s and on (Johnson et al., 1998a). According to different scholars (Millis, 2002, 2010; Millis & Cottell, 1998) The secondary and post-secondary levels have embraced the structures and philosophies. Millis and Cottell (1998) argue that cooperative learning can encourage students in higher education to study material deeply, and in recent years, cooperative learning has gained popularity at the university level. (Cavanagh, 2011; Hammond, Bithell, Jones, & Bidgood, 2010; Hillyard, Gillespie, & Littig, 2010). Influential scholars such as Biggs and Tang (2011) and Fink (2003) have advocated for the use of cooperative learning as a crucial teaching and learning strategy for college students. Hattie (2009) contrasted to a wide range of other criteria influencing academic accomplishment, it was discovered that cooperative learning was one of the most effective methods of instruction. According to authors, collaborative classrooms are most effective when they stimulate both teachers and students. The collaborative learning process serves as the most authentic example of what it means to inquire, discover, and comprehend alongside others. Collaborative learning involves responsibility, perseverance, and sensitivity, but the result can be a learning community where anyone is welcome to join, take part in, and develop. Smith, B. L. and J. MacGregor (1992) The author focuses on the importance of flipped classrooms and digital pedagogy in the teaching-learning process because they bring homework assignments into the classroom and encourage long-term learning since they are pertinent and attentive to students' needs. Gouri, S., (2020)

III. Research Methodology

The study is conducted based on the survey information obtained from the questionnaire. A series of questions about teaching philosophies and how effectively students are learning from their classroom activities make up the questionnaire. The respondents were faculty and students from several institutions in the Delhi-NCR region. Based on the results of the survey, a number of variables that are crucial to students' learning in the classroom are examined.



The following list summarizes the precise goals of the current study:

1. To exhibit that students' performance increases if the quality of teaching is effective.
2. Present study tries to focus on the quality of teaching that enhances the performance of students if the latest developments like use of digital tools, collaborative and peers learning, flipped learning, extra effort by the teacher.

The following were identified as the main impacting elements after a review of the literature and data analysis:

1. Excited
2. Interesting
3. Positive
4. Learning-as-You-Go Session
5. Learning is fun
6. Physical learning with digital tools
7. Digital devices make learning simple
8. Offline Study
9. Online Instruction
10. The teacher goes above and above
11. Encouragement
12. A teacher's conduct
13. A strict, obedient, and knowledgeable instructor
14. The best-behaving teacher with the least subjective knowledge

3.1.1. Sample size and target

450 respondents from the Delhi-NCR region were surveyed using a well-designed questionnaire, including teachers and students from a variety of private institutions. The initial goal sample size was 410, of which 385 validated by providing the required responses. Our survey method divided survey questions into 14 distinct factor loads that were important for analysing the ways in which teaching quality is related to students' performance.

3.1.1.1. Pilot Testing and Sampling Procedures

To ensure that the questionnaire is clear, and the variables are reliable, a variety of pre-testing approaches (Marsden, 2012) must be performed. Survey methods are used in the research to collect data from suspects in the Delhi-NCR region, including students and staff members who teach in various private institutions. These suspects were adults, at least 18 years old. There were 70 items in the questionnaire. Our survey method divided survey questions into 14 distinct factor loads that were important for analysing the ways in which teaching quality is related to students' performance.

3.1.1.2. Data Analysis

The quantity of recommended items was constrained using Exploratory Factor Analysis (EFA) (Corner, 2009) To satisfy the level of validity and reliability of the conception, a specific measuring model must be examined. Additionally, a factor analysis technique was used, and respondents gave answers depending on the reasons they gave for their choices.



3.1.2. Reliability and Validity Test

The analysis of the reliability and validity tests on the elements considered when creating the questionnaire is the focus of this part. The components with the highest loading factor are then determined by computing Cronbach's Alpha (Schrepp, M. 2020) for each of them. A reliability test is run on 100 survey items using IBM SPSS Statistics software (version 20.0) (Pallant, J. 2020). The alpha coefficients obtained for each contributing component are shown in Table 1. Cronbach's alpha and EFA were used to enhance the scales, which were modified from earlier investigations. A reliability test was conducted for each of the 14 factors, individually. There should be a least of 05 items included for which individual alpha coefficients are to be assigned, according to survey results. Setting a cut-off level of 0.7 and eliminating the variables with an insufficient level of dependability are suggested by the testing study hypothesis. After repetition, it is commonly discovered that a count of 50 things for 10 structures—of which 70 items for 14 constructs were first proposed—are the most pertinent.

