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Research Article

Blended learning teacher competencies: exploring the integration of adaptive and technical skills among college teachers in Pakistan

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Abstract:

Blended learning is a teaching-learning strategy that combines ICT and other digital learning platforms with traditional classroom settings. Blended learning teacher competencies are required for 21st-century teaching. This study aimed to explore the integration of adaptive and technical skills among college teachers in Pakistan. The International Association for K-12 Online Learning (iNACOL) has listed these skills in the Blended Learning Teacher Competency Framework. Social constructivism and connectivism served as the theoretical framework for this study, demonstrating how learning facilitated by digital networks connects specialised information sets to empower students to take an active role in their education. A descriptive survey research design was employed to gather information from 206 college-level teachers who were chosen randomly. Domains of adaptive and technical skills from the blended teaching competencies framework were used as an adapted questionnaire with 26 statements on a 5-point Likert scale. The results indicate a low number of teachers are using adaptive and technical skills in a blended learning classroom. It is recommended that specialised training by experts in the field be conducted for college teachers to boost personalised teaching skills and technical know-how for adopting blended learning as the 21st-century teaching strategy.

Keywords: Blended learning, Teacher competency, Adaptive skills, Technical skills, Social constructivism, Learning platform, Digital learning platform, Traditional classroom.

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1. Introduction

The growing capacity, affordability, and accessibility of the Internet have opened up a wide range of opportunities for the creation, development, and application of creative pedagogical approaches in classrooms. One such instructional technique that incorporates ICTs into a conventional classroom environment is blended learning (Aurangzeb, 2018). Today, it is significant to combine online education with traditional classrooms to enhance student learning. Experts like Elbyaly and Elfeky (2022); Widjaja & Aslan (2022) all recognize the growing importance of blended learning. In today's digital age, where the internet, computers, and smartphones dominate, technical tools, information, and communication technology are essential in educating our students effectively. Boholano (2017) asserts that the emergence of digital technology has brought about education for the twenty-first century. Moreover, due to the COVID-19 spread, blended learning swiftly turned into the norm; it was our lifeline for teaching students when schools shut down. Old-school ways just could not keep up. The Pandemic locked the world down, pushing colleges and universities to ditch the classroom for digital learning (Wani, 2020).

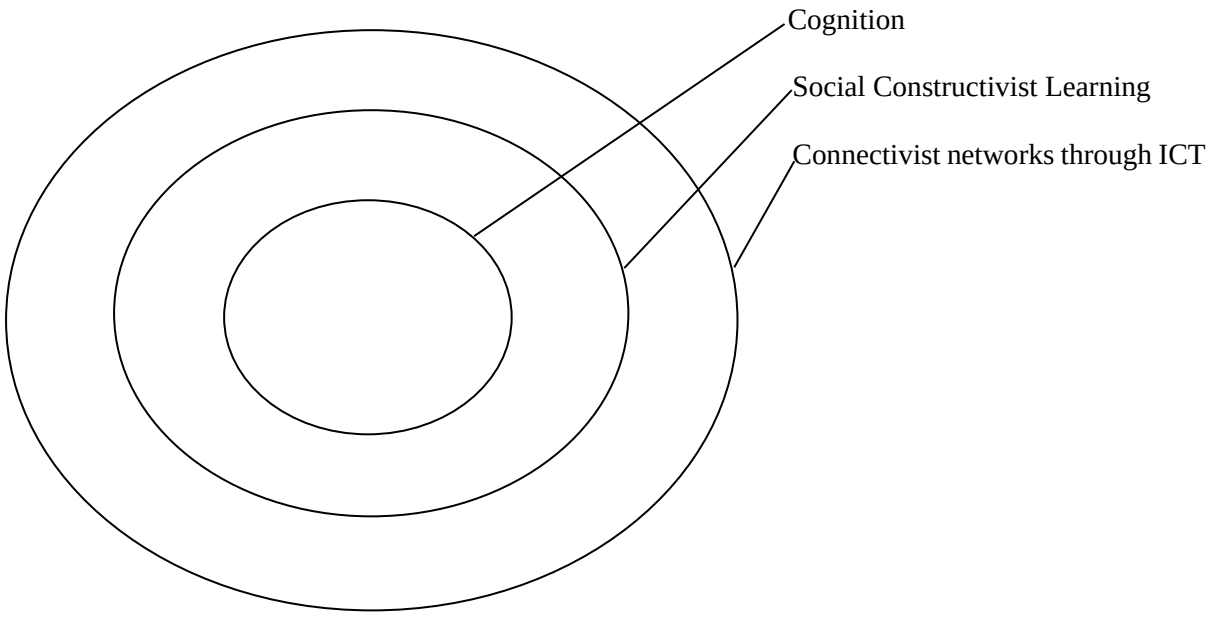
Integration of online platforms with traditional classroom settings requires some competencies. Blended learning teacher competencies refer to the abilities, knowledge, and expertise that the teachers need to effectively blend traditional and digital teaching methods, boosting the effectiveness of learning. Without having related competencies or skills teachers cannot develop the necessary skills among the students. Peklaj (2015) points out that teachers in the modern classroom must be highly competent, playing a vital role in equipping students with the skills they need to thrive in the 21st-century workforce and adapt to ever-evolving societal norms. The study by Choden and Sherab (2019) indicates that professional development in blended learning and other ICT-related skills is necessary for teacher educators. In the education sector technology is used in the twenty-first century. We cannot advance and develop without the usage of technology. Blended learning is the best option since it combines the benefits of various technologies with traditional instructor-led instruction (Heo et al., 2022). According to Aurangzeb (2018), social constructivist learning, which is supported by ICT and digital networks, forms the basis of cognition in BL classrooms. These tools help students become dynamic, self-directed persons by relating particular data.

