# BLENDED LEARNING TEACHER COMPETENCY AT COLLEGE LEVEL: A PHENOMENOLOGICAL STUDY

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**NATIONAL UNIVERSITY OF MODERN LANGUAGES**

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# THESIS AND DEFENCE APPROVAL FORM

**The undersigned certify that they have read the following thesis, examined the defense, are satisfied with the overall exam performance and recommend the thesis to the Department of Education, Faculty of Social Sciences for acceptance.**

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Candidate of **Master of Philosophy** at the National University of Modern Languages do hereby declare that the thesis **"Blended Learning Teacher Competency at College Level: A Phenomenological Study"** Submitted by me in partial fulfillment of MPhil degree, is my original work, and has not been submitted or published earlier. I also solemnly declare that it shall not, In future, be submitted by me for obtaining any other degree from this or any other university or institution.

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# ABSTRACT

Blended learning teacher competencies are all those demonstrable characteristics, skills, knowledge and attitudes that are required for the effective blended teaching and learning. Blended Learning Teacher Competencies are crucial because a competent teacher with respect to Blended Learning Teaching can effectively combine online and face to face learning. The present study aimed to investigate the Blended Teaching Competencies framework given by the international association for K-12 online learning (iNACOL) at college level. This Framework points out twelve special competencies, that were arranged into four domains—mindsets, qualities, adaptive skills, and technical skills. A Phenomenological mixed method research design was employed for the study. 243 college teachers were selected through simple random sampling for quantitative study; on the other hand 8 vice principals were selected by purposive sampling technique for the qualitative study. Quantitative data was analyzed by using the Statistical Package for the Social Sciences (SPSS) software. Descriptive statistics were used for the analysis of questionnaire. While thematic analysis was done for qualitative data. Word clouds were used to generate themes. The findings highlighted that the college teachers were well aware about Blended Learning Teacher Competencies and many of them were teaching while using mindsets, qualities and adaptive skills but they were unable to shift on blended learning fully especially the technical skills because of the excessive workload and the non-availability of resources for Blended Teaching. Therefore it is recommended to make Blended Learning related facilities and resources available in the classroom for effective Blended Learning environment and organize specialized training programs for

college instructors to familiarize themselves with blended learning. The implications suggest educational institutions' top decision-makers to reevaluate existing teaching practices and consider implementing reforms to improve the learning environment for Blended Learning.

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| | |
|---|---|
| BL | Blended Learning |
| BT | Blended Teaching |
| BTC | Blended Teaching Competencies |
| BLTCs | Blended Learning Teacher Competency |
| BTL | Blended Teaching Learning |
| BTR | Blended Teaching Readiness |
| K-12 | kindergarten through grade 12 |
| iNACOL | International Association for K-12 Online Learning |
| ICT | Information and Communication Technology |
| COVID-19 | Coronavirus disease of 2019 |
| TNTP | The New Teacher Project |
| LMS | Learning Management System |
| TPACK | Technological Pedagogical Content Knowledge |
| TLA | The Learning Accelerator |
| SPSS | Statistical Packages for Social Sciences |

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**Javarea Meer**

# DEDICATION

I dedicated this humble attempt to my respected parents and siblings who have always been a source of great support, encouragement and well wishes for me and always wished to see me at this successful Stage of life.

# CHAPTER 1

## INTRODUCTION

Blended Learning also called as mix mode learning, hybrid learning and technology-mediated instruction is an approach to education that combines the online learning with conventional classroom methods. According to Elfeky and Elbyaly (2019) and Megahed & Hassan (2022), one of the modern approaches based on the use of educational technology in designing new educational situations, blended learning is an integrated system that combines the traditional method of face-to-face learning with e learning via the Internet to guide and assist the learner through each stage of learning. According to a more recent definition, BL is a model that combines different delivery methods that are intended to work in concert with one another to encourage learning and behavior that is applied to what has been learned (Bruggeman et al, 2021). The use of blended learning is considered important now a days side by side the traditional learning to educate the students in a better way. Blended learning creates a truly integrated classroom where the needs of a wide range of students can be met by reversing the relationship between traditional and online learning.

With the advent of COVID-19 pandemic the use of blended learning has become common, in fact it was the only mean of educating the children during this pandemic. Therefore, the traditional methods are generally incapable to adapt to these changes. The COVID-19 pandemic caused a global lockdown that forced all Higher education institutions to switch to an online mode in place of an in-person learning environment. (Wani, 2020). All things considered, there is evidence that the Covid-19 effect may increase students' preferences for and motivation for learning through BL

delivery. Moreover, Blended Teaching and learning are getting important now a days because of the technological and scientific changes which the world is currently experiencing. According to M. Y. H. Elbyaly and Elfeky (2022); Widjaja & Aslan (2022), Blended learning has gained attention as a result of the integration of new technology into the teaching and learning process. The current era is the era of internet, computers, media and mobiles. The digital resources and ICT are considered vital or important to educate the students. According to Boholano (2017), the development of digital technology has ushered in a 21st century education. Themes of globalization and internationalization are prevalent in the 21st century education. The emergence of e-learning, which involves teaching remotely and using digital platforms, has significantly altered teaching and learning. Nowadays, homes are used as learning spaces instead of the traditional four-wall classroom. Communication and teaching have moved online. Teachers must be professionally trained with respect to BL so that students can be benefited. According to Choden and Sherab's (2019) study, teacher educators themselves need professional development in blended learning and other ICT-related skills. Technology is being used in the 21st century classrooms. Without the use of technology we cannot make progress and development. It is crucial to remember that BL refers to the appropriate and efficient use of technology to improve teaching and learning processes in addition to being a framework for course instructional design. 21st century students must be critical thinker, collaborative, creative and possess the better communication skills. Blended learning is the best way to inculcate all 4cs of 21st century in the students, as BL uses technology and technology improves the teaching, learning and the students'

outcomes. The ideal program is created using blended learning, which combines the advantages of traditional instructor-led training with those provided by a number of Technologies (Heo , Bonk, and Doo, 2022).

Blended Learning Competencies are all abilities, skills, and knowledge possessed by the faculty member to utilize blended learning in the educational process which significantly enhances the university's learning and teaching process (AlSayed, 2019). As highlighted by Peklaj (2015), teachers must exhibit the highest levels of competence in the classroom because they have the ability to help students develop the necessary skills for success in the 21st century and adapt to a changing society. Teacher's competencies with respect to blended learning are collaboration, communication, reflection, innovation, data practices and the skills of using instructional tools and strategies in the best possible way to facilitate learning. In today's era, the use of blended learning with competency is essential, especially at the college level. This is because college is a critical stage where students transition into the job market, and they need to be actively taught using blended learning with competency. Therefore, this research study aims to investigate the competencies required for blended learning teachers, so that college students can enhance their learning and excel in their lives.

The present research study investigated the competencies of teachers required for blended learning. For this purpose the framework of Blended Teaching Competencies by Powell, A., Rabbitt, B., & Kennedy, K. (2014), iNACOL Blended Learning Teacher Competency Framework, International Association for K-12 Online Learning at college level. The assumption is that educators and their developers actually

want to utilize related abilities inside a competency based learning approach in which students are actively involved in the construct their own knowledge. Students are encouraged to actively participate in their learning and to move at their own pace in BL classroom. This active construction of knowledge will have the positive effect on the learning of students.

## 1.1 Rationale of the Study

This study is conducted to investigate the Blended Learning Teacher Competency at College Level. The world is getting advance especially in technology. There is a need to use the technology in the classrooms for better understanding along with the traditional methods of teaching. There must be some teacher's competencies while teaching in the blended classrooms, so that effective learning can take place. There is limited research on this topic, especially in Pakistan there is no research on this topic, so I am carrying out my research on this topic. According to Chen, Y. (2022), Limited research has been conducted on the competency of teachers in blended instruction and their willingness to participate in blended courses. (Chen, Y. 2022).

Moreover Hrastinski (2019) also pointed out the less number of researches on BL competencies. According to Hrastinski (2019), the term "BL" has only recently been used in the literature. There have been relatively few studies done to date on BT competencies, and even less evidence exists to link BT to a set of competencies that have been supported by research. Furthermore, a gap is identified during literature review, as stated by Barbour (2020) Current studies on K–12 BT competencies (like, the knowledge, skills, and abilities needed to strategically

combine in-person and online instruction) are fairly limited because K–12 online learning practices have advanced more quickly than related research. This research will add much in the existing literature that will be helpful for the future researchers and the educators as well.

My research study would investigate the Teacher Competencies of blended learning in Pakistan and will also identify the most effective BT competencies. BT is considered important for the learning of students as it uses the ICT and other digital platforms of learning. The utilization of digitally determined educational strategies is an inventive practice since it can assist with making strong learning in the classroom (Tucker et al., 2017). It is seen that most of the researches are on the blended learning teacher competencies at university level. The use of BT with competency is much needed in the present era and especially at college level it is much more important because college level is a crucial level after which students serve in the market and on this level they must be taught actively by using BT with competency. Moreover, colleges serve as feeder for the universities, Due to the change in teaching learning ecology in the 21st century as well as the recently experienced COVID-19 pandemic lockdown we need to focus on blended learning and for that I want to investigate the blended learning teacher competencies, so that our students can improve learning and excel in lives as the blended learning has becoming a much needed approach now a day.

## 1.2 Statement of the Problem

This study investigates the Blended Learning Teacher Competency at College Level. It is evident from the existing literature that the exploration and investigation of Blended Learning Teacher Competency at College Level is very limited. This

study focuses on the Teacher's knowledge, qualities, adaptive and technical skills in the context of blended learning at college level. College level is an extremely important level because at this level college teachers prepare the professionals which later take admission in the universities or serve in the market. As the blended learning is an innovative pedagogy. If the college teachers would teach the students by using blended learning teacher competencies so it would enhance the technical and technological skills of the students. And they will be the self-directed learners.

## 1.3 Research Objectives

1. To explore the Blended Learning Teacher Competency with reference to Mindsets at college level.
2. To examine the Blended Learning Teacher Competency with reference to Qualities at college level.
3. To investigate the Blended Learning Teacher Competency with reference to Adaptive Skills at college level.
4. To assess the Blended Learning Teacher Competency with reference to Technical Skills at college level.
5. To identify the most effective blended teacher competencies being adopted by the college teachers.

## 1.4 Research Questions

1. What are the new visions of teachers regarding teaching and learning in the context of Blended Learning?
2. What is the importance of qualities like grit, transparency and collaboration for teaching? Do you practice these in your college?

3. How do the college teachers use adaptive and technical skills like reflection, innovation, communication, data practices and instructional strategies in your college?
4. How are the specific competencies of Blended Learning Teacher Competency framework significant for blended learning classroom environment at college level?
5. What effect does Blended Learning have in bringing improvement?

## 1.5 Research Hypotheses

The following alternative hypotheses were included in this study.

$H_1$. Mindsets are significant contributor towards BL Teacher Competency Framework for college level.

$H_2$. Qualities are significant contributors towards BL Teacher Competency Framework for college level.

$H_3$. Adaptive Skills are significant contributors towards BL Teacher Competency Framework for college level.

$H_4$. Technical Skills are significant contributors towards BL Teacher Competency Framework for college level.

$H_5$. There is a close relationship between the effective teaching and the blended learning Teacher Competencies.

$H_5$(a). There are a number of effective blended teaching competencies used for blended teaching.

## 1.6 Significance of the Study

Current research will be helpful for the teachers as well as for the students of college level because it would analyze the blended learning teacher competencies at college level. This research study investigated the level and effectiveness of blended teaching competencies, which would help the teachers to know about the level, effectiveness and need to develop blended learning teacher competency. Teachers will come to know about the most effective strategies or methods of teaching that aid to develop critical thinking skills as well.

As a result there will be improvement in the blended learning teacher competency and if the teachers would improve themselves according to that competency the students will be benefited from that. Because improved strategies in blended teaching classrooms would improve the level of learning of the students. Giving a classroom advanced tech apparatuses will permit the students to be focused on the activity during the learning educational tech devices (Horn & Staker, 2015).

Moreover, the present study will also be helpful for curriculum planners and textbook developers, as after the analysis of blended learning teacher competency there will be a clear picture of the content in curriculum that is taught by using different teaching competencies. If it is observed that the curriculum lacks such type of content which lacks the use of blended teaching competencies, so it can be revised or amended for better blended learning.

## 1.7 Theoretical Base of Study

This research study is grounded on the Theory of Constructivism. The foundation of constructivism theory is the notion that individuals create their own knowledge based

on their own life experiences. According to Liliana (2018), and Bayyat et al (2021), BL is a widely adopted instructional strategy that offers both synchronous and asynchronous modes of delivery so that students can create their own understandings and interact with others in these contexts. Moreover Constructivism works well because it prepares students to solve problems in complex environments. Empirical research has shown that BL enhances learners' active learning strategies, multi-technology learning processes, and learner-centered learning experiences. (Feng et al., 2018; Han and Ellis, 2021; Liu, 2021).

For designing and implementing a Constructivism-Based Blended Learning Course, blended learning course should be carefully planned and executed to allow students to seamlessly integrate new knowledge into their prior learning. The role of the teacher should be to assist students in learning new information and applying it to new skills. The use of a variety of interactive and effective ICT tools in the implementation and execution of learning activities also encourages and increases student collaboration, interaction, communication, and knowledge construction and sharing, which enhances learning outcomes.

For planning and implementing a well-designed Constructivism-Based Blended Learning Course, teachers' competencies with respect to BLTCs are of paramount importance. Well designed and well integrated instructional strategies positively affect the students learning outcomes.

## 1.8 Conceptual Framework of the Study

Conceptual Framework of the study is based on the iNACOL Blended Learning Teacher Competency Framework (Powell, Rabbitt, and Kennedy, 2014). That is illustrated with the help of following figure.

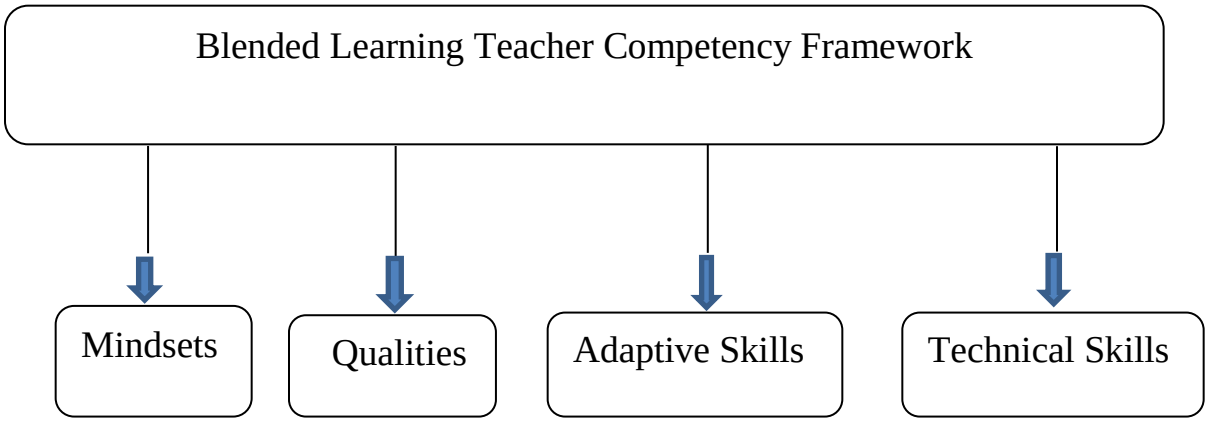



Fig. 1. Conceptual Framework of the study

The above mentioned framework illustrates that by changing the vision or the mindsets a special kind of learning starts that is engaging, effective, and active. The iNACOL framework for online and blended learning recognizes 12 key capabilities or standards that are consolidated into four bigger domains. This framework stresses on the mindsets, qualities, and abilities (skills) that help experts' innovative and endless improvement as well as their capacity to flourish in the midst of progress. This framework is adapted from the TPACK model (Technological Pedagogical Content Knowledge), a framework for understanding quality internet based mixed teaching and learning, which speaks about all parts of a student centered, practical description of the vital components in a way to deal with their basic roles in the blended learning classrooms.