TABLE I. Reliability analysis of the variables that influence the discovery of connectivity in relation to Students' Learning and Performance through Blended Learning and Teaching Quality

S. No.	Factors Considered	Cronbach ' Alpha	Calculated Alpha coefficients for the following factors have achieved a high level of reliability, falling between 0.739 and 0.828: 1, 2, 3, 5, 6, 7, 8, 10, 11, and 12. However, with loads of 0.608, 0.239, 0.586, and 0.437, factors like 4, 9, 13, and 14 did not fulfil the minimum dependability standard. As a result, these show that the interconnection between student learning and performance as measured by the quality of learning and blended teaching is not sufficiently reliable. Unsatisfactory factors were eliminated, and it was mandated that the remaining elements be loaded to a minimum of 0.7 in order to ensure consistency.
1	Excited	0.826	
2	Interesting	0.739	
3	Positive	0.760	
4	Learning-as-You-Go Session	0.608	
5	Learning is fun	0.782	
6	Physical learning with digital tools	0.783	
7	Digital devices make learning simple	0.784	
8	Offline Study	0.827	
9	Online Instruction	0.239	
10	The teacher goes above and above	0.740	
11	Encouragement	0.785	
12	A teacher's conduct	0.828	
13	A strict, obedient, and knowledgeable instructor	0.586	
14	The best-behaving teacher with the least subjective knowledge	0.437	

3.1.3. Exploratory Factor Analysis

The primary purposes of EFA are to halt the questionnaire's item count and evaluate the construct's validity. Most researchers use the Kaiser-Meyer-Olkin (KMO) and Bartlett's tests (Shrestha, N. 2021) to evaluate the robustness of each factor analysis and sampling adequacy technique. Table 2 displays the sample adequacy determined by the KMO as (0.855), or around 01. Additionally, a significant value (p=0.000), or around 0.05, is found when applying Bartlett's Test of Sphericity (making the p-value 0.5). As a result, it is conceivable to assert that the sample and factors gathered are now more optimal and adequate.



TABLE II. KMO and Bartlett's Test

Test		Adequacy
Kaiser-Meyer- Olkin Measure of Sampling Adequacy		0.869
Bartlett's Test of Sphericity	Chi- Square	10727.291
	Significant Value	0.000

IV. Survey findings

After applying reliability tests to a group of factors, Tables 1 and 2 show the optimal count of all factors (10 factors). The components that are most relevant to findings on the interconnection of student learning and performance through blending learning and teaching quality are exciting, engaging, positive, learning during the session, etc.

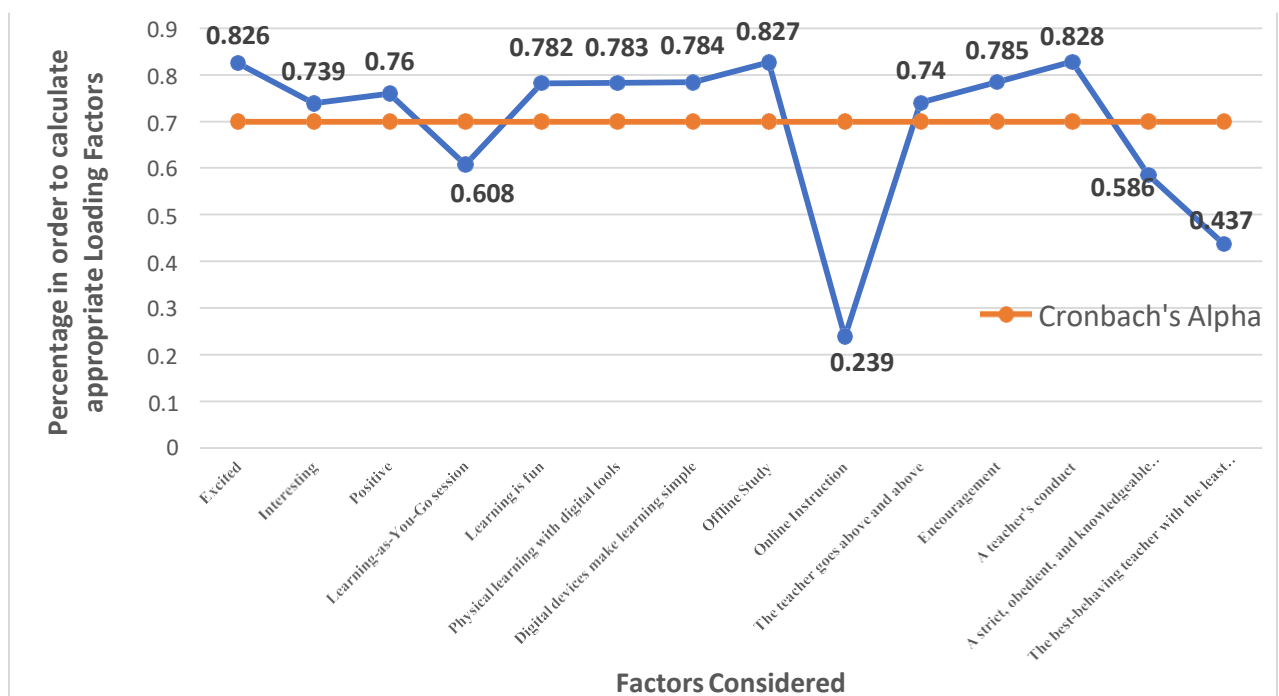


Fig. 1. Open-Source Factor Analysis utilising Cronbach's Alpha for the specified 10 factors