Figure 1 helps illustrate this approach. It illustrates the classroom cognition model. It explains that learning develops and grows more when the students interact in the classroom. Moreover, learning is enhanced and grows even more when the classroom is connected through ICT. Furthermore, Powell et al. (2014) developed a comprehensive framework that outlines the competencies required by teachers to be competent in the blended learning. Four bigger domains i.e., the mindsets, the qualities, the adaptive skills, and the technical skills are identified by this framework. This framework sheds light on the knowledge, skills, and attitudes needed for the successful implementation of innovative teaching methods in blended learning environments. It helps educators to better understand their evolving roles and responsibilities in such settings.

This study aims to explore the integration of adaptive and technical skills among college teachers specifically guided by Powell, Rabbitt, and Kennedy's Blended Teaching Competencies from the iNACOL Blended Learning Teacher Competency Framework 2014. Blended learning positively affects students' results. Students are motivated to dive into their

studies and learn at a speed that suits them best in an adaptive and technical skills-based blended learning classroom.

Figure 1: Placement of Connectivism and Social Constructivism in Classroom Cognition Model



Source: Aurangzeb, 2018

1.1. Research objective

To explore the integration of technical and adaptive skills among college teachers in the context of blended learning teacher competencies.

1.2. Research Hypothesis

H_1. Technical and adaptive skills are well-integrated skills in the context of blended learning teacher competencies at the college level.

1.3. Delimitations

This research is delimited to the 10 government colleges of Rawalpindi City. Teachers of Islamiyat, Urdu, and Computer Science are not included in this study due to a high level of technical competency associated with the teaching of Computer Science. Moreover, the standards of the iNACOL framework are also not applicable to Islamiyat and Urdu teachers.

2. Literature review

To achieve better outcomes in teaching, teachers need to be skilled in blended teaching—a mix of traditional and online methods. Great teachers can easily switch up their teaching styles and prepare their students for this modern approach to education (Saeheng, 2017). Blended learning became a norm during COVID-19 when it became impossible to continue using only physical classrooms. According to Ando et al. (2022), higher education has been using blended learning as a way to maintain high-quality instruction throughout the pandemic.

A large number of educational organizations as well as experts have recognized important skills for K-12 blended teaching and have linked these skills to actual teaching methods. Blended teaching is always evolving, so the skills needed today might be different tomorrow. Bowles, M., & Kaviani, A. (2023) emphasize that understanding teacher competencies is not simple; it takes into account not just a teacher's knowledge, but also their values, actions, feelings, and attitudes. The focus here lies in exploring the literature on blended learning teacher competencies in the context of adaptive and technical skills.

2.1. Blended Learning Teacher Competencies Framework

Powell et al., (2014) created a thorough framework that describes the skills teachers need to be proficient in blended learning. The four main aspects of the framework are mindsets, qualities, adaptive skills, and technical skills. This guide gives teachers the skills and resources they need to implement blended learning programs successfully and get students interested in them. It is an effective instrument for incorporating blended learning into instructional strategies. This framework is also illustrated in Figure 2.