This framework helps the educators in understanding their advancing roles in mixed or hybrid learning classrooms by offering understandings into the information, abilities and attitudes required for the fruitful implementation of new educational techniques. Furthermore, in the iNACOL framework for mixed teaching capabilities it is

contended that there are necessities for new ideas for educating and learning, as well as direction towards changes and improvement.

### 1.8.1 Competencies of the Framework

12 specific competencies are identified by this Framework, that are arranged into four bigger domains. That is mindsets, qualities, adaptive skills and technical skills. The above mentioned domains are perceived not simply in satisfied (the kind of capacity and how is it that it could be imparted) yet moreover by how they are created in the students. A short depiction of every domain is given underneath.

• **Mindsets:**

Mindset abilities are the guiding principles or fundamental convictions which direct a person's thinking, ways of behaving and activities that line up with objectives of educational change and mission. Engaging, effective and meaningful learning starts with the specific mindsets and the new vision of teaching and learning. In mixed learning, experts need to understand, adopt, and focus on mindsets that assist them with moving towards new type of teaching and learning. With respect to BL it is crucial for teachers to shift towards innovation and improvement by changing their traditional mindsets towards innovation and improvement.

• **Qualities:**

These competencies include particular individual attributes and examples of conduct which assist the academic staff makes the change to better approaches for teaching and learning. These characteristics for example grit, collaboration and transparency should be instructed, supported, and created over the long run. These qualities of teaching and learning would assist in effective learning with respect to BL.

• **Adaptive skills:**

All generalizable skills or abilities that are applied across the roles and branches of knowledge are adaptive skills. These skills include the teamwork, reflection, communication, innovation and critical thinking skills. These competencies are needed for the successful implementations of new instructional methods are essential for the blended learning. They are developed through displaying, training, and reflective practice.

• **Technical skills:**

These abilities are the explicit "know how" and proficiencies of instructional strategies, data practices, management of blended learning experiences and instructional tools are technical skills here, which are needed in blended learning classrooms. Educators use these skills to carry out for performance and implementation of everyday work. They are developed and learned through teaching, training, and exercise.

All above mentioned domains of conceptual framework of BTC are essential for blended teaching and learning environments. These domains are further divided into 12 key competencies or skills which are also tabulated in the theoretical framework.

## Domain No 1: Mindsets:

Teachers should have the following Blended Teaching Competencies:

**Competency No 1: New Perception for Education**

| | |
|---|---|
| **Standard A:** | Move from teacher centered approaches to student centered approaches to fulfill the students' personal needs and raising commitment and inspiration. |
| **Standard B:** | Value teamwork with different stakeholders to improve student |

| | |
|---|---|
| | learning. |
| **Standard C:** | Produce flexible and personalized environments for learning that rely on the actual statistics, observation, collaboration and response from the students. |
| **Standard D:** | Model an advancement direction towards learning for self and other individuals. |
| **Standard E:** | Have an inventive spirit, hold innovativeness, creative mind, and inspiration. |

**Competency No 2: Direction towards Change & Improvement**

| | |
|---|---|
| **Standard A:** | Accept change and imitate it for other people. |
| **Standard B:** | Actively start changing in light of students' requirements. |
| **Standard C:** | Accept uncertainty and ambiguousness as a feature of further developing, instructing & learning procedures. |
| **Standard D:** | Model and urge others to be free and independent students. |
| **Standard E:** | Show that you are upholding the teaching profession's effectiveness, transformation, and vitality regarding their school and local area as well. |

# Domain No 2: Qualities:

Teachers should have the following Blended Teaching Competencies:

**Competency No1: Grit**

| | |
|---|---|
| **Standard A:** | Take part in intended practice and persist toward determined, long term instructive and proficient objectives. |
| **Standard B:** | Keep up with and demonstrate endurance, and positive thinking to sort out issues. |

**Competency No 2: Transparency**

| | |
|---|---|
| **Standard A:** | Openly and frequently discuss achievements, defeats, and difficulties. |
| **Standard B:** | View impartially in outcomes (both positive and negative), and help other people to do likewise. |

**Competency No 3: Collaboration**

| | |
|---|---|
| **Standard A:** | Teamwork and individual initiative should be balanced for organizational success. |
| **Standard B:** | Proactively look to learn from and with different specialists in the field. |

# Domain No 3: Adaptive Skills

Teachers should have the following BT Competencies during BL Classroom:

**Competency No 1: Reflection**

| | |
|---|---|
| **Standard A:** | Constantly observe what is or alternately isn't working (e.g student-level information, innovation applications, teaching approaches, manager criticism, and so forth) and distinguish a strategy. |
| **Standard B:** | Cooperatively, straightforwardly, and carefully search out criticism from parents, students, & co-workers to further develop and improve pedagogical strategies. |
| **Standard C:** | Apply knowledge and take into consideration their own experiences as students, both online and offline, in their work with students. |

**Competency No 2: Continuous innovation and advancement**

| | |
|---|---|
| **Standard A:** | Take part in problem solving through continuous planning, testing, evaluation, and transformation of teaching strategies. |
| **Standard B:** | Provide ICT technologies to facilitate learning. |

**Competency No 3: Communication**

| | |
|---|---|
| **Standard A:** | Connect students to information sources besides the teacher and textbook in the classroom. |

| | |
|---|---|
| **Standard B:** | Lay out and keep up with open correspondence channels, online and face to face, with the students, teachers, and different stakeholders to help student learning. |

## Domain No 4: Technical Skills

Teachers must have the following BTCs for BL Classroom Environment:

**Competency No 1: Data Practices**

| | |
|---|---|
| **Standard A:** | Utilize subjective and objective information to figure out individual abilities, gaps**,** qualities, shortcomings, interests, and goals of every understudy, and utilize that data to customize learning experiences. |
| **Standard B:** | Consistently assess student progress against plainly characterized principles, objectives, and results to recognize explicit themes in which every student needs extra help to master an idea or skill. |
| **Standard C:** | Use data frameworks and other information from various sources to illuminate and alter student groupings and individual guidance. |
| **Standard D:** | Make ways of moving ownership and analysis of information to students to advance independent learning. |
| **Standard E:** | Consistently assess advancements, tools, and educational techniques to guarantee their effectiveness. |

**Competency No 2: Instructional Strategies**

| | |
|---|---|
| **Standard A:** | Give students the tools they need to learn the material and give them the freedom to work independently or perhaps in cooperative groups. |
| **Standard B:** | Give resources to students to create evidence of their insight in various arrangements to exhibit mastery. |
| **Standard C:** | Make customized learning pathways with students, where learning objectives and goals are connected to explicit and various growth opportunities, matched to the individual student's learning execution level and inclinations. |
| **Standard D:** | Tailor content and educational techniques to individual learning objectives, needs, and interests. |
| **Standard E:** | Make educational methodologies and growth opportunities that advance content based critical thinking and online collaboration. |
| **Standard F:** | Make assessments, projects, and tasks that satisfy standards-based guidelines and measure student achievement of learning objectives in order to assess learning progress. Create and deliver these assessments, projects, and tasks. |

**Competency No 3: Management of Blended Learning Experience**

| | |
|---|---|
| **Standard A:** | The ability to comprehend and manage the online and face-to-face components of lesson planning and association in a blended course. |
| **Standard B:** | Give balanced chances to students to take part in online and face to face methods. |
| **Standard C:** | Create, practice, demonstrate, and epitomize deferential ways of behaving in face-to-face and web based learning conditions. |
| **Standard D:** | Exhibit specialized investigating abilities during the online components of learning (like, change passwords, download modules, and so forth). |

**Competency No 4: Instructional Tools**

| | |
|---|---|
| **Standard A**: | Use LMS as well as additional internet based cooperative instruments to arrange and deal with the BL classroom environment. |
| **Standard B:** | Exhibit expertise in evaluation, choice, and utilization of compelling educational materials, apparatuses, techniques, and assets for students, and connect students in this procedure to help their accomplishment and advancement of academic abilities. |
| **Standard C:** | Provide accessibility software to improve learning. |

## 1.9 Operational Definitions

### 1.9.1 Blended Learning

Blended Learning is a method of learning that combines the online learning with conventional classroom methods.

### 1.9.2 Blended Learning Teacher competency

Blended Learning Teacher competency includes all those capabilities which a teacher must have for the effective teaching and learning in a blended classroom.

### 1.9.3 Mindsets

Mindsets competencies are particular perspective which guide one's thinking, practices, activities, and that line up with the educational goals.

### 1.9.4 Qualities

Quality competencies are all those individual attributes of conduct that assist a teacher to make change for better approaches of teaching and learning.

### 1.9.5 Adaptive Skills

All those transferable skills or abilities that can be utilized in various situations and subjects during blended learning which help one meet new challenges.

### 1.9.6 Technical Skills

Technical skills are the specialized knowledge and expertise needed to carry out specific tasks, use of specific tools, and programs.

## 1.10 Delimitations of the Study

Current research study is delimited to the 10 public sector (Punjab Higher Education) colleges located in Rawalpindi only. Moreover the data is not taken from the teachers of Computer Science Islamiyat, and Urdu. As the competency level of the teachers of computer science is high and this framework is not applicable on the teachers of Urdu and Islamiyat.

# CHAPTER 2

## REVIEW OF THE RELATED LITERATURE

This research study was created to investigate the blended learning teacher competency framework at the college level. The review of related literature serves as the foundation for this chapter. The researcher divided Chapter 2 into three sections.

Section 1. General Introduction of blended learning

Section 2. Theories and models for the chosen research variables

Section 3. Review of the Researches in the area of study.

## 2.1 Section 1: General Introduction of Research Area

This section provides an introduction to the terms that will aid the reader in understanding the concept of blended learning. The section is divided into different terms that will help to introduce the topic of this research study.

Blended learning is a concept that incorporates both face-to-face instruction and instruction supported by technology into the framework of the learning process. Blended Learning is defined as an intentional use of strategies, technologies, and pedagogical activities that incorporate these two modalities (face-to-face and online) for the benefit of students (Hrastinski, 2019). According to a more recent definition, BL is a model that combines different delivery methods that are intended to work in concert with one another to encourage learning and behavior that is applied to what has been learned. (Bruggeman et al, 2021).

Blended learning became prominent in 2019 when the educational institutions were closed due to COVID-19 lockdown. The concept of blended learning has become a dominant construct in the field of educational research, particularly in light of the current

coronavirus disease 2019 (COVID-19) pandemic situation (Huang et al., 2020). Several studies, Hasanah & Malik, (2020); Wahyuni, Gusti Made Sanjaya, & Jatmiko, (2019); Mosalanejad, (2014) have proven that the shift towards blended e-learning is not a luxury or only a treatment for recent circumstances, but rather for utilizing technology in a way that achieves many objectives of the educational process (Khudhair, Jusoh, Mardani, Nor, & Streimikiene, 2019). According to Megahed and Ghoneim (2022), for the post-pandemic transition that incorporates what was learned during the pandemic, blended learning is an appropriate educational model. When technology and in-person instruction are combined, learning environments are created that can improve students' learning potential. Almalki and Elfeky (2022); Puspitasari, Hayati and Purwaningsih (2022) also pointed out the role of technology for BL environment by saying that blended learning is the use of contemporary technology in the classroom while maintaining the regular educational reality and student attendance. So it is mandatory to use technology in the form of internet, websites, videos related to the content or syllabus so that the students may get the maximum benefit.

### 2.1.1 Impacts of Blended E-Learning:

In the 21st century teaching learning is much beyond the teaching and learning in classroom. We have moved towards the blended learning due to its benefits for the students and the effective learning. Bansal (2014) pointed out a number of advantages of blended learning in higher education, some of which revolve around accessibility, pedagogical effectiveness, reduction in drop-out rate, and course interaction. The majority of studies demonstrate that blended learning fosters a flexible learning environment that enables students to repeat lessons when necessary (Zhang and Zhu,

2017) by choosing and accessing educational material with ease ( Uz and Kundun, 2018, Sánchez-Gómez et al., 2019). Broadbend (2017) pointed out one of the benefits of BL in this regard as one of the benefits of BL is that it can give students the chance to be independent and active learners if it is carefully planned. This promotes self-regulatory behaviors like planning and time management. BL impacts many areas of students in a positive way, for example critical thinking skills, learning attitudes, academic achievements and ability of self-study etc. BL fosters interaction and collaboration between students and supports the growth of reflection and critical thinking (Ustun and Tracey, 2021). Studies on blended learning have revealed advantages for the teaching and learning processes of both teachers and students. The benefits of both in-person and online instruction can be maximized by using blended learning because of its unique features. (Hu et al., 2021; Alsalhi et al., 2021; Kerzˇič et al., 2019; Kashefi et al., 2017). Ismail et al. (2018) also emphasized the importance of blended learning in contrast to traditional teaching methods.

There is growing agreement that an effective method of teaching and learning in higher education is the integration of online and face-to-face instruction in a seamless and coherent manner (See, for instance, Ahmed, 2020; Alsalhi et al. Zhao 2022; Nayar & Koul 2020; Müller and Mildenberger 2021). Since it combines the benefits of in-person and online instruction, BL is viewed from an institutional standpoint as a development in higher education (Bokolo, 2021). By combining delivery modalities, blended learning aims to offer the most effective and efficient learning experience. Single mode of delivery does not appear to be able to provide enough context, social interaction, relevance, engagement, or choice to promote efficient and effective learning. BL

modality has been shown to enhance student learning outcomes through empirical research (Vo et al, 2017). Thus, the distinctive aspects of BL may contribute to the improvement of students' social and professional abilities. This kind of learning, blended e-learning, is badly needed to achieve higher goals in education, such as developing professional skills or developing thinking skills. A viable alternative to conventional methods of increasing course enrollment and improving academic results in universities is the use of teaching strategies for blended learning, which is quickly gaining popularity. (Gleason and Greenhow, 2017).

The need for technology-driven content and ICT tools that are appropriate for the current need and circumstance has established itself as the new norm in educational settings. Technology-assisted instruction is now an unavoidable reality. The growth of technology has been so rapid and immense that the education system has not been able to make effective use of educational technology (Tondeur, et al., 2017), especially in developing and underdeveloped nations (Chukwuemeka, et al., 2019). As a result, technology has impacted educators both personally and professionally (Joo, et al., 2018).

Furthermore, numerous researches have shown that students' academic achievements improve by using blended learning while the teaching (Alammary, 2019; Alsalhi et al., 2021; Kundu et al., 2021). The positive effects of personality, learning style, and satisfaction on student achievement have been supported by numerous studies. Like, Building the capacity of the students to communicate helps them to become more independent through blended learning. (Attard and Holmes, 2020; Dziuban et al., 2018), improving the thinking ability of students Attard, & Holmes, (2022), ElSayary, (2021), Teaching strategy called blended learning has a positive effect on both teachers'

instruction and student learning. Teachers can adjust or design lesson plans to suit students' learning progress by observing students' individual learning needs during one-on-one interactions with them. (Attard and Holmes, 2020; Kerzˇič et al., 2019).

It is widely acknowledged in the field of education that the ability to think critically is necessary for success in meeting new challenges in a world that is constantly changing. Most of the previous scientific studies in this field have shown a positive impact of blended e-learning on the development of critical thinking. These studies, Hasanah & Malik (2020), Wahyuni, Gusti Made Sanjaya, & Jatmiko (2019), da Silva Ezequiel et al., (2019), Suphamart & Thanongsak (2020), Suphamart & Thanongsak (2020), Minoru et al., (2020), Fitria et al., (2020), Mosalanejad (2014), Bolandifar (2017), Jou, et al. (2016), and Faslah et al., (2020) revealed this effect, demonstrating the close connection between the implementation of blended e-learning and the growth of critical thinking.