An open-source factor analysis for the variety of beginning factors is shown in Fig. 1. Figure 1 illustrates how learning that took place in sessions, online, etc. did not measure up to the standards of the most crucial factors. It has been shown that parameters connected to offline education and instructor behaviour had the highest Cronbach's Alpha scores. As a result, it may be argued that students pay closer attention in class when the teacher behaves admirably. Additional analysis can be offered using figs. 2 and 3. According to Fig. 2, the replies from respondents who fit into either of the groups were used to perform the overall study. Among the responders were 36.95% school students, 10.86% postgraduates, 2.17% Ph.D. holders, and 50% graduates. Based on the characteristics identified in the aforementioned literature, these respondents validated the study.



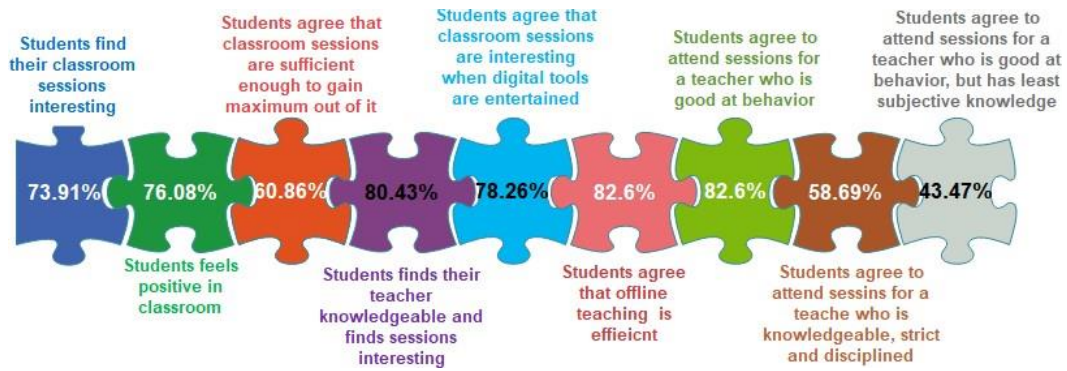


Fig. 2. Survey Summary (Student centric)

The replies from the various levels of pupils are summarised in Fig. 2. 60.86% of students concur that classroom sessions are sufficient for students to learn the material. 80.43% of students say they enjoy class and think their teacher is knowledgeable. 78.26% concur that using digital tools to entertain students makes class sessions more entertaining. In-person instruction is effective, according to 82.6% of students. 58.69% of students accept to participate in classes with a knowledgeable yet strict and regimented instructor.

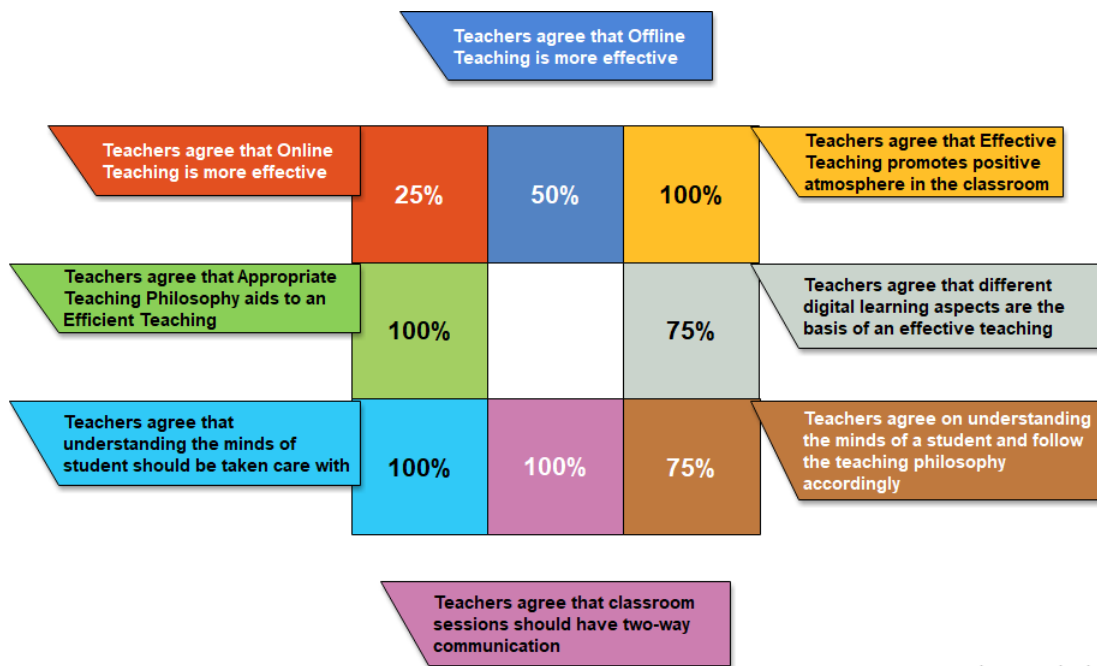


Fig. 3. Summary Report (Teacher centric)