Figure 2: Blended Learning Teacher Competencies Framework

Powell et al. (2014)

2.2. Adaptive skills of teachers

Teachers need Adaptive skills to skilfully adjust to new ways of teaching, especially when combining online and in-class learning. Skills like reflection, continuous improvement and innovation, communication, teamwork, and problem-solving are included in adaptive skills. From the hands-on experience, we have to be ready to adjust our teaching styles to fix the blended learning environment successfully (Barnett & Jackson, 2019). Experts like Gil-Quintana and Osuna-Acedo (2020) back this up, pointing out how important it is to enhance teaching in the context of innovative educational environments.

2.3. Technical skills of teachers

The technology is used in blended learning to support instructions, promote collaborations, and

to gain more knowledge. According to Wei et al. (2022), the use of technology encourages student interaction and idea sharing, in contrast to traditional face-to-face classroom learning. Students are encouraged to collaborate in groups to gain information by participation in and interactions with their peers in blended learning. Technical skills for blended learning include Data Practices, Instructional Strategies, Management of Blended Learning Experiences, and Instructional tools that are acquired by using ICT and other digital platforms. These ICT skills are a big deal for keeping things running smoothly at school. According to Murawski and Bick (2017), teaching gets a boost in blended classrooms with these skills. Jabbarova (2020) explains that these tech abilities are vital for teachers and students when it comes to the nitty-gritty of learning. Teachers aren't just tech users; they are incorporating all sorts of digital tools into their lessons. For blended learning to be effective, teachers must have a good grasp of technology and be able to use it effectively. According to Antonio (2022), the technology plays a crucial role in creating a blended learning environment and when the teachers are competent in using various technologies, it has a positive impact on students' learning and achievement.

There is a research gap in exploring the integration of adaptive and technical skills among college teachers in Pakistan in the context of blended learning. Fewer studies examined the experiences of college teachers in the context of fundamental adaptive and technical skills required for successful blended learning. The study's main objective is to address this gap in the literature and promote additional research on BLTCs concerning adaptive and technical skills. The frequency of blended teaching competencies in college teachers' blended modalities and practices will also be ascertained by this exploration which will enable us to compare the level of adaptive and technical skills. After having insights into the level of adaptive and technical skills, training for blended teaching and learning can be arranged and teachers can be professionally developed according to twenty-first-century classroom environments.

3. Methodology

The descriptive survey research design was adopted for this study. The population for this study was 1215 College Teachers working in the public sector colleges of Rawalpindi city. Within this population, 450 were male and 765 were female teachers. Out of this population, 20% of samples comprised of 243 teachers were randomly selected for the study. A simple Random Sampling technique was chosen for its suitability in extracting a sample from a bigger population. The study only included teachers with more than two years of experience teaching first through fourth-year students, as newer teachers are often better at blended learning. The selection of the sample was based on the sample size table of Cohen and Manion (2007), ensuring a reliable 90% confidence in our findings. Data was collected through an adapted questionnaire with 26 statements on a 5-point Likert Scale to match the blended adaptive and technical skills outlined by iNACOL. A pilot study was done with 71 randomly selected teachers which helped to increase this scale's reliability. The reliability of the scale was 0.725 which is viewed as a high degree of reliability. Pilot testing confirmed the content face validity and reliability of subscales. To ensure validity, three experts validated the research tool. Data was analyzed on SPSS. Two statistical procedures, the Mean and the frequencies of responses were used to analyze data.

Table 1 presents the sample size of the study. A total of 243 college teachers were selected for this research study. Among this size 200 were female and 43 were male teachers. The response rate remained at 84.77% which means that only 206 college teachers participated in this study.

Table 1: Gender wise details of Sample (n=243)

Gender	Teachers
Female	200
Male	43
Total	243
Response	206 (84.77%)

Table 2 illustrates the highly reliable results of the questionnaire. The overall reliability of the scale was 0.725 which is considered as good for the research instrument. Whereas the reliability of the sub-scales of Adaptive and Technical Skills were 0.765 and 0.685 respectively.

Table 2: Reliability Results of Research Instrument (N=71)

Tool	Subscales	Reliability	No. of Items
Blended Learning Teacher Competencies (BLTCs)		0.725	26
	Adaptive Skills	0.765	07
	Technical Skills	0.685	19

4. Results and findings

Table 3 highlights the frequency of responses related to adaptive skills. These skills are important aspects of blended learning teacher competencies. Results related to this competency reflect that a significant 35.9% of college teachers frequently notice what does or doesn't work.