Moreover, a recent review of the literature Owston (2018) shows BL proves to facilitate student empowerment more than either face-to-face or online courses, with a greater sense of succeeding. This might be because of blended e-learning's varied applications and nature. It gives the student the freedom to select which sources to read, the capacity to search through reputable online resources and websites to confirm the validity of the information and data, and it improves evaluation skills. It enables him or her to effectively employ the ability of interpretation and the potential for searching in such a source, which improves his understanding. Lozano-Lozano (2020, p. 6) and his team of researchers from the University of Grenada found that, when surveyed about classes in which traditional teaching methods were used, students noted a lack of interest,

understanding, and connection to the content being studied. In this context, it can be said that there is a positive relationship between blended e-learning and the development of interest and understanding of the students. Many respondents showed their preference for blended e-learning. The results of Fitria et al.'s study (2020) revealed the positive impact of blended e-learning on learners.

### 2.1.2 Role of Teacher in Blended Learning Environments

In BL a teacher combines or integrates both physical and online instructions to enable the students to construct their own knowledge. According to Elfeky & Elbyaly, (2021b); Setiawan, Muhtadi, & Hukom (2022), Within the context of learning environments that encourage interaction and the development of ideas, the teacher may use merger, a form of art, to combine various resources and activities. The role of the teacher is crucial and significant in this educational process. Teacher needs ICT competencies for effective construction of knowledge among students. ICT competencies play a special role in executing organizational processes at work (Murawski and Bick, 2017). ICT has significantly improved teaching efficiency in blended learning. The knowledge and abilities required of teachers and students in an educational organization in terms of practical operations are referred to as information communication technology competencies (Jabbarova, 2020). To improve their instruction, teachers use a range of ICT tools, incorporating digital and multimedia communication platforms like WhatsApp, We Chat, Zoom, and Google Meet. Blended learning is a result of digital technology and digital teaching resources, according to Lazar et al (2020), Online sources include audio and video, digital, and social networking sites like Twitter, YouTube, and

Facebook, as well as lesson plans, lectures, textbooks, assignments, software, tests, and quizzes.

Blended Learning is supported by the Theories of Constructivism and Connectivism. Teachers who follow the constructivism theory put special emphasis on connecting what is taught to what is understood and interpreted by new students. Students are supported and encouraged to investigate, search for, interpret, analyze, and expect information by teachers who design their teaching models and tools with these goals in mind. In order to improve student knowledge, teachers also encourage collaboration and student interaction. According to Aurangzeb (2018), in the BL classrooms, cognition is based upon the social constructivist learning that is maintained by digital networks or ICT that assist to relate specific data to enable the students become dynamic individuals from showing effective learning process. This framework is shown with the assistance of following chart.

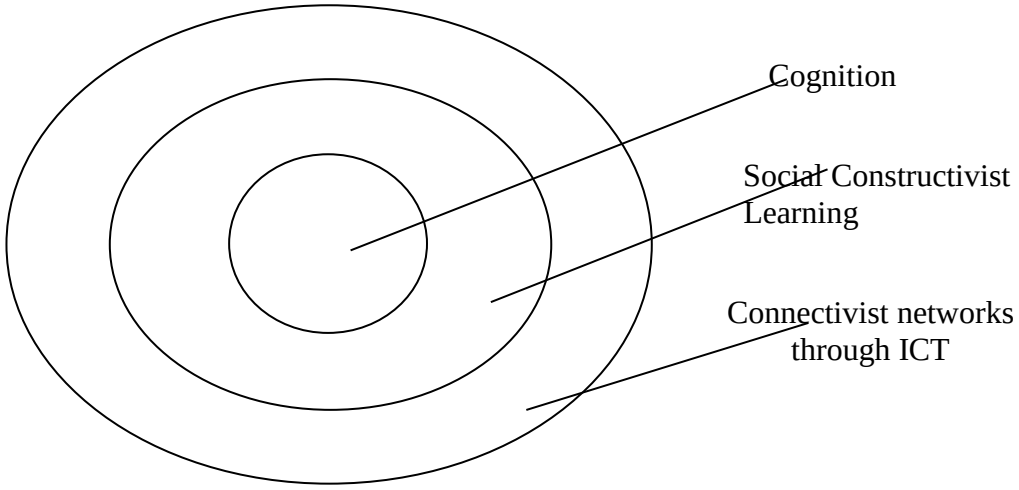



*Fig. 2:* Placement of Social Constructivism and Connectivism in Classroom Cognition Model (Aurangzeb, 2018).

The cognition develops and improves social constructivist learning in 21st century classrooms. These classrooms are identified by computer networks produced through ICT

(Aurangzeb, 2018). Social constructivism encourages students to create their own knowledge through interaction with others, and connectivism offers a solid foundation for emphasizing the use of ICT to foster these interactions. (AlDahdouh, 2017). Thus Integration of face to face and online teaching is prerequisite for BL. Direct instructions, indirect instruction, group teaching, and individualized technology-assisted learning are all included in blended learning strategy.

Theories and models related to blended teaching and learning focus mainly on the competencies here. Competencies are capacities, and knowledge of the faculty member to apply blended learning in the educational process, which significantly enhances the university's instructional and learning process. A competent teacher can combine online and face to face components effectively which enhance the students' learning outcomes. It is expected that the online and face-to-face components will be combined in an effective and efficient manner to enable students to achieve their learning objectives. (Boelens et al., 2017; Adel and Dayan, 2021).

## 2.2 Section 2: Theories and Models

There are various models and frameworks that are explored in this section to provide a comprehensive explanation of blended learning teacher competencies. Competencies are the specific abilities or proficiencies that a teacher must have and utilize during blended teaching.

### 2.2.1 A Combination of Learning Theories authored by Carman (2005)

Blended learning theory as stated by Carman (2005), incorporates the teachings of Keller, Gagne, Bloom, Merrill, Clark, and Grey, highlighting five key elements for creating a blended learning environment. This theory is built upon three main approaches:

Cognitivism, Constructivism, and Performance Support (Carman, 2005). Blending cognition, knowledge construction, and performance support, blended learning theory utilizes computer software to enhance user performance and streamline routine tasks (Carman, 2005). The theory of multimedia modern design, as outlined by Clark (2002) revolves around three principles. Firstly, the Multimedia Principle emphasizes the use of graphics related to the content theme. Secondly, the Contiguity Principle suggests that placing graphics near relevant text can enhance learning. Lastly, the Modality Principle advocates for the use of audio alongside graphics (Clark, 2002).

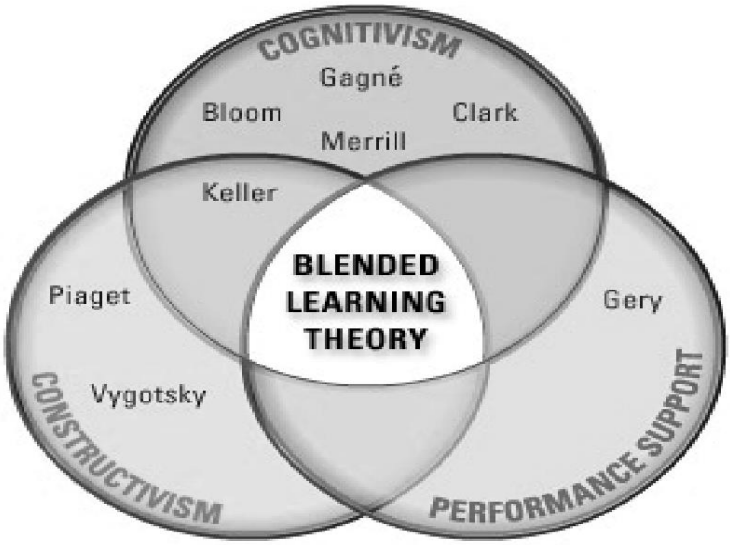



*Figure 3.* Combination of various learning theories (Carman, 2005).

### 2.2.2 The Key Ingredients for Blended Learning by Carman.

Carman (2005) outlined the fundamental elements of blended learning, which consist of live events, attention, relevance, confidence, and satisfaction (ARCS). The utilization of live events is a key component in this learning approach. By capturing the learner's attention, demonstrating the relevance of the content through real-life examples,

instilling confidence through a virtual tutor, and providing opportunities for practicing new skills, this model effectively facilitates successful learning experiences. Additionally, self-paced and flexibility in learning, collaboration among peers and teachers, and access to online support for assessments and reference materials are important aspects of blended learning (fig 4).

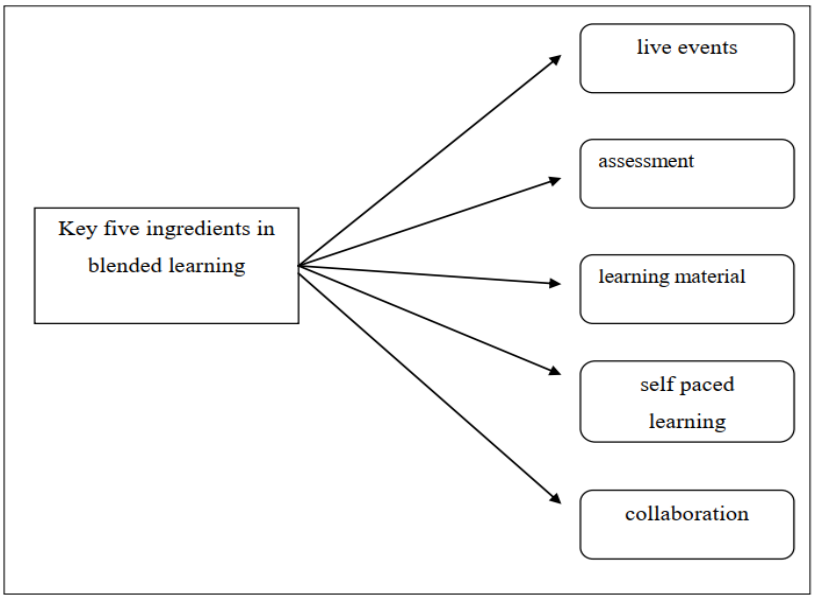



*Figure 4.* Key Ingredients for Blended Learning by Carman

### 2.2.3 Technological Pedagogical & Content Knowledge (TPACK) by Mishra and Koehler (2006)

TPACK is an effective approach in education that combines the latest tools and expertise to make learning more interesting and convenient. It provides teachers with an understanding of how to incorporate technology into today's classrooms, catering to the needs of 21st-century learners. It integrates all components together for effective teaching and learning. The application of technology skills in an educational setting can be explained by TPACK (Refer to Figure 5).

#### 2.2.3.1 Technological Knowledge (TK)

TK encompasses knowledge of past and current technologies, digital devices, and ICT applications like MS Word and PowerPoint, which assist in facilitating learning.

#### 2.2.3.2 Content Knowledge (CK)

CK refers to the understanding required to teach a subject. It involves teachers' competence in subject matter and the organization of content based on students' level.

#### 2.2.3.3 Pedagogical Knowledge (PK)

PK encompasses teaching methodologies, strategies, and techniques that enhance effective learning.

#### 2.2.3.4 Pedagogical Content Knowledge (PCK)

PCK refers to a teacher's ability to integrate subject matter knowledge with appropriate teaching methods that align with the learners' needs and requirements.

#### 2.2.3.5 Technological Content Knowledge (TCK)

This addresses how technology can be integrated into the teaching of specific content. TCK establishes a mutually beneficial relationship between technology and content, where relevant technological tools support the delivery of instructional material.

#### 2.2.3.6 Technological Pedagogical Knowledge (TPK)

TPK involves considering the advantages, disadvantages, barriers, usability, and convenience of using technology in relation to a specific pedagogical approach.

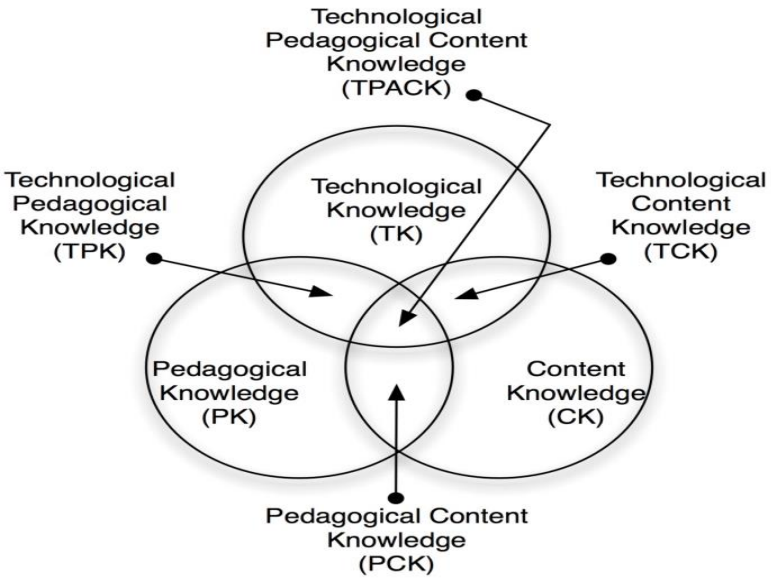



*Figure 5.* Technological Pedagogical Content Knowledge Model (TPACK) by Mishra & Koehler (2006)

### 2.2.4 Blended Teaching Readiness Model (BTR)

According to Hrastinski (2019), the term "BL" has only recently been used in the literature. There have been relatively few studies done to date on BT competencies, and even less evidence exists to link BT to a set of competencies that have been supported by research. The available researches used a set of such BT competencies to understand their prevalence within the practices of experienced K–12 teachers who use blended modalities. Blended Teaching Readiness (BTR) is a framework of blended teaching competencies. These competencies later influenced the competency areas that guided the development of an open instructional manual for K–12 BT by Graham, Borup, Short, et al., (2019), (Figure 6). The dispositions associated with blended teaching form the basis of the BTR framework. Online integration, data practices, personalization, and online interaction are examples of blended teaching competencies. Additionally, using basic

technology skills is required to facilitate BT. The only competency pillar that is necessary for all BT models and forms is online integration; the other three pillars are important competencies that are shared by many BT practices. Research-based competencies have been validated and organized into a framework to guide K–12 BT development.