The replies from professors who work in diverse institutions are summarised in Fig. 3. Only 25% of educators concur that online instruction is more efficient. Every single teacher concurs that good instruction fosters a favourable climate in the classroom. 75% of educators concur that the key to effective teaching is to comprehend students' minds. All professors concur that there should be two-way communication in class.



V. Conclusion and Future Scope

The future of a nation lies on the students enrolled at various institutions. Therefore, it is important to place more emphasis on teaching strategies that enable pupils to learn the most during class time. To educate effectively, teachers should choose a variety of techniques. The study conducts a survey on many aspects of student learning and performance using the benchmarking of learning and teaching quality. The survey was conducted to ascertain the relationship between student success on the final test and teacher effectiveness. Additionally, a primary questionnaire was created, and the most important aspects from the suggested list of components set are justified using Cronbach's Alpha factor.

According to the overall survey, pupils are increasingly reliant on classroom instruction for their knowledge. Student learning in class sessions is directly related to effective teaching. The most that a learner can learn from a lesson depends on how successful it is. This survey's goal is to give governmental and non-governmental organizations a foundation for their recommendation to improve education quality. To make the teaching effective, ongoing training and mentorship are needed.

References

Biggs, J. & Tang, C. (2011). *Teaching for Quality Learning at University: What the Student does.* (4 ed.) Open University Press.
Dong, Y., Yin, H., Du, S., & Wang, A. (2021). The effects of flipped classrooms characterized by situational and collaborative learning in a community nursing course: A quasi experimental design. *Nurse Education Today*, 105037.
Corner, Statistics. (2009) Choosing the right type of rotation in PCA and EFA. *JALIT testing & evaluation SIG newsletter* 13.3: 20-25.
Fink, L. D. (2003). *Creating Significant Learning Experience: An Integrated Approach to Designing College Courses.* (1 ed.) San Francisco: Jossey-Bass.
Gouri, S., et. at. (2021) A Study on Impact Of Virtual Classes On Students' Performance Due To COVID-19 *Webology* (ISSN: 1735-188X) Volume 18, Number 6, pp 1771-1780.
Gouri, S., (2020) Flipped Learning: A Digital Pedagogy for Sustainable Learning *EPRA International Journal of Multidisciplinary*

Research (IJMR) - Peer Reviewed Journal ISSN (Online): 2455-3662 Volume: 6, Issue: 12 Journal DOI: 10.36713/epra 2013 pp 220-225
Hattie, J. (2009). *Visible learning: a synthesis of over 800 meta-analyses relating to achievement.* (1 ed.) Routledge.
Johnson, D. W., Johnson, R. T., & Smith, K. A. (1998a). *Active Learning: Cooperation in the College Classroom.* Interaction Book Company.
Marsden, Emma, and Carole J. Torgerson. (2012) Single group, pre-and post-test research designs: Some methodological concerns. *Oxford Review of Education* 38.5: 583-616.
Millis, B. J. (2002). *Enhancing Learning-and More! - Through Cooperative Learning* (Rep. No. IDEA-38). Kansas State Univ., Manhattan. IDEA Center.
Millis, B. J. (2010). *Cooperative Learning in Higher Education: Across the Disciplines, Across the Academy.* Stylus Publishing.
Millis, B. J. & Cottell, P. G. (1998). *Cooperative Learning for higher education faculty.* Oryx Press.
Pallant, Julie. (2020) *SPSS survival manual: A step by step guide to data analysis using IBM SPSS.* Routledge.
Schrepp, M. (2020) On the Usage of Cronbach's Alpha to Measure Reliability of UX Scales. *Journal of Usability Studies* 15.4
Shrestha, N. (2021). Factor analysis as a tool for survey analysis. *American Journal of Applied Mathematics and Statistics* 9.1 4-11.
Smith, B. L. and J. MacGregor (1992) *Collaborative Learning: A Sourcebook for Higher Education.* University Park, PA: National Center on Post-secondary Teaching, Learning and Assessment (NCTLA) 9-22. Washington Center for Improving the Quality of Undergraduate Education.
<https://www.evergreen.edu/sites/default/files/facultydevelopment/docs/WhatisCollaborativeLearning.pdf>