Table 3: Analysis of Percentages of Responses on BLTC Regarding Adaptive Skills (n=206)

S. No.	Items	Frequency				
		VR	R	N	F	VF
1	I observe what is and isn't working, (such as student-level information, innovation, applications, instructional styles, and so forth).	11.6%	19.5%	20%	35.9%	13%
2	To improve my teaching approaches, I actively and cooperatively seek out feedback from parents, students, and colleagues.	24.9%	23%	11.1%	30%	11%
3	While working with students, I apply information and consider my own experiences as learner, both offline and online.	22.7%	30.5%	21.7%	15.3%	9.8%
4	I actively participate in problem-solving. by consistently organizing, evaluating, and modifying my pedagogical approaches.	13.6%	29.7%	18.9%	23%	14.8%
5	I make ICT technology accessible to support learning.	26.3%	42%	22.4%	8.3%	1%
6	I link students to information sources other than their textbooks and the teacher in the classroom.	25%	25.4%	21%	15.5%	13.1%
7	To support student learning, I set up and maintain open channels of communication with students, teachers, and other stakeholders both face to face and online.	20.8%	38.3%	23.9%	17%	0%

Note. VR= Very Rarely, R= Rarely, N-Neutral, F=Frequently, VF=Very Frequently

Only 8.3% seem to creatively and efficiently integrate technology to enhance their teaching. It was found that the percentages are below the cut points. It is clear that most teachers are not applying these crucial skills during blended teaching, and it is evident that more efforts are needed to practice this skill set to excel in the blended educational environments.

Table 4 gives information about the mean score on the Adaptive Skills that remained between 3.84 and 2.11, indicating a minimum use of these skills by teachers following the BL teacher competency framework. With an overall average score of 2.80 for Adaptive Skills these findings suggest that a small number of college teachers in public colleges actively reflect on their teaching methods, and establish open channels of communication with the students, teachers, and other stakeholders both in person and online to boost in student learning.

Table 4: Analysis of Mean Score on BLTCs Related to Adaptive Skills (n=206)

Sr. No.	Items	Mean Score	Decision
1	I observe what is and isn't working (such as student-level information, innovation, applications, instructional styles, and so forth).	3.84	Moderately used Competency
2	To improve my teaching approaches, I actively and cooperatively seek out feedback from parents, students, and colleagues.	3.12	Neutral Competency level
3	While working with students, I apply information and look at my own experiences as learner, both offline and online.	3	Neutral Competency level
4	I actively participate in problem-solving by consistently organizing, evaluating, and modifying my pedagogical approaches.	3.12	Neutral Competency level
5	I make ICT technology accessible to support learning.	2.32	Rarely used competency
6	I link students to information sources other than their textbooks and the teacher in the classroom.	2.11	Rarely used competency
7	To support student learning, I set up and maintain open channels of communication with students, teachers, and other stakeholders, both face to face and online.	2.15	Rarely used competency
Cumulative Mean Score		2.80	Rarely used competency

Table 5 shows the analysis of Percentages of frequency of responses on BLTC regarding technical skills. After analyzing the responses of teachers for technical skills it is evident that 43.6% of teachers frequently create teaching methods for better online teamwork. While only 0.5% of teachers prefer to demonstrate technological fixing abilities during online teaching. After analyzing the highest and the lowest values, it is found that a small number of teachers prefer to incorporate and manage technical skills while blended teaching.

Table 5: Analysis of Percentages of Responses on BLTC Regarding Technical Skills (n=206)

Sr. No	Items	Frequency				
		VR	R	N	F	VF
1	I use data to pinpoint each learner's unique Skills, gaps**,** passions, and aspirations.	12.6%	26.5%	16%	31%	13.9%
2	I consistently monitor each student's learning to pinpoint areas needing more guidance towards set objectives.	10.2%	33%	18%	30.6%	8.2%