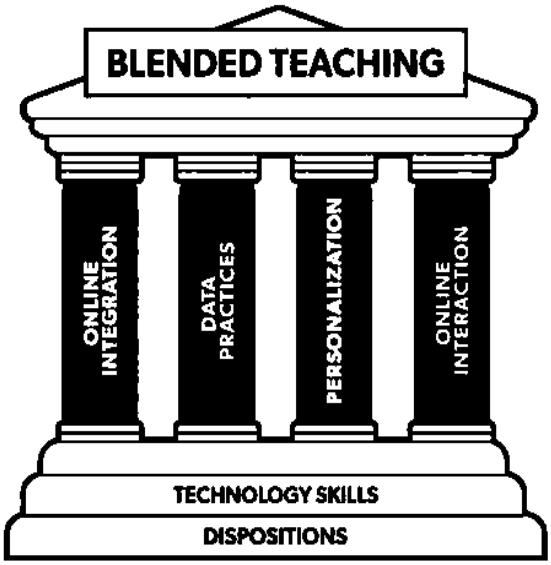
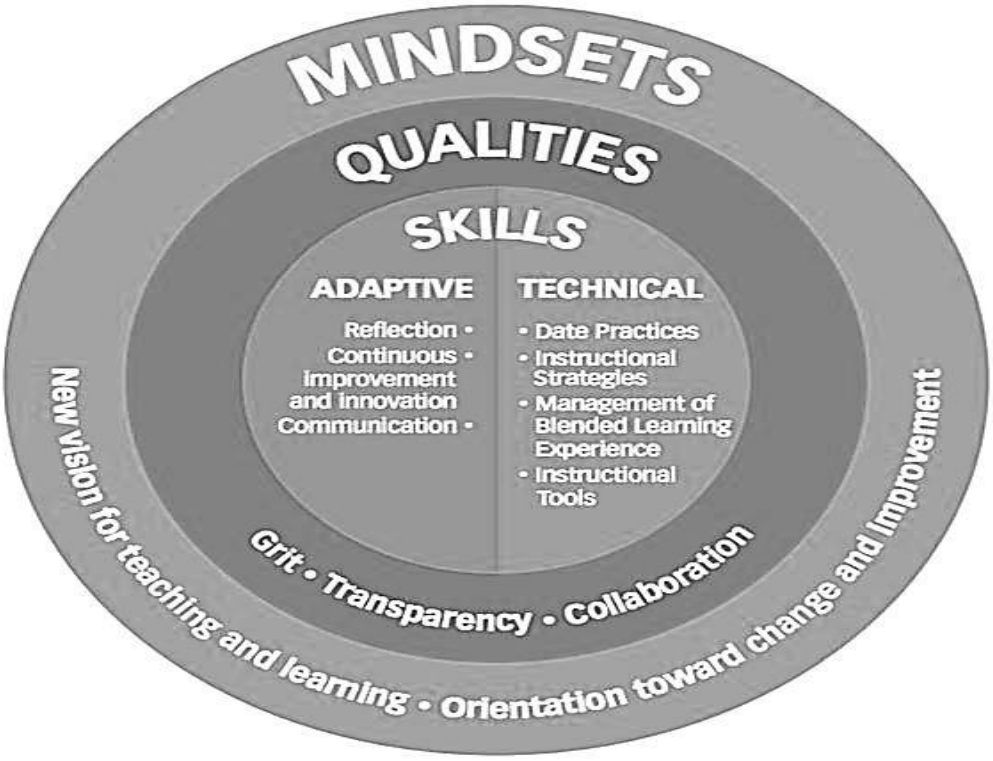



Fig. 6: Visual representation of the competencies in the BTR framework

### 2.2.5 Blended Learning Teacher Competencies Framework k-12 Powell et al (2014)

Powell et al. (2014) developed a comprehensive framework that outlines the necessary competencies for teachers in blended learning. The framework focuses on four key areas: Mindsets, Qualities, Adaptive Skills, and Technical Skills. This manual equips teachers with the knowledge and tools needed to effectively implement and engage students in a blended learning program. It serves as a valuable resource for integrating blended learning into teaching practices.




F*igure 7. Blended Learning* Teacher Competencies Framework by Powell et. al (2014)

### 2.2.6 Blended Instruction Vs. Blended Learning by Shehninger (2017).

According to this model Blended learning is a combination of various strategies and technology that supports both teachers and students in the learning process. (Shehninger, 2017). It involves the integration of technology and different learning methods, resulting in a more rigorous and effective learning experience. (Shehninger, 2017).

According to Shehninger (2017), there are various components that contribute to creating a successful blended learning environment. These elements enhance blended learning in different ways, such as allowing self-paced learning, considering learners' interests,

designing a future based curriculum, providing easy and authentic adoption, adopting a learner-friendly approach, and coordinating online classes effectively (refer to Figure 9).

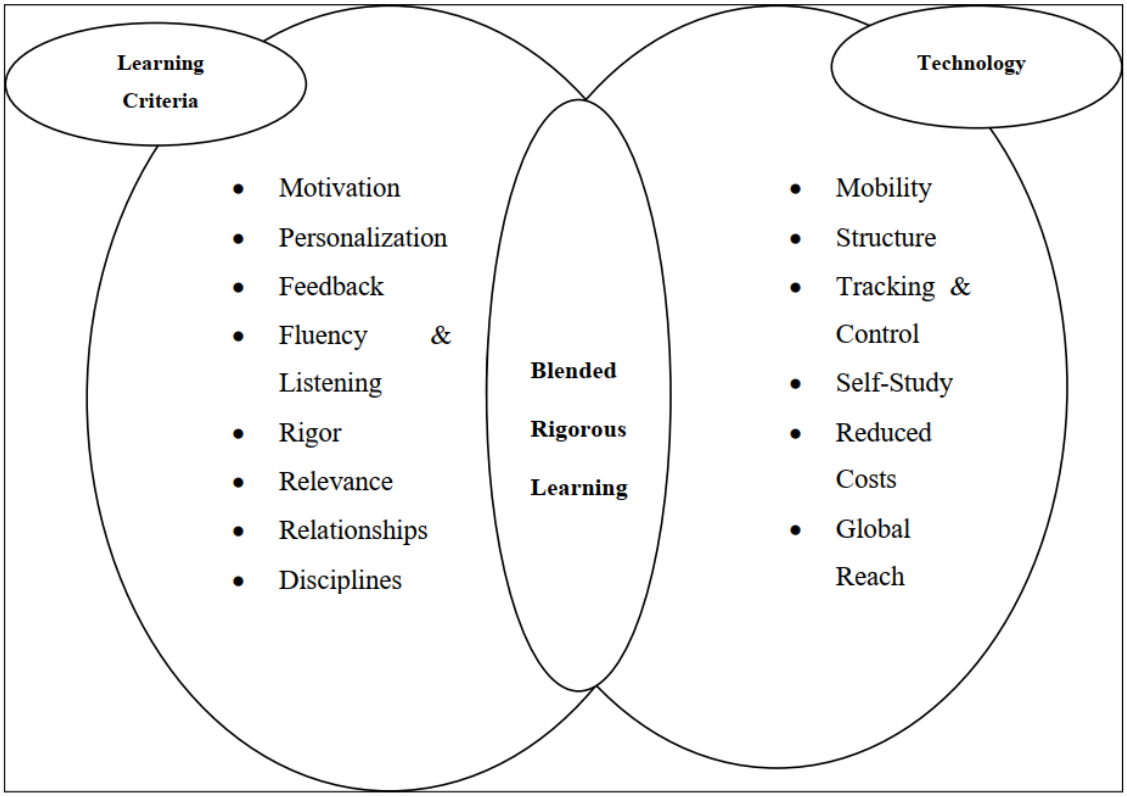



*Figure 8.* Blended Instruction Vs. Blended Learning (Shehninger, 2017)

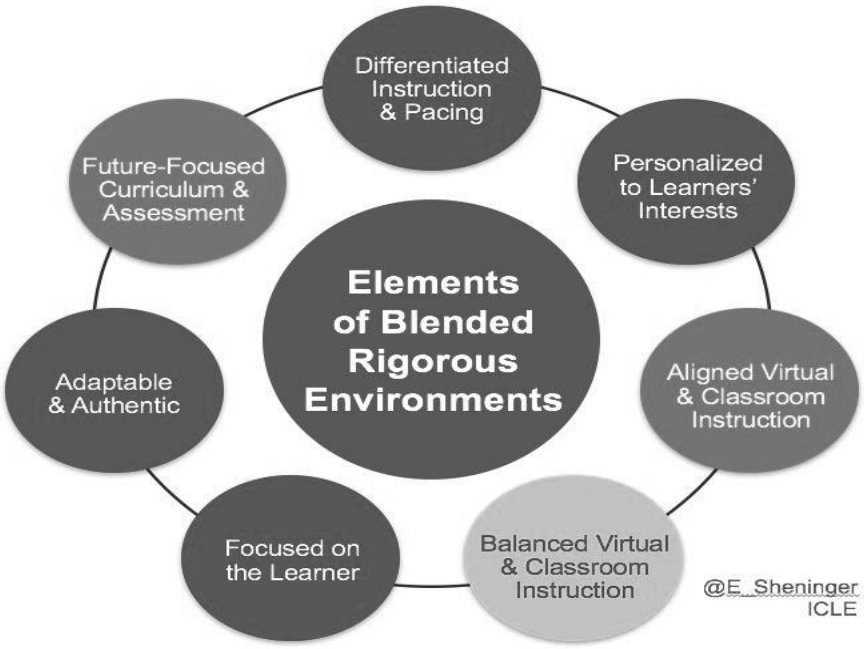



*Figure 9.* Elements of rigorous blended environment (Shehninger, 2017)

### 2.2.7 The K-12 Blended Learning Model by Stalker & Horn (2012).

There are four BL models according to Staker & Horn (2012) as shown in Figure 10. The rotation model is the main concept where students switch between different classroom activities, with one activity being online. The rotation model is further divided into four subcategories: flipped classroom, lab rotation, individual rotation, and station rotation. Station rotation involves students rotating between different learning activities, with one station being online. Lab rotation involves rotating between different learning stations within the school premises, with one station being an online lab. Flipped classroom involves receiving online instructions and practicing the material in the classroom with the teacher. Individual rotation refers to a fixed schedule of rotations for students (Staker & Horn, 2012). The Flex model allows for complete online instruction with the support of a teacher whenever needed. The Self blended model gives students

the freedom to choose an online course to supplement their traditional classroom learning, with the teacher acting as an unofficial guide. Students have the option to learn at their preferred location, be it at home or at school. The Enriched Virtual model combines both face-to-face and online instruction, with students spending half their time in school and the other half at home through online learning (Refer to Figure 10). The rotation model encompasses various approaches for students to experience different teaching methods. These include the station or location rotation model, where students move between different points of instruction, including online learning. The lab rotation model involves students using online labs for their learning. The flipped or inverted classroom model entails teachers sharing online materials or lectures, with related activities discussed and performed during class. Lastly, the flex model is designed for technology-focused learners who prefer unconventional teaching methods (Horn & Staker, 2012).

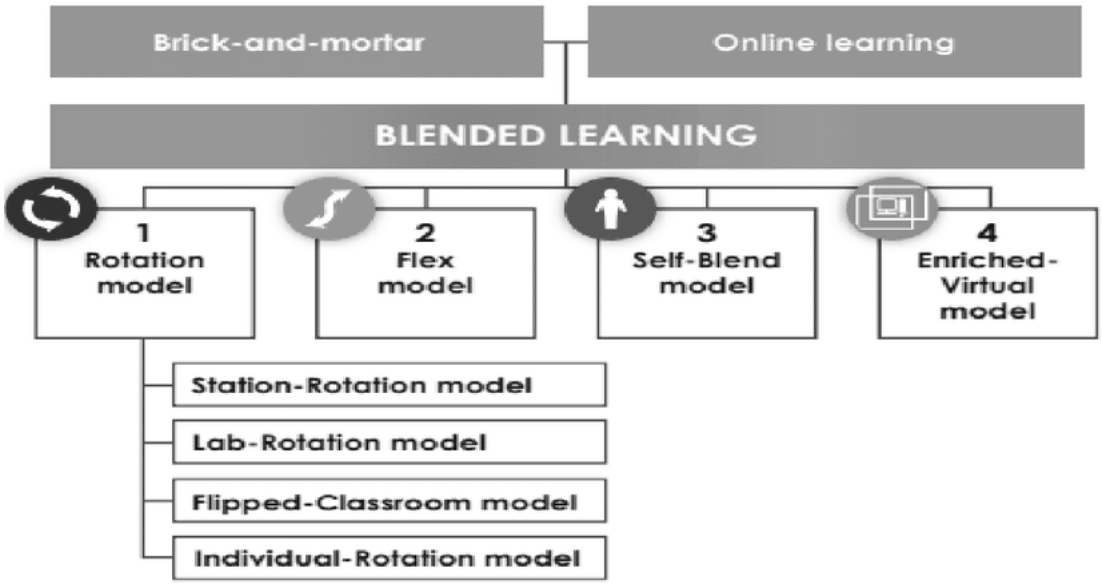



*Figure 10.* Classification of blended learning for k-12 by Staker & Horn (2012).

### 2.2.8 Critical Analysis of the Models

Several models examined in the literature have been developed to reflect the evolution of blended learning and teacher competencies over time. In the following paragraphs, we critically analyze these models.

A Combination of Learning Theories are based on three learning theories—constructivism, cognitivism, and performance support that recognized fundamental elements for the creation of effective blended learning environment. Community of inquiry model describes the blend of essentials for effective learning. It focuses on the connectedness, socialization, collaboration, and teamwork in a blended learning environment for effective learning. Strategies and technology that supports both teachers and students in the blended learning process is depicted in blended instruction vs blended learning model.

Whereas Blended Teaching Readiness (BTR) framework and Blended Learning Teacher Competencies Framework k-12 by Powell et al highlight the blended teaching competencies which are pre-requisites for blended learning. The K-12 Blended Learning Model, created by Stalker & Horn, varies depending on the allocation of online and face-to-face components, as well as the roles of the teacher and learner.

Technological Pedagogical and Content Knowledge (TPACK) model serves best to analyze the pre-requisites for blended learning in teachers that also aids in describing the teachers‟ readiness for blended learning. This model, was found to be used for readiness in sense of implementation, application, practicality, availability of infrastructure and adaptability of blended learning at higher education level.

## 2.3 Section 3: Analysis of the Researches done in the related Field

Many studies have pointed out that blended teaching and learning proved to be very helpful during the COVID-19 pandemic, as there was no other option of teaching than online learning. The COVID-19 pandemic has caught many educators, students, and educational institutions unprepared for a complete online education (Ching & Roberts, 2020). And recently because of the COVID-19 pandemic because both school and higher education have to be delivered online (Ahmed, 2020). Teachers and other educators were placed under the difficult situation as a result of the COVID-19 pandemic (Ching & Roberts, 2020). Research studies done by Saxena et al (2021) also highlight that the students are becoming more driven to enroll in virtual learning environments as a result of the COVID-19 pandemic in order to minimize potential physical interactions.

Reseaches of Radha, Mahalakshmi, Kumar, and Saravanakumar (2020) pointed out that e-learning becomes very common among the students internationally, in pandemic. K–12 teachers have noted the advantages of using online teaching methods during the pandemic, and would like to incorporate some of these benefits into their in-person teaching methods when classrooms resume in-person practices (Hartshorne et al., 2020). According to Bokolo, (2021), to enable the transition to this new scenario, institutions interested in implementing BL must propose an institutional perspective that serves as a guide for planning, developing, enhancing, implementing, and managing programs for their teaching staff.

The role of technology and ICT cannot be denied with respect to blended learning. As Javed (2016) claims that ICT which consists of various technologies to gather, disseminate, create, and use information, has emerged as a significant force in

recent years. ICT is the future of the world, so it is imperative to train teachers and students in ICT to improve learning and teaching. Significant element of blended learning classroom is access to the ICT learning resources. Use of technology or ICT is the prerequisite for blended learning. Without the use of technology we cannot imagine the blended teaching and learning. By using technology and direct instruction, it gives teachers and students the chance to interact and discuss academic ideas and concepts (Law et al., 2019). According to Zainuddin & Perera (2019), the satisfaction of needs and successful outcomes are positively impacted by technology-based learning. The scope, functionalities, and perceived affordances of the digital learning technologies depend on the differences among People such as, individual differences of mental model, size, etc, Activities like formative or summative, multimodal digital, oral, Context such as local culture, indoor, outdoor, lab etc and Technologies like systems, media, and functionalities) (Benyon, 2019).

Online instruction, in contrast to face-to-face instruction, depends on a wide range of LMS features to facilitate effective goal-setting, organization of the documentation, facilitation of learning, student involvement in learning, and assessment of academic performance (Adiguzel et al., 2020). The education system has changed as a result of the Internet and information and communication technology (ICT) (Antony, 2019; Joo, et al., 2018). As a result, the Internet and ICT have been embraced by education systems all over the world as crucial teaching tools (Chukwuemeka, et al. 2019; MoE, 2014, 2019). Education sector must be modified with the advent of the 21$^{st}$ century as the new generations have better know how about the technologies and internet as well. These generations have grown up with technology and the internet. Effective teaching and

learning process is incomplete without the integration of these three components. These three essential elements—content, pedagogy, and technology—can no longer be separated in the teaching and learning process today (Lloyd, 2016; Oner, 2020).

The ability of teachers to integrate information and digital technology into their lessons is also aided by blended learning (Attard and Holmes, 2020). Blended learning is also having some characteristics, which are the cooperation, interaction, critical thinking and constructivism. These characteristics or attributes of the blended learning are considered compulsory for blended teaching and learning. Gharacheh et al. (2016) pointed out some of the attributes of blended learning based on constructivism, in which the focus is on learning through cooperation, interaction, critical thinking, goal-oriented learning, group performance, and multilateral interaction between group members. Blended learning has been shown to actually have a positive impact on students' engagement and competency. BL fosters growth and innovation in both virtual and online classrooms by integrating technological resources into the learning and teaching process. Unfortunately, despite having enormous potential, many countries are having difficulties and are hesitant to use this instructional design (Edward et al. , 2018).

Henaku (2020) discovered that students in less developed nations often struggle with issues like internet connectivity, money problems, device problems, and disruption. Owan, Asuquo Ekpenyong, and Asuquo (2020) emphasized in research that during COVID-19 situation that online learning cannot produce desired results in underdeveloped countries including Pakistan, because due to financial issues, the majority of learners were not able to access the internet. With the online learning mode, the students encountered numerous challenges. According to Amita (2020), the problems

include poor internet connectivity, a lack of e-learning resources and their high cost, a lack of skills, and electricity load shedding. In contrast to the advantages experienced globally, Beteille, Tognatta, Riboud, and Nomura (2020) discovered a number of obstacles preventing Pakistan from developing a strong teaching profession, including teacher absence, a lack of pedagogical training, low knowledge and skills, and political influence on hiring decisions, all of which result in less than ideal learning outcomes.

Numerous studies have demonstrated that blended learning can influence students' attitudes toward learning in a positive way (Alsalhi et al., 2019), Such as increasing self-confidence, flexibility, and motivation for learning (Alammary, 2019, Alsalhi et al., 2021; Attard and Holmes, 2020,). Studies have shown that students believe they can access the learning activities at times that are convenient for them, they are allowed to work at their own pace to complete learning objectives, and flexibility in such an environment allows them to meet their learning goals (Bayrak, T., & Akcam, B. 2017). As such, there is a dire need to incorporate technology in education. In this way, it increases learning engagement (Alsalhi et al., 2021; Cronhjort et al., 2018) and refine the learning experience of students(Attard and Holmes, 2020; Dziuban et al., 2018). The fact that educational institutions are spending money on technology-enhanced learning raises the question of how these tactics affect how well instruction is delivered in environments that use both blended and hybrid learning (Hrastinski, 2019). Research studies done by Edward et al (2018), & Zainuddin & Perera (2019) have shown that there are significant differences between the experimental group and control group participants; thus, In order to improve student performance, competence, relatedness, and autonomy, it has been found that teaching through a blended learning approach is effective.

A new option for teachers in the blended learning environment, teachers' blended teaching competency includes 13 characteristics, including professional knowledge, teaching ability, information literacy, and other dimensions: motivation for achievement, curriculum design, evaluation literacy, teamwork, interaction maintenance, service awareness, quality monitoring, teaching reflection, continuous improvement, learning analysis, blended teaching strategies, and innovative spirit (Liao & Zhang, 2017). Although education has undergone a radical transformation since the 1960s, when competency-based and mastery learning were first introduced, the underlying principles have not changed. According to Butova (2015), Chomsky's theory of linguistic 10 competencies served as the foundation for competency-based learning. With a primary focus on the study of language competence versus application, Chomsky (1968) came to the fundamental conclusion that, despite one's ability to demonstrate competence or knowledge of a language, applying that language in all of its extrinsic nuances and contexts was an entirely different realm. Despite the fact that Chomsky's work was restricted to linguistics, it is significant to recognize this as the genesis of competency-based educational theories. Ma and Lee (2021) pointed out that according to studies; students believe that using BL in higher education is preferable to face-to-face or online-only instruction. Standard-based learning, mastery learning, data and assessment, student ownership, 21st century skills, college and career readiness, differentiation, personalization, cultural and economic sensitivity, and a plethora of other components are all included in blended learning, that is simply defined as models of learning incorporating the most effective components of traditional and digital instruction.

Many researchers pointed out different standards and competencies necessary for BL. Pulham and Graham (2018) evaluated 18 documents that contained either online or BT standards in response to the requirement for competencies related to K–12 BT. The small amount of peer-reviewed research in this area could only analyze five white papers, two books, one literature review, and one website. In the same way, Pulham et al. (2018) examined two technology integration competency documents, four online teaching competency documents, and four BT competency documents to identify BT-relevant competencies. The specific knowledge and skills that teachers need to successfully engage in BT are poorly represented by the competencies currently recognized for K–12 BT. According to their analysis, which found that only 13% of the BT standards, 10% of the technology integration standards, and less than 1% of online standards focused on BT.

After the literature review it is found that the assessing the blended learning teacher competency is not an easy task. Some measurements of Blended Teaching implementation are challenging to gather, because they take place in the individual classrooms and are used by individual teachers (Graham, 2019). The Learning Accelerator (TLA), in collaboration with iNACOL, has developed a self-assessment tool for teachers with a rubric to measure their knowledge, understanding and application of blended teaching. This self-assessment tool provides a way for teachers to assess their own abilities and determine whether their competencies are strong, developing or in need of major improvements. One performance rubric built by TNTP (The New Teacher Project) for administrators has a talent scorecard to assess potential blended teachers at their schools based on 32 indicators (TNTP, 2014). Several other self-report surveys of

blended teaching readiness focus on district-wide readiness rather than individual teacher competency (The District Reform Support Network, 2015; The Highlander Institute, 2017). Effective blended learning, is a sophisticated teaching strategy that not only encourages students to participate in projects, contribute to the learning process, and engage in other activities, but also supports face-to-face instruction. Students need constant supervision in an online classroom (Kerzˇič et al., 2019). According to Kerzˇič et al. (2019), Three groups can be made up of these factors:

1. informational resources, technological expertise, self-discipline (Alsalhi et al., 2021), learning preferences (Miyaji and Fukui, 2020), and responsibility for academic progress are all student-related factors (Alammary, 2019).
2. Factors related to the teacher, such as personality, ICT proficiency, teaching style, knowledge, facilities, feedback and course structure, online teaching, information quality, and communication quality. (Alammary, 2019).
3. Adoption of technology and technical support, including usability, accessibility, and support. (Alammary, 2019).

The next step is to evaluate your understanding of the ideas and information contained in the online learning material. In addition, teachers provide feedback to students on lengthy projects and ask them to rate the quality of their work. According to Barros et al. (2017), and Kerzˇič et al. (2019), these test results give students the knowledge they need to learn as well as feedback on their learning progress. Additionally, teachers can see how well the lesson is understood by the students, and their learning needs must be interpreted and tracked to see how far along they are in their learning (Adiguzel et al., 2020; Barros et al., 2017; Kerzˇič et al., 2019). Quick warm-up

questions, summary exercises, and diagnostic and summative assessments are three assessment methods covered by Landenfeld et al. (2018) that use different question types. Different kinds of questions allow for personalized feedback while reiterating essential information during the learning process (Landenfeld et al., 2018).

### 2.3.1 Blended Learning Teacher Competencies

A teacher must have some competences related to blended teaching for having the better results of his/her instructions. Blended learning will be possible if a teacher will have these competences. Excellent teachers are better able to transition their roles and take on new responsibilities while also better preparing their students for blended learning (Saeheng, 2017). Many professional associations, non-benefit organizations, and specialists have given K-12 blended teaching (BT) competencies; furthermore many of these have associated competencies to concrete practices. Because of the steadily changing nature of blended learning, it is expected that the capabilities illustrated here to change over the time. According to Bowles, M., & Kaviani, A. (2023), overall, the idea of teacher competencies is complicated and multifaceted because it considers the teacher as a whole person, including their teaching philosophy and their cognitive, behavioral, emotional, and attitudinal tendencies. As teachers innovate in their schools and technologists contribute new apparatuses for use, new models of educating and learning will keep on arising. These new methodologies will keep on pushing our aggregate pondering what educators should know and do to capitalize on the open doors ahead. Although competency-based learning and mastery learning, two established and well-researched philosophies on their own, are where the roots of these instructional methods can actually be found, they have been around for many years before blended learning as it

is currently defined. In all of its models, blended learning, according to Horn and Staker (2015) heavily relies on the student-centered ideals found in both of these philosophies. The success of a blended learning program ultimately depends on the qualities, knowledge, and abilities of the teachers involved. One way to understand this is by defining the key skills needed for effective teaching and learning to occur. According to Competency (2010), "competency refers to the personal qualities and skills that directly contribute to exceptional job performance". Competencies can change and improve by participating in professional development activities, such as receiving feedback from experts (Prilop et al., 2021). By incorporating technology into a blended learning approach, competencies can intertwine with one another, creating a complex teaching environment that combines subject knowledge, pedagogy, and technology (Mishra & Koehler, 2006). Teachers' mindset, qualities, adaptive and technical skills plays an important role in the success of blended learning. According to a study by Anthony et al. (2019), the mindsets, responsiveness, management, and user-friendliness of academic faculty impact how students perceive and perform in a blended learning setting. According to Taghizadeh & Hajhosseini (2021), students' satisfaction with blended learning depends on teachers' attitudes and the quality of education provided. Schechter et al. (2017) also found that teachers' active engagement in blended learning improves teaching quality. Other factors influencing teacher attitudes include institutional expectations Bervell et al., (2020, p. 3), job compatibility, task complexity, and technology experience (Anthony, 2022). Teacher competencies encompass various aspects, including their teaching philosophy, cognitive abilities, behaviors, emotions, and attitudes. In a blended learning environment, these competencies can be influenced by

factors like teachers' attitudes, motivation, institutional conditions, pedagogical models and digital platforms. Focus here lies in exploring the literature on four key domains of teacher competencies in this new teaching approach: beliefs and attitudes, adaptability, pedagogical skills, and technological skills.

### 2.3.2 Teachers' Beliefs and Attitudes

Teachers' mindsets play important role for the success of blended learning. According to Ye et al. (2022), teacher attitudes and technology usage have a direct impact on their effectiveness in a blended learning environment during Covid-19. Similarly, Bervell et al. (2020) argue that factors like performance expectancy, effort expectancy, and facilitating conditions must be addressed when implementing blended teaching through a Learning Management System (LMS). These factors directly affect teachers' attitudes towards using blended learning for distance education. Furthermore, professional development and communities of practice that focuses on blended teaching and learning issues can shape teacher mindsets and perceived performance in a blended learning setting (Naidoo & Singh-Pillay, 2020).

### 2.3.3 Teachers' Qualities

Teachers' qualities also impacts students' learning in a positive way. To ensure effective teaching in a blended learning setting, Milthorpe et al. (2018) emphasize the importance of teachers valuing innovation, collaboration, and flexibility in their teaching methods. Similarly Bruggeman et al. (2021, p.8) also highlighted that successful blended learning teachers exhibit attributes such as being academically oriented, valuing education, and being open-minded and adaptable to change.

### 2.3.4 Adaptive Skills of Teachers

Adaptive skills are are needed for the successful implementations of new instructional methods for the blended learning. These skills include the teamwork, reflection, communication, innovation and critical thinking skills. With our extensive experience in both online and face-to-face teaching, it is essential for us to be adaptable and flexible. We must adjust our teaching methods to fit the blended learning environment effectively (Barnett & Jackson, 2019). Researchers like Gil-Quintana & Osuna-Acedo, (2020) have also demonstrated the significance of enhancing teaching in innovative pedagogical environments.

### 2.3.5 Technical Skills

Technical skills are of paramount importance in blended learning classrooms. Technical skills are integrated with the pedagogical skills. According to Heilporn et al. (2022), the effects of instructional strategies on students' engagement in blended learning were explored. It was found that creating a trusting environment, ensuring the relevance of materials, and maintaining an appropriate pace significantly influenced cognitive and emotional engagement. Similarly, Ranjan (2020) emphasized the crucial role of interaction between teachers and students in blended learning, as it enhances motivation and achievement. Finally, Engelbertink et al. (2021) argued that timely feedback and clear expectations contribute to intrinsic motivation and improved achievements in blended learning. In order 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), Technology plays a crucial role in creating a blended learning environment, and when teachers are competent in using various technologies, it has a positive impact on students'

learning and achievement. Improving professional development is key to effectively utilizing technology features and gaining a deeper understanding of how learners engage in blended learning. This, in turn, can greatly enhance a teacher's technological and pedagogical skills, as mentioned by Evans et al. (2020).

## 2.4 Critical Analysis of the Literature

After reviewing the literature extensively, a gap related to the blended learning teacher competencies at college level is found. Many researches focus on the importance of combining online and face to face teaching methods. However, there is a limited research done on BT competencies, and the evidence that BT can be linked to a set of competencies that have been supported by research is even worse. Maximum researches mentioned above only focus on ICT competencies like integration of technology with the traditional method of teaching. Researches related to the role of blended learning due to the COVID-19 pandemic also highlight the need and integration of technology or technical skills witsh respect to blended learning. Other skills needed for BL practices are overlooked in many studies. Studies of Chukwuemeka, et al. 2019; MoE, 2014, 2019, AlDahdouh, 2017, Antony, 2019; Joo, et al., 2018, only point out that a teacher must be proficient in the use of technology while blended teaching. Accoding to Bowles, M., & Kaviani, A. (2023), The success of a blended learning program relies heavily on the qualities, knowledge, and skills of teachers. To understand this better, we can outline the essential competencies necessary for effective teaching and learning to occur. According to above mentioned researches of BT, online integration is the only area that is necessary. However, mindsets, qualities, data practices, and design in practice are the top

competency areas according to our analysis. That is all domains of BL competencies must be investigation in order to have a clear picture of the BL phenomenon.

Extensive research on BLTCs is lacking, particularly in Pakistan where no studies have been conducted. As a result, this study will research this topic. After reviewing the literature, it is clear that most researches focus on blended learning teacher competencies at the university level. Like many other nations around the world, Pakistan has begun to undergo a change in teaching strategies as a result of changes in the needs and life styles of students in the twenty-first century, which needs the teachers to be competent in technology and incorporate technology into their lessons. There are also few researches on teachers' mediating effects, despite the paucity of studies on teachers' blended teaching abilities and learners' interest in blended courses. To a certain extent, these mediating effects can also account for the relationship.

The idea of teacher competencies is multi-dimensional. In a blended learning environment, various psychological factors like teachers' attitudes and motivation, institutional factors such as course management and pedagogical models, the limitations of digital platforms, and the support from colleagues can all impact teacher competencies. I believe that the main domains of teacher competencies in this new teaching setting are their beliefs and attitudes, their ability to adapt, their pedagogical skills, and their technological skills.

## 2.5 Justification for conducting this study

There have been limited studies on the essential skills needed for effective blended teaching, and even fewer studies have investigated the experiences of college teachers in this context. The topic has been selected as the study's main focus in order to

fill in any gaps in the literature and encourage more research into BLTCs. This study will also determine the prevalence of BT competencies in the blended modalities and practices of college teachers. This study aims to address this gap using a competency framework developed by a reputable educational association. In doing so, the study seeks to investigate mindsets, qualities, adaptive and technical skills in the context of blended learning at college level. The shift to obligatory online education due to Covid-19 was the main motivating factor to take this topic. Additionally, blended pedagogy is now a standard approach in college settings. That is why it was another motivating factor behind the investigation of blended learning teacher competencies.