3	I tailor student's guidance by using consistent data from multiple platforms.	26.4%	30.6%	30%	10.7%	2.3%
4	I empower my students by simplifying data transfer and analysis for self-guided learning.	10.2%	34%	26.5%	20.6%	8.7%
5	I regularly evaluate informative techniques and tools to ensure their effectiveness.	18%	29.2%	33.4%	13.7%	5.7%
6	I provide students with learning materials and the choice to study independently or in groups.	19.9%	41.4%	21.9%	14%	2.8%
7	I provide students with tools to showcase their understanding and leadership in different forms.	40.3%	40.3%	17.7%	18.2%	4.3%
8	I make individualized learning targets for students, linking activities to their individual goals, to boost their level of understanding.	15.6%	29.2%	18.5%	28%	8.7%
9	I modify teaching methods and content to suit each learner's goals and passions.	14.6%	28.1%	18%	30%	9.3%
10	I create teaching methods for better online teamwork.	19.4%	19.4%	19.4%	43.6%	5.08%
11	I create genuine projects and assessments guided by key learning objectives to meet standards.	15.7%	20%	20%	29%	5.7
12	I understand and control both digital and in-person aspects of organizing and running a blended learning class.	6.5%	36.8%	19.9%	32%	4.8%
13	I offer learners multiple chances to connect both online and in-person.	20.6%	29.7%	20.9%	20.6%	8.2%
14	I represent and provide respectful behaviours in both in-person and online learning settings.	16.1%	23.8%	20.8%	28.6%	10.7%
15	I demonstrate my technological fixing abilities during the online instruction.	22.9%	31.1%	33%	12.5%	0.5%
16	I set up and maintain the blended learning environment using learning management tools.	19.7%	30.6%	17.5%	25.3%	6.9%
17	I demonstrate proficiency in assessing, selecting, and implementing effective teaching strategies, tools, and resources for students.	18%	47.6%	19.4%	13.5%	1.5%
18	I assist students in developing their academic skills by providing them with useful teaching tools, strategies, and resources.	18.7%	23.9%	23.9%	19.5%	1%
19	I provide ICT tools to make learning easier.	38.9%	38.9%	18%	3.2%	1%

Note. VR= Very Rarely, R= Rarely, N-Neutral, F=Frequently, VF=Very Frequently

Table 6 comprises the mean scores related to Technical Skills. Higher and lower values range between 3.14 and 1.81. Moreover, the cumulative mean score was 2.62. All these values are extremely low because they are below the cut points, which indicates that college teachers do not prefer to use technical skills while teaching in blended learning classrooms. The competency of technical skills is not often used by teachers at public sector colleges. It is very rarely used competency at the college level. Very few teachers are using the technical skills necessary for blended learning.

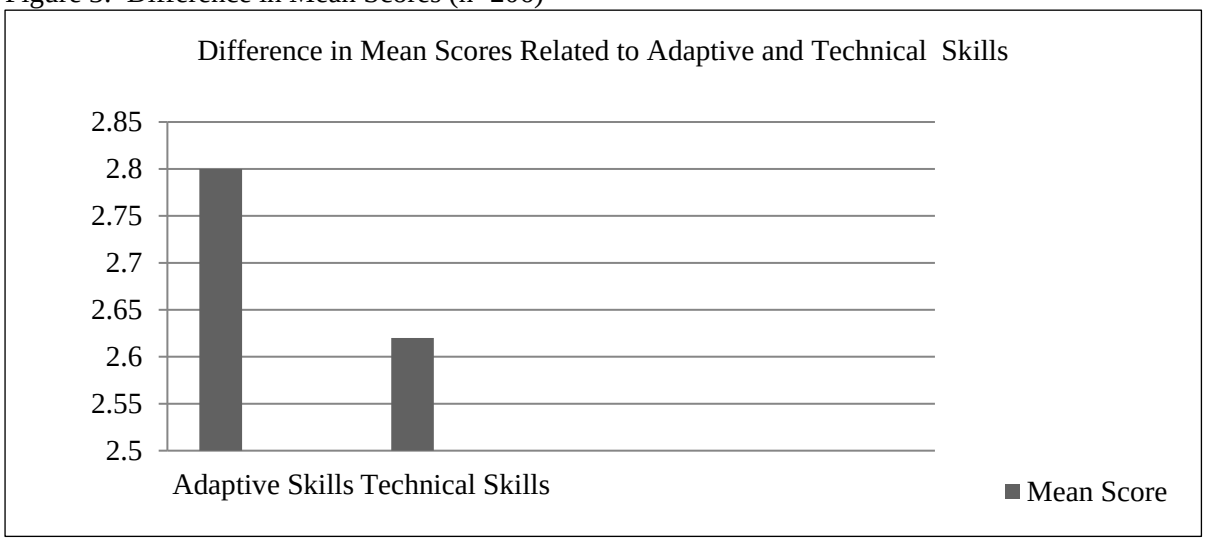
Table 6: Analysis of Mean Score related to Technical Skills (n=206)