# CHAPTER NO 3

## RESEARCH METHODOLOGY

This chapter pertains to methodology adopted for this research study. This study was intended to analyze blended learning teacher competency framework at college level. Blended learning teacher competency was analyzed by using the framework of Blended Teaching Competencies by Powell et al. (2014), iNACOL Blended Learning Teacher Competency Framework, International Association for K-12 Online Learning. This framework is comprised on the four domains, which are Mindsets, Qualities, Adaptive Skills and Technical Skills.

This chapter presents the details and description of the research methodology which includes research approach and design, population, sampling technique and sampling size, data collection tool and procedures of data collection and data analysis as well. This chapter also includes the reliability and validity of data collection tool. Detailed description of all above mentioned points are elaborated below.

### 3.1 Research Approach

Mix method approach was adopted for this research study according to the nature of the existing research. Quantitative data related to the standards or skills of the Blended Learning Teacher Competency Framework was collected through a questionnaire. Data was collected from the Public sector college teachers in Rawalpindi city. For having qualitative data for this study, one main question and four sub questions are formulated for the collection of in depth data about the prospects and challenges related to the blended teaching competencies. The qualitative data was collected through the open ended semi structured interviews from 8 vice principals. The study's qualitative

phenomenology design was chosen because it is clear that it will help the researcher gain a deeper understanding of the participants' lived experiences.

## 3.2 Research Design

Transcendental Phenomenological research design was employed for this research study to clarify the core aspects of human experiences. It is the study that is based upon any observable fact. Transcendental Phenomenological research explains the significance of many peoples' lived experiences. The understanding of knowledge that is solely based on insights from those experiences that cause the emergence of mindfulness in a person is known as phenomenology research methodology. Phenomenology research methodology is appropriate where the topic required in-depth investigation as the BT competencies are observable facts and it also needs in-depth exploration that’s why phenomenological research design is appropriate for this research study.

This research study also consists on the mixed method Convergent Parallel design. Firstly quantitative and qualitative data was collected and analyzed separately then both types of data were compared and interpretation was made on the behalf of comparisons. This design is illustrated with the help of a diagram in fig. 5. It was adopted from the Research Design by John W. Creswell, (2018).

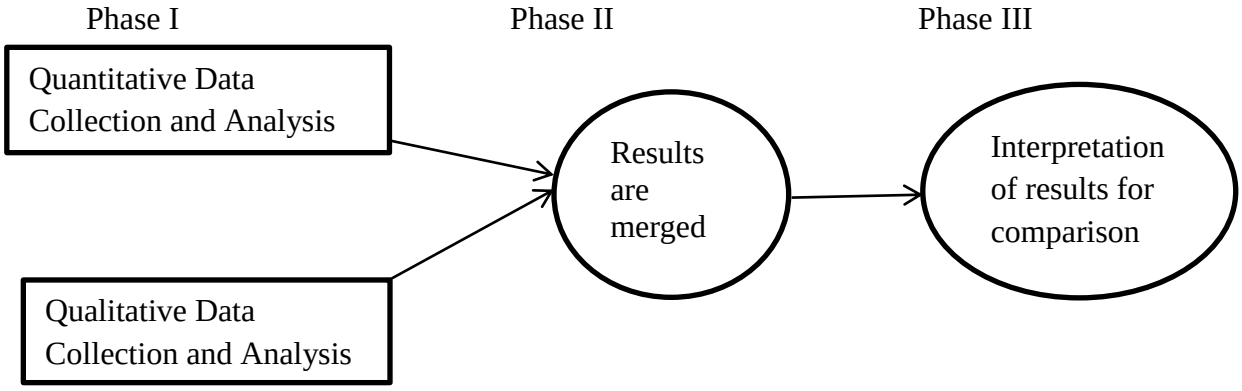



*Fig. 11:* Convergent Parallel design Adopted from the Research Design by John W Creswell, (2018).

## 3.3 Population of the Study

Population for this study was 1215 college teachers teaching in the colleges of the Punjab Higher Education Department of Rawalpindi City. Due to the time constraint and the limited resources only the college teachers of Rawalpindi city were selected as population. Among this population there are 450 male and 765 female teachers. Data related to the strength of the number of the above mentioned teachers were taken from the Director Colleges, Directorate of the Punjab Higher Education Department Rawalpindi. Gender vise detail of population is shown in table 3.1 below:

**Table 3.1**

*Gender wise Detail of Population* (n=1215)

| Gender | Colleges | Teachers |
|---|---|---|
| Male | 11 | 450 |
| Female | 23 | 765 |
| Total | 34 | 1215 |

## 3.4 Sampling Technique

A sample is a relatively small group from which data are collected. Purposive Sampling technique is best suited to phenomenological study. This study has employed mix method approach for phenomenology that's why data was collected from two sources. For having quantitative data random sampling technique was used. Random Sampling technique was used because it is the most suitable technique when choosing sample from a larger population. Secondly, it is considered best when to collect quantitative data, control biasness and to generalize the results as well.

On the other hand Purposive Sampling Technique is used by the researcher for qualitative data collection. Purposive sampling technique was used to keep focus on the members of a targeted population group who exhibit certain characteristics. For acquiring qualitative data 8 Vice Principals were interviewed until the saturation point of data reached. For the acquiring of quantitative date through questionnaire, Teachers of Math, Physics, Chemistry, Biology, English, Psychology, History, Geography and Political Science were the respondents. Teachers of computer science were not the part of this

research study as the competency level of the teachers of computer science is already high. Moreover the teachers of Urdu and Islamiat were also excluded from the sample because the theoretical model of this study of blended teaching competency framework is not implemented on the teachers who taught Urdu and Islamiat. Furthermore, the questionnaire was filled from the Respondents having experience of more than 2 years as the blended teaching competency level remains high in the teachers having the experience of 2 or less than two years.

## 3.5 Sample Size

A sample of 243 college teachers of Punjab government both male and female, focused on BT practices to reveal the proficiencies critical to K-12 BT was taken for quantitative analysis. 20 per cent sample was taken from the above mentioned population. A sample of 15 colleges with 243 teachers from the Punjab Higher Education colleges, Rawalpindi city both male and female was selected. List of the colleges is attached in Appendix B. One college of the Punjab higher education has on average 17/18 teachers, that is why it is estimated that there must be 243 teachers working in 15 such colleges. Among these 15 colleges 11 were of female while 3 colleges were of males and 1 was of co-education.

From these 243 teachers, 43 teachers were male and other 200 were female teachers teaching in colleges of Punjab Higher Education Rawalpindi City. Sample size for quantitative data collection is illustrated in fig. 6. The sample size according to the gender is selected randomly according to the total number of population. Among the 243 sample size teachers having more than 2 years of teaching experience had filled the questionnaire. 20 per cent sample was selected because the size of population was small

and if we select 10 per cent sample from this small population then the results would not be reliable due to the minimum number of responses. This sample size was calculated by using Cohen and Manion's Sample size table published in Research Methods in Education (2007). This sample was selected to have 90 per cent confidence level or accuracy of results according to the table of Cohen and Manion. The desired sample was 243 respondents. For data collection more than 250 questionnaires were distributed among the teachers but the researcher got only 206 completely filled questionnaires. Thus the response rate for the present study remained 84.77%. Moreover, 8 Vice Principals were interviewed to take the qualitative data as well. Thus total 251 respondents were chosen as sample size for this research study. Sample size is elaborated in table no 3.2.

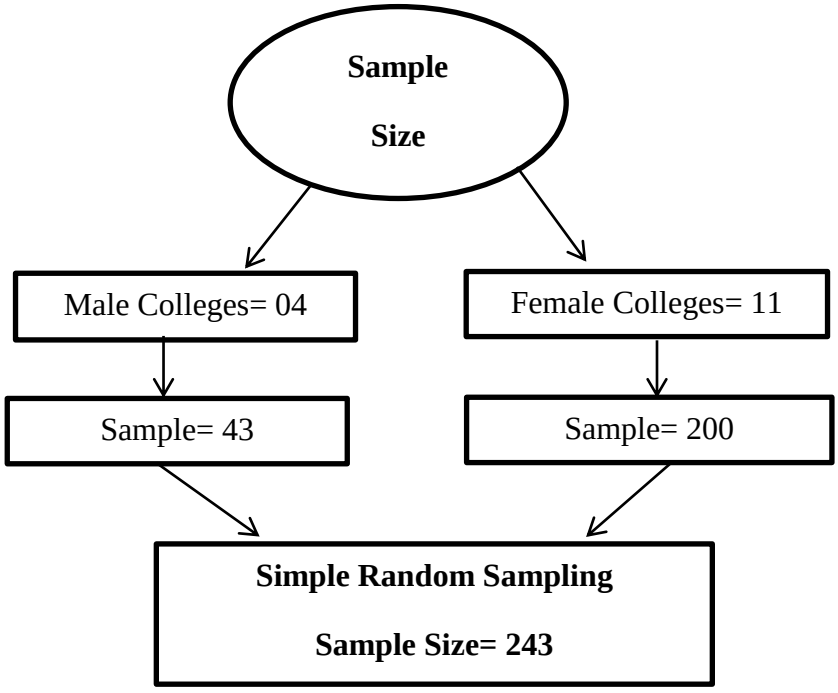



Fig. 12: Sample Size for Quantitative Data Collection

**Table 3.2**

*Sample Size* (n=251)

| Type of Data & Tool | Respondents | No of Respondents |
|---|---|---|
| Quantitative (Questionnaires) | Teachers | 243 |
| Qualitative (Interviews) | Vice Principals | 08 |
| Total | | 251 |

## 3.6 Data Collection Tool

Aim of this research study was to investigate and assess the BLTCs at college level. That is why a questionnaire based upon the conceptual framework of the study was used to collect the data. Questionnaire was based upon the standards mentioned in the Blended Learning Teacher Competencies by the international association for K-12 online learning (iNACOL). There were 41 number of statements used in the questionnaire.

Questionnaire was comprised on two sections. Section I contained demographics in which basic information like the Gender, Age (Years), Grade, and Teaching Experience (Years) about the respondents was collected. Section II comprised on the 41 statements based on the subscales of the framework of Blended Teaching Competencies by the international association for K-12 online learning (iNACOL). These subscales were Mindsets, Qualities, Adaptive Skills and Technical Skills. Subscales have different number of statements, as shown by Table no 3.3. As mentioned earlier, questionnaire was

based on the standards given in iNACOL Framework that is why there is difference in the number of statements for each subscale according to the standards mentioned in the framework.

**Table 3.3**

*Detailed Description of the Questionnaire.*

| Sr No | Subscales | Statement No | Total |
|---|---|---|---|
| 1. | Mindsets | 1-9 | 09 |
| 2. | Qualities | 10-15 | 06 |
| 3. | Adaptive Skills | 16-22 | 07 |
| 4. | Technical Skills | 23-41 | 19 |

This research tool was used to collect the data for pilot testing and for the actual data collection for research after taking validity from the experts. Teachers had to choose one option according to the Likert scale. The scoring of the likert scale is mentioned in the following table:

**Table 3.4**

*The scoring of the likert scale*

| Answers | Very Rare | Rare | Neutral | Frequent | Very Frequent |
|---|---|---|---|---|---|
| Scores | 1 | 2 | 3 | 4 | 5 |

This scale was used to check the competency level of the college teachers in the domains of mindsets, qualities, adaptive skills and technical skills. All the statements in

questionnaire were close ended statements. For investigating the level of blended learning teacher competency the questionnaire was transformed in to following categories:

a. 1-2.9 Rarely used competency

b. 3-3.9 Neutral competency Level

c. 4-5 Frequently used competency

Semi structured Interviews based upon the standards of Blended Learning Teacher Competency Framework were also conducted to have in depth exploration of phenomenon under study. The goals of the interviews were to capture the essence of the participant's experiences and observations so that the researcher could derive detailed, rich data. In order to gather this kind of information, semi-structured, one-on-one interviews are much preferred, so data was also used to extract specific information. Participants were given the chance to speak freely and reflectively, share their observations and experiences, and develop their ideas and concerns in-depth with the help of a semi-structured approach. Following five questions were formulated for having qualitative data:

**RQ1:** What are the new visions of teachers regarding teaching and learning in the context of Blended Learning?

**RQ2:** What is the importance of qualities like grit, transparency and collaboration for teaching? And do you practice these in your college?

**RQ3:** How do the college teachers use adaptive and technical skills like reflection, innovation, communication, data practices and instructional strategies in your college?

**RQ4:** How are the specific competencies of Blended Learning Teacher Competency

framework significant for blended learning classroom environment at college level?

**RQ5:** What effects does Blended Learning have in bringing improvement?

## 3.7 The Validity of the Research Instrument

The validity of the research instrument means that the components or items of the research tool must measure the things that the tool is intended to measure. It is connected to the research tool's objectivity. Validity of present tool and the questions for qualitative data were tested by the three university professors and the supervisors of the field. They tested the face, content and the construct validity of the tool. Amendments were made in the questionnaire as per their advices. After testing the validity of the tool again they issued the validity certificates that are attached in Appendix C,D,E. Moreover validity threats were addressed by using the process of bracketing before and during data collection and analysis process. Triangulation of quantitative data with the help of open-ended, unstructured interviews was also employed to remove the validity threats.

## 3.8 Pilot Study

The questionnaire was used for pilot testing after the experts' validity was ascertained. Quantitative data was collected from 82 respondents through a questionnaire, only 71 questionnaires were returned by the respondents. Among these 71 respondents 59 were females while 12 were male college teachers. The purpose of using this questionnaire in pilot testing was to check the reliability of the tool. It was to be checked that either to further amend or make changes in the questionnaire or not. The data obtained from pilot testing was excluded from the final data. Convenient sampling technique was used to collect the data for pilot testing as the data was collected from the

nearby colleges to save time and resources. Sample size for pilot study is shown in the following table:

**Table 3.5**

*Sample size for pilot study*

| Gender | Teachers |
|---|---|
| Female | 59 |
| Male | 12 |
| Total | 71 |

## 3.9 Reliability Analysis of the Instrument

Pilot testing was carried on to check the reliability of the instrument. Sample of 82 teachers outside the sample of the study was chosen. Response rate for the pilot testing remained 84.52 precent as 71 respondents, both male and female returned the questionnaire after completion of the questionnaire. 41 items were there in the instrument. Its internal consistency was tested by using Cronbach Alpha on SPSS (Statistical Packages for Social Sciences). Reliability of the instrument was 0.870 which is considered a high degree of reliability. This reliability is also considered suitable for this research study. Result of reliability analysis of the instrument is given below in table 3.6.

**Table 3.6**

*Reliability Results of Research Instrument* *(N=71)*

| Tool | Sub scales | Reliability | No. of Items |
|---|---|---|---|
| **Blennded Learning Teacher Competencies (BLTCs)** | | **0**.870 | 41 |
| | **Mindsets** | 0.706 | 09 |
| | **Quality** | 0.733 | 06 |
| | **Adaptive Skills** | 0.704 | 07 |
| | **Technical Skills** | 0.651 | 19 |

Table 3.6 shows the highly reliable results of questionnaire. The overall reliability of the scale was 0.870 which is considered as good for the research tool. Whereas the reliability of the four sub domains of Mindsets, Qualities, Adaptive Skills and Technical Skills were 0.706, 0.733, 0.704, and 0.651 respectively.

**Table. 3.7**

*Inter-Section Correlation of* Blended Learning Teacher Competencies (BLTCs) (N=71)

| | **Mindsets** | **Qualities** | **Adaptive Skills** | **Technical Skills** |
|---|---|---|---|---|
| **Mindsets** | 1 | | | |
| **Qualities** | **.585**** | 1 | | |
| **Adaptive Skills** | .552** | .536** | 1 | |
| **Technical Skills** | .578** | .571** | **.474**** | 1 |

Table. 3.7 represents the inter section correlation for the sub domains of Blended Learning Teacher Competencies (BLTCs). The sub sections of the questionnaire were found to be correlating significantly. The highest correlation was between Qualities and Mindset subscales that was **.585**** and the lowest correlation was between Technical Skills and Adaptive Skills subscales that was **.474****

**Table 3.8**

*Gender wise frequency and percentage.*

| **Gender** | **Frequency** | **Percentage** |
|---|---|---|
| Female | 59 | 83 |
| Male | 12 | 17 |
| Total | 71 | 100 |

Table 3.8 indicates the gender wise frequencies and their percentages as well. 59 female and 12 male teachers gave data for the pilot testing according to their representation in the population.