Sr. No.	Items	Mean Score	Decision
1	I use data to pinpoint each learner's unique Skills, gaps, passions, and aspirations.	3.10	Neutral Competency level
2	I consistently monitor each student's learning to pinpoint areas needing more guidance towards set objectives.	3.02	Neutral Competency level
3	I tailor student's guidance by using consistent data from multiple platforms.	2.13	Rarely used Competency
4	I empower my students by simplifying data transfer and analysis for self-guided learning.	2.57	Rarely used Competency
5	I regularly evaluate informative techniques and tools to ensure their effectiveness.	3	Neutral Competency level
6	I provide students with learning materials and the choice to study independently or in groups.	2.45	Rarely used competency
7	I provide students with tools to showcase their understanding and leadership in different forms.	2.20	Rarely used competency
8	I make individualized learning targets for students, linking activities to their individual goals, to boost their level of understanding.	2.58	Rarely used Competency
9	I modify teaching methods and content to suit each learner's goals and passions.	2.58	Rarely used Competency
10	I create teaching methods for better online teamwork.	3.14	Neutral Competency level
11	I create genuine projects and assessments guided by key learning objectives to meet standards.	2.57	Rarely used Competency
12	I understand and control both digital and in-person aspects of organizing and running a blended learning class.	2.56	Rarely used Competency
13	I offer learners multiple chances to connect both online and in-person.	2.45	Rarely used Competency
14	I represent and provide respectful behaviours in both in-person and online learning settings.	3.01	Neutral Competency level
15	I demonstrate my technological fixing abilities during the online instruction.	2.22	Rarely used Competency
16	I set up and maintain the blended learning environment using learning management tools.	3.11	Neutral Competency level
17	I demonstrate proficiency in assessing selecting, and implementing effective teaching strategies, tools, and resources for students.	2.31	Rarely used Competency
18	I assist students in developing their academic skills by providing them with useful teaching tools, strategies, and resources.	3	Neutral Competency level
19	I provide ICT tools to make learning easier.	1.81	Very Rarely used competency
Cumulative Mean Score		2.62	Rarely used competency

Figure 3 is showing the difference in the mean scores related to adaptive and technical skills. Adaptive skills have the Higher mean score in this table as compared to technical skills. Overall, both values are extremely low because they are below the cut points Overall mean

score for adaptive skills is 2.80 while the mean score for technical skills is 2.62, which is extremely low. Research shows that technical skill competency is not often used by teachers at public sector colleges. It is very rarely used competency as a very small number of college teachers are using the technical skills required for blended learning.

Figure 3: Difference in Mean Scores (n=206)



5. Discussion

This section consists of a discussion related to the findings of data according to the objective of the study in the light of previous research.

5.1. Adaptive skills

The study showed a mean score of 2.80 for the adaptive skills subscale, indicating less engagement with these skills while blended teaching. Small numbers of teachers are reflective, continually improve, innovate, and communicate effectively in their blended teaching practices. Other research supports the importance of magnifying teaching in innovative educational settings. Researchers like Sahan (2020), Guida and Cinganotto (2021), Gil-Quintana and Osuna-Acedo (2020) and Fan et al (2022) have all emphasized this point. Adaptive skills in the context of educational institutions in Pakistan are lower as compared to the advanced countries. Aurangzeb (2018) also pointed out the same findings that blended learning in Pakistan differs from countries with advanced tech infrastructure because both students and teachers there have more growth opportunities. Adaptive skills for blended learning teacher competencies are of paramount importance for effective teaching and learning. This research aligns with Barron (2006) work, which highlights that being flexible is vital, especially as teaching methods and tools shift to digital platforms. Similar findings are highlighted by Smith (2021) who shows his reflective approach to teaching with a blended learning environment, improved his expertise and ability to guide students effectively with synchronous and asynchronous feedback tools.

5.2. Technical Skills

Technical Skills had an overall mean score of 2.62. That is also extremely low, which suggests

that respondents had a negative view of technical skills. Bayne et al., (2020) likewise came to the same conclusions. We believe that it is essential in a blended learning approach that the online portion of a course not be positioned as the preferred form of instruction. (Bayne et al., 2020). The results of this study also support those of Rasheed et al., (2020), who noted that the most significant institutional challenges were the adoption of learning management systems (LMSs) that are suited to students' learning preferences, the complexity of technology, the high cost of creating electronic content, the cost of online learning technologies, the possibility that students will become distracted by overly complex technology, and institutional barriers to BL adoption.

6. Conclusion

The findings of the research study suggest that college teachers in Pakistan display a low integration of Adaptive and Technical Skills while teaching in BL classrooms. It is true in the context of educational institutions in Pakistan, where teachers have fewer resources, limited time for planning and executions, and cost as well, as the planning and execution of activities related to adaptive and technical skills require more time and investments on technology and resources that is why there is little practice or utilization of these skills. Modern institution managers and administrators would be wise to reconsider the classroom setting given the information and communication technology in their access. Technology can be brought to the core of the modern classroom through blended learning, making it a productive space where students of all learning types can succeed. It is also the need and demand of the 21st-century classroom to have technology in the classroom so that maximum learning outcomes can be achieved by using the latest applications and software. The extent to which blended learning is used at the college level is primarily determined by how teachers shift from their traditional duties to those of online instructors. The recommendations of the study are:

It was found that a small number of teachers possessed and applied adaptive and technical skills in the classroom. It is recommended that the administration of the institutions may guarantee that resources and facilities linked to adaptive and technical skills are available, such as ICT infrastructure for improved BL environments in the classroom.

In the context of adaptive and technical skills, it is recommended that the college administration set up specialized curriculum-focused training programs and workshops for college teachers led by curriculum experts to improve their adaptive skills in individualized instructions as well as their ability to integrate modern technologies into the classroom and increase digital literacy, both of which increase student motivation.

Through motivational speakers on blended learning, in-house faculty debates, and awareness workshops, teachers must spread the culture of blended learning teacher competencies in terms of adaptive and technical skills.

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References

Ando, K., Basilisco, J., Deniega, A., Gador, K., Geraldo, P. J., Gipulao, W. E. M., ... & Minyamin, A. (2022). Learning without learning in the New Normal: College Education Students lived experiences in blended learning modality. *Psychology and Education: A Multidisciplinary Journal*, *2*(6), 455-464. http://doi.org/10.5281/zenodo.6791799

Antonio, R. P. (2022). Effectiveness of blended instructional approach in improving students' scientific learning outcomes: a Meta-Analysis. *Journal of Higher Education Theory and Practice*, *22*(5). https://articlearchives.co/index.php/JHETP/article/view/3407/3379

Aurangzeb, W. (2018). Blended learning classroom environment at university level: a panoramic view of students' perceptions. *NUML Journal of Critical Inquiry, 16*(1), 96-113. https://jci.numl.edu.pk/index.php/jci/issue/view/18/124

Barnett, R., & Jackson, N. (Eds.). (2019). *Ecologies for learning and practice: emerging ideas, sightings, and possibilities*. Routledge. https://cir.nii.ac.jp/crid/1130290525914822168

Barron, B. (2006). Interest and self-sustained learning as catalysts of development: a learning ecology perspective. *Human Development*, *49*(4), 193-224. https://doi.org/10.1159/000094368

Bayne, S., Evans, P., Ewins, R., Knox, J., & Lamb, J. (2020). *The manifesto for teaching online*. MIT Press.

Boholano, H. B. (2017). Smart social networking: 21st century teaching and learning skills. *Research in Pedagogy*, 7(1), 21-29. http://doi.org/10.17810/2015.45

Bowles, M., & Kaviani, A. (2023). Perceptions of teacher competencies in a new higher education blended learning program: an exploratory study. *Studies in Technology Enhanced Learning*, *3*(2). https://doi.org/10.21428/8c225f6e.768acd6b.

Choden, U., & Sherab, K. (2019). Personal and professional needs related to technological, pedagogical, and subject content knowledge (TPACK) of Royal University of Bhutan faculty. In *Proceedings of the 1st International Conference on Education in the Digital Ecosystem (ICEdDE 2019)*.

Cohen, L., Manion, L., & Morrison, K. (2007). Research methods in education, 6. *Baskı, Oxon: Routledge*.