## 3.10 Finalizing of the Research Instrument

Research instrument was ready for data collection after pilot testing and reliability analysis. Questionnaire with five point likert scale was finalized as research instrument this research questionnaire was composed on 41 statements based on the BLTCs framework.

## 3.11 Ethical Consideration and Confidentiality

Ethics should be taken into account both before and after any study is conducted (Cohen, Manion, and Morrison, 2007). It was necessary to address the issues of confidentiality because data collection techniques, which were naturalistic in nature, were very individualized. The purpose of the responses of questionnaire and the in-depth interview process was to elicit information about the respondents' inner thoughts and experiences. The names of participants and the institutions they represent are kept a secret due to the nature of the study. The participants were given a formal consent letter for confidentiality agreement (See Appendix F). One more consent letter was given to the participants that included comprehensive information about the study's nature, procedure and goals. (See Appendix G). To protect their privacy, the participants' demographic information was not directly highlighted by their names during the data interpretation. To protect the participant's identity, information that was deemed sensitive and potentially harmful was altered or concealed.

Misconceptions were addressed as they arose in the interviews because they were conversational and open-ended. With the consent of the participants, the interviews were recorded. A few participants preferred to give their answers in writing rather than allowing recording of the interview. The issues were addressed, and written responses were also welcomed. The participants were given the interview transcripts after they had been transcribed. The written transcription was read through and verified again to increase the reliability of the interview data. In case the participants needed to confirm anything or wanted more information, the researcher also gave them the supervisors' contact information.

## 3.12 Procedure of Data Collection

After finalizing the questionnaire (attached in Appendix H) the process of data collection was started by the researcher. Data for this research study was collected from college teachers through the personal visits in their respective colleges. For data collection consent letter for research work (See Appendix I) was shown to the administration of each college. More than 250 questionnaires were distributed among the concern colleges in Rawalpindi City. The desired sample was 243 but the researcher got only 206 complete questionnaires back. The researcher visited the respected colleges again to receive left over or incomplete questionnaires but could not get the response. So as per the data of 206 respondents the response rate remained 84.77% for this research study.

As far as qualitative data is concerned 8 vice principals of the colleges included in the sample were interviewed. Interview Questionnaire (See Appendix J) was presented to Vice Principals before conducting interviews. The objective of interviews was to have the

detailed information from the principals related to the topic under research study. The interview questions were created in a way that they address the research questions and research hypotheses. As a result of the discussion sparked by these questions, the researcher is better able to address the research questions when analyzing the data. Written notes were taken throughout the interview process. After every interview, the data was immediately transcribed.

### 3.12.1 Research Settings

The participants were chosen from the city that was convenient and accessible for the researcher. The city that was the easiest to get to in this regard was Rawalpindi. Therefore, the participants who were the subject of the study were from the public sector colleges run by the Punjab government in Rawalpindi. The meeting was scheduled before the day of data collection.

## 3.13 Procedure of Data Analysis

Data analysis is a fundamental section of the research that assists to bring out the interpretation of data. The procedure of data collection was done after completing the data collection from the participants. Questionnaires were assigned codes before data analysis. Measures of descriptive statistics were used to analyze the responses.

The quantitative responses collected through the questionnaires were analyzed on SPSS (Statistical Packages for Social Sciences). Two statistical procedures and tests were used like, Mean and the frequencies of responses. Table 3.8 shows the detail of statistical treatment used for the analysis of quantitative data.

**Table 3.9**

*Alignment Table Instrument*

| Objectives | Hypotheses | Instrument | Statistical Treatment |
|---|---|---|---|
| Objective 1 | $H_1$ | Questionnaire and Interview | Mean, Frequency Percentages |
| Objective 2 | $H_2$ | Questionnaire and Interview | Mean, Frequency Percentages |
| Objective 3 | $H_3$ | Questionnaire and Interview | Mean, Frequency Percentages |
| Objective 4 | $H_4$ | Questionnaire and Interview | Mean, Frequency Percentages |
| Objective 5 | $H_5$ | Questionnaire and Interview | Mean Analysis |

Qualitative data was analyzed through thematic analysis. Themes were generated with the help of Word Clouds. The analysis of the questionnaire and themes on iNACOL framework was completed in accordance with the objectives and hypotheses of research study. Results were repeated according to objectives of the study and the output of SPSS.

# CHAPTER NO 4

## DATA ANALYSIS AND INTERPRETATION

The aim of this research study was to investigate and assess the lived experiences of blended learning teacher competency at college level.

This chapter presents the main findings in the form of statistical analysis and interpretation of the data collected from the college teachers. Data analysis and interpretation deals with the college teachers' responses about the blended learning teacher competency framework in the public sector. Data was collected with the help of questionnaire and the open ended interviews with the respondents. This chapter is comprised on the three sections. Demographic details of each participant are given in the Section I, so that the readers could understand about the participants .Section number 2 deals with the quantitative analysis and interpretation of the data based on the questionnaire, while section number 3 comprises the qualitative analysis and interpretation of the data based on the interviews in the form of structural themes.

### 4.1 Section 1: The Participants

Figure No 13 shows the gender wise percentages of college teachers. 15% male and 85% female teachers were selected according to their strength in the colleges in Rawalpindi city. While for having qualitative data in the form of semi structured interviews 8 vice principals became the part of this research study.

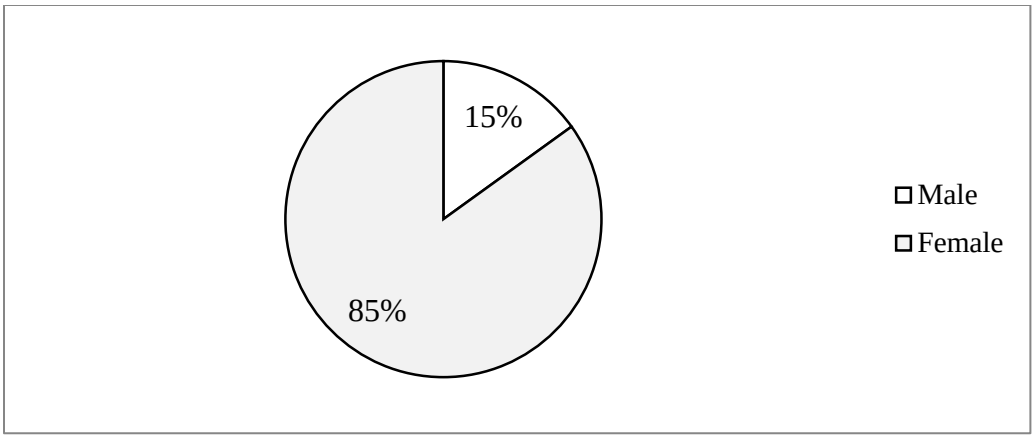



Fig. 13 Gender wise percentages of College Teachers

## 4.2 Section 2: Quantitative Analysis based on Questionnaire

Quantitative analysis is done for the analysis of objectives of the present research study. A Questionnaire based upon the conceptual framework of the study was used to collect the data. Questionnaire was based upon the standards mentioned in the Blended Learning Teacher Competencies by the international association for K-12 online learning (iNACOL). There were 41 number of statements used in the questionnaire. This research tool was used to collect the data for pilot testing and for the actual data collection for research after taking validity from the experts. The teachers had to choose one option according to the Lickert scale. The scoring of the lickert scale is mentioned in the following table:

**Table No 4.1**

*The scoring of the likert scale*

| **Answers** | **Very Rare** | **Rare** | **Neutral** | **Frequent** | **Very Frequent** |
|---|---|---|---|---|---|
| **Scores** | 1 | 2 | 3 | 4 | 5 |

The above mentioned scale was used to examine the competency level of college teachers in the domains of mindsets, qualities, adaptive skills and technical skills. All the statements in questionnaire were close ended statements. The questionnaire used in this research study was comprised on the two sections. Section I contained demographics in which basic information like the Gender, Age (Years), Grade, and Teaching Experience (Years) about the respondents was collected. Section II comprised on the 41 statements based on the subscales of the framework of Blended Teaching Competencies by the iNACOL Blended Learning Teacher Competency Framework (Powell, Rabbitt, and Kennedy, 2014**).** These subscales were Mindsets, Qualities, Adaptive Skills and Technical Skills. Detailed Description of the Questionnaire is mentioned below in table 4.2.

**Table 4.2**

*Detailed Description of the Questionnaire*

| **Sr. No** | **Subscales** | **Statement No** | **Total Statements** |
|---|---|---|---|
| 1 | Mindsets | 1-9 | 9 |
| 2 | Qualities | 10-15 | 06 |
| 3 | Adaptive Skills | 16-22 | 07 |
| 4 | Technical Skills | 23-41 | 19 |

### 4.2.1 Analysis of Responses on BLTC with Reference to Mindsets

**Table 4.3**

*Responses (%) on BLTC with reference to Mindsets (n=206)*

| Sr # | Item | VR | R | N | F | VF |
|---|---|---|---|---|---|---|
| 1 | Move from teacher centered approaches to students centered approaches. | 19.8% | 20% | 10% | 40% | 10.2% |
| 2 | Value teamwork with different stakeholders to improve student learning. | 11.4% | 30% | 8% | 40.6% | 10% |
| 3 | Produce flexible environment for learning that rely on the collaboration. | 2% | 5.4% | 22% | **55.4%** | 15.2% |
| 4 | Model a growth- orientation towards learning for others. | 5% | 12.4% | 27% | 35.6% | 20% |
| 5 | Have an inventive spirit and hold | 7.2% | 18.9% | 15% | 36.9% | 22% |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Innovativeness and creative mind. | | | | | |
| 6 | Actively start change in light of students' requirements? | 2.9% | 14.6% | 19.9% | 48.5 % | 14.1% |
| 7 | Accept uncertainty as a feature of further developing teaching and learning procedures. | 8.3% | 20.4% | 24.8% | 35.4% | 11.2% |
| 8 | Model and urge others to be free and independent students. | 9.2% | 24.3% | 20.4% | **33%** | 13.1% |
| 9 | Show that you are upholding the teaching profession's effectiveness, transformation, and vitality. | 1.9% | 17.5% | 19.9% | 46.1% | 14.6% |

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Table No 4.3 is showing the percentages of responses given by the college teachers with respect to mindsets. 40 % teachers have frequently moved from teacher centred approaches to students' cantered approaches to fulfill the students' personal needs. 40.6% teachers agreed that they value teamwork with different stakeholders to improve student learning. **55.4%** teachers frequently produce flexible environment for learning that rely on the collaboration. 35.6% teachers were agreeing that they model a growth- orientation towards learning for others frequently. 36.9% teachers were of the

view that they have an inventive spirit and Innovativeness and creative mind.48.5% teachers agreed to the statement that actively start change in light of students' requirements With respect to blended learning. 35.4% teachers agreed to the statement that they accept uncertainty and ambiguity as a feature of further developing teaching and learning procedures. **33 %** teachers frequently model and urge others to be free and independent students. While 46.1% teachers Show that they are upholding the teaching profession's effectiveness, transformation, and vitality.

### 4.2.2 Analysis of Responses on BLTC with Reference to Qualities

**Table 4.4**

*Responses (%) on BLTC with reference to Qualities* *(n=206)*

| Sr # | Item | VR | R | N | F | VF |
|---|---|---|---|---|---|---|
| 1 | Take part in intended practices towards long term educational and professional goals. | 12.6% | 30.2% | 18.9% | **27.7%** | 10.6% |
| 2 | Keep up with and demonstrate endurance, and positive thinking to sort out issues. | 1% | 18.4% | 10.2% | **57.3%** | 13.1% |
| 3 | Openly and regularly share achievements, defeats, and challenges. | 11.8% | 25.2% | 20.4% | 30.5% | 12.1% |

| | | | | | | |
|---|---|---|---|---|---|---|
| 4 | View impartially at all outcomes to help other people to do likewise. | 9.2% | 20.4% | 19.9% | 37.4% | 13.1% |
| 5 | Balance individual initiative with teamwork to achieve organizational goals. | 9.2% | 23.3% | 16.5% | 37.4% | 13.6% |
| 6 | Proactively seek to learn from and with different specialists in the field. | 11.7% | 26.2% | 19.4% | 32.5% | 10.2% |

Table 4.4 shows the percentages of the responses of teachers related to the Qualities domain. **27.7%** of college teachers frequently take part in intended practices towards long term educational and professional goals. While **57.3 %** teachers keep up with and demonstrate endurance, certainty, and positive thinking to sort out issues frequently. While 30.5% teachers openly and regularly share achievements, defeats, and challenges frequently. 37.4% teachers frequently view impartially at all outcomes (both positive and negative), to help other people to do likewise. 37.4% teachers frequently balance individual initiative with to achieve organizational goals. 32.5% teachers frequently proactively seek to learn from and with different specialists in the field.

### 4.2.3 Analysis of Responses on BLTC with Reference to Adaptive Skills

**Table 4.5**

*Responses (%) on BLTC with reference to Adaptive Skills (n=206)*

| Sr # | Item | VR | R | N | F | VF |
|---|---|---|---|---|---|---|
| 1 | Continuously observe what is or isn't working (e.g. student-level information, innovation applications, teaching approaches, and so on). | 10.7% | 19.4% | 19.9% | **36.9%** | 13.1% |
| 2 | Collaboratively and Proactively seek out criticism from students, parents, and colleagues to improve pedagogical strategies. | 25.5% | 22.3% | 10.2% | 30.8% | 11.2% |
| 3 | Apply lessons and look at their own experiences as students, online as well as offline, to their work with students. | 22.6% | 30.6% | 21.8% | 15% | 10% |
| 4 | Take part in problem solving through continuous planning, testing, and | 10.7% | 30.3% | 19.4% | 25% | 14.6% |

| | | | | | | |
|---|---|---|---|---|---|---|
| | transformation of teaching strategies. | | | | | |
| 5 | Use ICT inventively and purposefully to work effectively and proficiently. | 26.5% | 42.7% | 21.4% | **8.4%** | 1% |
| 6 | Associate students to sources of data beyond the classroom teacher and textbook. | 25.1% | 25.2% | 17.5% | 19.1% | 13.1% |
| 7 | Lay out with open correspondence channels, online and face to face, with the students and teachers, and to help student learning. | 19.6% | 37.3% | 23.8% | 19.3% | 0% |

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Table 4.5 shows the percentages of the responses of teachers related to the domain of Adaptive Skills. **36.9%** teachers frequently observe continuously that what is or isn't working. 30.8% teachers frequently seek out criticism from students, parents, and colleagues collaboratively and proactively to improve pedagogical strategies. While only 15% teachers apply lessons and look at their own experiences as students, online as well as offline, to their work with students. 25% teachers take part in problem solving through continuous planning, testing, and transformation of teaching strategies frequently. On the other hand only **8.4%** of college teachers frequently use ICT inventively and purposefully to work effectively and proficiently. 19.1% of teachers frequently associate

students to sources of data beyond the classroom teacher and textbook**.** 19.3% teachers frequently lay out and keep up with open correspondence channels, online and face to face, with the students, teachers, and other stakeholders to help student learning**.**