Cronhjort, M., Filipsson, L., & Weurlander, M. (2018). Improved engagement and learning in flipped-classroom calculus. *Teaching Mathematics and its Applications: An International Journal of the IMA*, *37*(3), 113-121. https://doi.org/10.4324/9780203224342

Elbyaly, M. Y. H., & Elfeky, A. I. M. (2022). The role of metacognition in promoting deep learning in MOOCs during COVID-19 pandemic. *PeerJ Computer Science*, *8*, e945. https://doi.org/10.7717/peerj-cs.945

Fan, Y., Jovanovic, J., Saint, J., Jiang, Y., Wang, Q., & Gaševic, D. (2022). Revealing the regulation of learning strategies of MOOC retakers: a learning analytic study. *Computers and Education*, *178*, 104404. https://doi.org/10.1016/j.compedu.2021.104404

Gil-Quintana, J., & Osuna-Acedo, S. (2020). Citizenship training through sMOOCs: a participative and intercreative learning. *Sustainability*, *12*(20), 8301. https://doi.org/10.3390/su12208301

Guida, M., & Cinganotto, L. (2021). Visible teacher thinking and group learning. In *Ludic, Co-design and Tools Supporting Smart Learning Ecosystems and Smart Education: Proceedings of the 5th International Conference on Smart Learning Ecosystems and Regional Development* (pp. 117-129). Springer. https://link.springer.com/chapter/10.1007/978-981-15-7383-5_10

Heo, H., Bonk, C. J., & Doo, M. Y. (2022). Influences of depression, self-efficacy, and resource management on learning engagement in blended learning during COVID-19. *The Internet and higher education*, *54*, 100856. https://doi.org/10.1016/j.iheduc.2022.100856

Jabbarova, A. (2020). Formation of professional competencies in the course of preparing and conducting business games in English classes. *Journal of Foreign Languages and Linguistics*, *1*(1), 38-42. https://fll.jdpu.uz/index.php/fll/article/view/12

Murawski, M., & Bick, M. (2017). Digital competencies of the workforce – a research topic? *Business Process Management Journal*, *23*(3), 721-734. https://www.emerald.com/insight/content/doi/10.1108/BPMJ-06-2016-0126/full/html

Peklaj, C. (2015). Teacher competencies through the prism of educational research. *Center for Educational Policy Studies Journal*, *5*(3), 183-204. https://doi.org/10.26529/cepsj.134

Powell, A., Rabbitt, B., & Kennedy, K. (2014). iNACOL blended learning teacher competency framework. *International Association for K-12 Online Learning*. https://www.aurora-institute.org/wp-content/uploads/iNACOL-Blended-Learning Teacher-Competency-Framework.pdf

Rasheed, R. A., Kamsin, A., & Abdullah, N. A. (2020). Challenges in the online component of blended learning: A systematic review. *Computers & Education*, *144*, 103701. https://doi.org/10.1016/j.compedu.2019.103701

Saeheng, P. (2017). A study of e-learning, blended learning, and traditional teaching methods to motivate autonomous learning in English reading comprehension of Thais learners. *Indonesian Journal of English Language Teaching and Applied Linguistics*, *2*(1), 1-20. https://doi.org/10.21093/IJELTAL.V2I1.36

Şahan, H. H. (2020). The relationship of prospective teachers' educational philosophy and life-long learning tendencies to their teaching-learning process competencies. https://doi.org/10.14527/pegegog.2020.040

Smith, M. J. (2021). A blended learning case study: geo exploration, adaptive learning, and visual knowledge acquisition. In *Blended Learning* (pp. 178-189). Routledge. https://www.taylorfrancis.com/chapters/edit/10.4324/9781003037736-15/blended-learning-case-study-mark-jack-smith

Wani. A. (2020). Impact of the lockdown due to Covid-19 on education: a review. *International Journal Multidisciplinary Research Development*, 7(12), 41–44. https://www.allsubjectjournal.com/assets/archives/2020/vol7issue12/7-12-16-117.pdf

Wei, Y., Shi, Y., MacLeod, J., & Yang, H. H. (2022). Exploring the factors that influence college students' academic self-efficacy in blended learning: a study from the personal, interpersonal, and environmental perspectives. *SAGE Open*, *12*(2), 21582440221104815. https://doi.org/10.1177/21582440221104815

Widjaja, G., & Aslan, A. (2022). Blended learning method in the view of learning and teaching strategy in geography study programs in higher education. *Nazhruna: Journal Pendidikan Islam*, *5*(1), 22-36. https://doi.org/10.31538/nzh.v5i1.1852