### 4.2.4 Analysis of Responses on BLTC with Reference to Technical Skills

**Table 4.6**

*Responses (%) on BLTC with reference to Technical Skills (n=206)*

| Sr # | Item | VR | R | N | F | VF |
|---|---|---|---|---|---|---|
| 1 | Use data to figure out individual abilities, gaps**,** interests, and goals of every student. | 13.6% | 25.2% | 15% | 32% | 14.1% |
| 2 | Identify specific topics where each student needs extra help to understand a concept by continuously evaluating students' progress against clearly defined goals. | 11.2% | 32% | 16% | 31.6% | 9.2% |
| 3 | Adjust individual student guidance using data from various sources, including data systems, in a | 21.4% | 45.6% | 29.9% | 9.7% | 2.4% |

consistent manner.

| | | | | | | |
|---|---|---|---|---|---|---|
| 4 | Make ways of moving possession and analysis of information to students' to advance independent learning. | 11.2% | 35% | 16.5% | 29.1% | 8.3% |
| 5 | Consistently assess advancements, and instructional strategies to guarantee their effectiveness. | 17% | 29.1% | 24.3% | 22.8% | 6.8% |
| 6 | Give resources to students to learn content and give them the option to work independently or collaboratively. | 17% | 42.2% | 20.9% | 17% | 2.9% |
| 7 | Give resources to students they need to produce various types of proof of their knowledge to show mastery. | 19.4% | 39.3% | 17.5% | 19.4% | 4.4% |
| 8 | Make personalized learning goals with students, where learning objectives are connected to learning activities that are appropriate for each | 12.6% | 28.2% | 17.5% | 32% | 9.7% |

| | | | | | | |
|---|---|---|---|---|---|---|
| | student's level of understanding. | | | | | |
| 9 | Modify content and educational techniques to individual learning objectives, needs, and interests. | 12.6% | 29.1% | 16% | 32% | 10.2% |
| 10 | Make educational methodologies and learning experiences that advance online collaboration. | 7.8% | 20.4% | 18.4% | **46.6%** | 6.08% |
| 11 | Create authentic assessments and projects that fulfil standard based criteria by estimating students' learning goals. | 14.6% | 28.6% | 18.9% | 32% | 5.8% |
| 12 | Understand and control the online and face-to-face elements of lesson planning and management within a blended course. | 3.9% | 38.8% | 19.4% | 33% | 4.9% |
| 13 | Give students a variety of opportunities to engage in online and face to face mods of interaction. | 13.6% | 26.7% | 19.9% | 29.6% | 10.2% |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14 | Represent, and provide respectful behaviors in both face to face and web based learning environments. | 13.1% | 22.8% | 22.8% | 29.6% | 11.7% |
| 15 | Demonstrate technical fixing skills during the online learning. | 21.4% | 46.1% | 18% | 14.1% | 0.5% |
| 16 | Use learning management systems to arrange and deal with the blended learning environment. | 10.7% | 30.1% | 16.5% | 35.4% | 6.8% |
| 17 | Show expertise in the evaluation, choosing, and using efficient teaching methods, resources, and materials for students. | 17% | 46.6% | 18.4% | 16.5% | 1.5% |
| 18 | Connect students with the effective instructional materials, techniques, and resources to help their advancement of academic skills. | 10.7% | 35.9% | 23.8% | 29.6% | 0% |

| | | | | | | |
|---|---|---|---|---|---|---|
| 19 | Provide ICT technologies to facilitate learning. | 37.9% | 37.9% | 20.4% | **3.4%** | 0.5% |

Table 4.6 shows the percentages of frequently used responses of teachers related to the domain of Technical Skills. 32% teachers frequently use data to figure out individual abilities, gaps**,** interests, and goals of every student. 31.6% of teachers frequently and continually Identify specific topics where each student needs extra help to understand a concept by continuously evaluating students' progress against clearly defined goals. While only 9.7% of teachers frequently adjust individual student guidance using data from various sources, including data systems, in a consistent manner. 29.1% of teachers frequently make ways of moving possession and analysis of information to students' to advance independent learning. 22.8% of the teachers frequently assess advancements, tools, and instructional strategies to guarantee their effectiveness.

17% of teachers frequently give resources to students to learn content and give them the option to work independently or collaboratively. 19.4% of teachers frequently Give resources to students they need to produce various types of proof of their knowledge to show mastery. 32% of teachers frequently make personalized learning goals with students, where learning objectives are connected to learning activities that are appropriate for each student's level of understanding. 32% of teachers frequently modify content and educational techniques to individual learning objectives, needs, and interests.

On the other hand **46.6%** of teachers frequently make educational methodologies and learning experiences that advance online collaboration. 32% of teachers frequently create authentic assessments and projects that fulfil standard based criteria by estimating students' learning goals. 33% of teachers understand and control the online and face-to-face elements of lesson planning and management within a blended course. 29.6% of teachers frequently give students a variety of opportunities to engage in online and face to face mods of interaction. 29.6% teachers frequently represent, and provide respectful behaviours during both web based and physical learning prosesses. 14.1% of teachers frequently show technical fixing skills during the online learning (e.g., change passwords; download plug-ins, etc). 35.4% of teachers frequently use learning management system as well as other internet based cooperative instruments to arrange and deal with the blended learning environment. On the other hand only 16.5% of teachers frequently show expertise in the evaluation, choosing, and using efficient teaching methods, resources, and materials for students. While only 29.6% of teachers frequently connect students with the effective instructional materials, tools, techniques, and resources to help their achievement and advancement of academic skills. On the other hand only **3.4%** of teachers frequently provide ICT technologies to facilitate learning.

## 4.3 Mean Score Analysis

### 4.3.1 Mean Score Analysis of BLTCs with Reference to Mindsets

**Table 4.7**

*Mean Score Analysis of Mindsets* *(n=206)*

| S. No | Items | Mean Score | Decision |
|---|---|---|---|
| 1 | Move from teacher centred approaches to students centered approaches. | **4** | Frequently used Competency |
| 2 | Value teamwork with different stakeholders to improve student learning. | 3.98 | Frequently used Competency |
| 3 | Produce flexible environment for learning that rely on the collaboration. | 3.92 | Frequently used Competency |
| 4 | Model a growth- orientation towards learning for others. | 3.96 | Frequently used Competency |
| 5 | Have an inventive spirit and hold innovativeness and creative mind. | 4 | Frequently used Competency |
| 6 | Actively start change in light of students' | 3.90 | Frequently used Competency |

| | | | | |
|---|---|---|---|---|
| | requirements. | | | |
| 7 | Accept uncertainty and ambiguity as a feature of further developing teaching and learning procedures. | 3.95 | Frequently used | Competency |
| 8 | Model and urge others to be free and independent students. | 3.98 | Frequently used | Competency |
| 9 | Show that you are upholding the teaching profession's effectiveness, transformation, and vitality. | 3.78 | Frequently used | Competency |
| | **Cumulative Mean** | **3.94** | | |

Table 4.7 presents the mean score analysis for the Blended Learning Teacher Competency with respect to Mindsets. First hypothesis was formulated to analyze this table, that says that the Mindsets are significant contributor towards BL Teacher Competency Framework for college level. Mean Score (4) for statement 1 of the Mindsets construct depicts that a large number of teachers have moved from teacher centered approaches to student centered approaches to fulfill the students' personal needs and raising commitments and inspiration.

Mean score (3.98) for statement 2 indicates the frequently used competency of teamwork with different stakeholders to improve learning. Mean Score (3.92) for statement no 3 shows that teachers are frequently producing flexible and personalized environments for learning that relay on the actual statistics, observation, collaboration and response from the students. Mean score (3.96) for statement no 4 predicts about the large number of teachers that model an advancement direction towards learning for self and others. Mean score (4) for statement 5 shows the high percentage of teachers that have creative mind and hold innovativeness. Mean score (3.90) for statement 6 also shows that the majority of college teachers have started to change with respect to the students' requirements and progress.

Mean score (3.95) for statement 7 indicates that the maximum number of teachers that accept uncertainty and ambiguousness as a feature of further developing, instructing and learning procedures. Mean score (3.98) for statement 8 indicates the frequently used competency of teachers that Model and urge others to be free and independent students. Mean score (3.78) for statement 9 of mindset constructs shows that a large number of teachers exhibit the professional liability to put up to the effectiveness, transformation and vitality of the teaching profession with respect to their schools and locality.

Mindset subscale have the highest mean scores (M=4) and smallest mean score is (M= 3.78). While cumulative mean score (3.94) for the mindsets construct presents that a large number of college teachers have changed their mindsets from traditional to blended and online teaching.

### 4.3.2 Mean Score Analysis of BLTC with Reference to Qualities

**Table 4.8**

*Mean Score Analysis of Qualities* *(n=206)*

| S. No | Items | Mean Score | Decision |
|---|---|---|---|
| 1 | Take part in intended practices towards long term educational and professional goals. | 3.5 | Neutral Competency Level |
| 2 | Keep up with and demonstrate endurance, and positive thinking to sort out issues. | **4** | Frequently used Competency |
| 3 | Openly and regularly share achievements, defeats, and challenges. | 3.06 | Neutral Competency level |
| 4 | View impartially at all outcomes to help other people to do likewise. | 3.25 | Neutral Competency level |
| 5 | Balance individual initiative with teamwork to achieve organizational goals. | 3.23 | Neutral Competency level |
| 6 | Proactively seek to learn from and with different specialists in the field. | **3.03** | Neutral Competency level |
| | **Cumulative Mean Score** | **3.34** | |

Table 4.8 presents the mean score analysis for the Blended Learning Teacher Competency with respect to Qualities. This table addresses second hypothesis that says that the Qualities are significant contributors towards BL Teacher Competency Framework for college level. Mean Score (3.5) for statement 1 of the Qualities construct depicts that medium number of college teachers take part in intended practices towards long term educational and professional goals. Mean score (4) for the statement 2 indicates the frequently used competency of the teachers that keep up with and demonstrate to endurance, and positive thinking to sort out issues. Mean score (3.06) for statement 3 indicates that few college teachers openly and regularly share achievements, defeats, and challenges. Mean Score (3.25) for statement no 4 shows that a medium number of teachers view impartially at all outcomes (both positive and negative), to help other people to do likewise. Mean score (3.23) for statement no 5 predicts about medium percentage of teachers who Balance individual initiative with teamwork to achieve organizational goals. Mean score **(3.03)** for statement 6 shows the medium percentage of teachers that proactively seek to learn from and with different specialists in the field.

Highest mean scores of the Qualities subscale was about the item that "Keep up with and demonstrate endurance, certainty, and positive thinking to sort out issues." **(M=4).** While the lowest mean **3.03** for the statement no 1. And cumulative mean score remain **(3.34)** for the qualities construct.

### 4.3.3 Mean Score Analysis of BLTC with Reference to Adaptive Skills

**Table 4.9**

*Mean Score Analysis of Adaptive Skills* *(n=206)*

| S. No | Items | Mean Score | Decision |
|---|---|---|---|
| 1 | Continuously observe what is or isn't working (e.g. student-level information, innovation applications, teaching approaches, and so on). | **4** | Frequently used Competency |
| 2 | Collaboratively and Proactively seek out criticism from students, parents, and colleagues to improve pedagogical strategies. | 3.92 | Frequently used Competency |
| 3 | Apply lessons and look at their own experiences as students, online as well as offline, to their work with students. | 3.13 | Neutral Competency level |
| 4 | Take part in problem solving through continuous planning, testing, and transformation of teaching strategies. | 3.15 | Neutral Competency level |
| 5 | Use ICT inventively and purposefully to work | 2.42 | Rarely used competency |

| | | | |
|---|---|---|---|
| | effectively and proficiently. | | |
| 6 | Associate students to sources of data beyond the classroom teacher and textbook. | **2.13** | Rarely used competency |
| 7 | Lay out with open correspondence channels, online and face to face, with the students, teachers, and other stakeholders to help student learning. | 2.25 | Rarely used competency |
| | **Cumulative Mean Score** | **3.0** | |

Table 4.9 presents the mean score analysis for H3 that says that the Adaptive Skills are significant contributors towards BL Teacher Competency Framework for college level. Mean Score **(4)** for statement 1 of the Adaptive Skills construct depicts that college teachers frequently or very frequently and continuously observe what is or isn't working (e.g student-level information, innovation applications, teaching approaches, and so on) and make a strategy. Mean score (3.92) for statement 2 also indicates that a large percentage of teachers collaboratively and proactively seek out criticism from students, parents, and colleagues to improve pedagogical strategies**.** Mean Score (3.13) for statement no 3 shows that a medium number of teachers apply lessons and look at their own experiences as students, online as well as offline, to their work with students.

Mean score (3.15) for statement no 4 predicts about the medium number of teachers that take part in problem solving through continuous planning, testing, and transformation of teaching strategies. Mean score (2.42) for statement 5 shows that the teachers are rarely using ICT inventively and purposefully to work effectively and proficiently. Mean score **(2.13)** for statement 6 also showing that teachers rarely associate students to sources of data beyond the classroom teacher and textbook. Mean score (2.25) for statement 7 indicates that a small percentage of teachers lay out and keep up with open correspondence channels, online and face to face, with the students, teachers, and other stakeholders to help student learning.

Highest mean scores of the adaptive skills subscale was about the item that **"**Continuously observe what is or isn't working (e.g. student-level information, innovation applications, teaching approaches, and so on)**."** (M=4). While the cumulative mean score was (**3.0**) that presents a few or medium number of college teachers are possessing and using adaptive skills with respect of blended learning teacher competencies.

### 4.3.4 Mean Score Analysis of BLTC with Reference to Technical Skills

**Table 4.10**

*Mean Score Analysis of Technical Skills* *(n=206)*

| S. No | Items | Mean Score | Decision |
|---|---|---|---|
| 1 | Use data to figure out individual abilities, gaps**,** interests, and goals of every student. | 3.08 | Neutral Competency level |

| | | | |
|---|---|---|---|
| 2 | Identify specific topics where each student needs extra help to understand a concept by continuously evaluating students' progress against clearly defined goals. | 3.05 | Neutral Competency level |
| 3 | Adjust individual student guidance using data from various sources, including data systems, in a consistent manner. | 2.26 | Rarely used Competency |
| 4 | Make ways of moving possession and analysis of information to students' to advance independent learning. | 2.88 | Rarely used Competency |
| 5 | Consistently assess advancements, and instructional strategies to guarantee their effectiveness. | 3 | Neutral Competency level |
| 6 | Give resources to students to learn content and enable them to work autonomously or in cooperative groups. | 2.47 | Rarely used Competency |
| 7 | Give resources to students they need to | 2.50 | Rarely used Competency |

| | | | |
|---|---|---|---|
| | produce various types of proof of their knowledge to show mastery. | | |
| 8 | Make personalized learning goals with students, where learning objectives are connected to learning activities that are appropriate for each student's level of understanding. | 2.98 | Rarely used Competency |
| 9 | Modify content and educational techniques to individual learning objectives, needs, and interests. | 2.98 | Rarely used Competency |
| 10 | Make educational methodologies and learning experiences that advance online collaboration. | **3.24** | Neutral Competency level |
| 11 | Create authentic assessments and projects that fulfil standard based criteria by estimating students' learning goals. | 2.86 | Rarely used Competency |
| 12 | Understand and control the online and face-to-face elements of lesson planning and management within a blended course. | 2.96 | Rarely used Competency |

| | | | |
|---|---|---|---|
| 13 | Give students a variety of opportunities to engage in online and face to face mods of interaction. | 2.96 | Rarely used Competency |
| 14 | Represent, and provide respectful behaviors in both face to face and web based learning environments. | 3.04 | Neutral Competency level |
| 15 | Demonstrate technical fixing skills during the online learning. | 2.26 | Rarely used Competency |
| 16 | Use learning management system to arrange and deal with the blended learning environment. | 3.12 | Neutral Competency level |
| 17 | Show expertise in evaluation, choosing, and using efficient teaching methods, resources, and materials for students. | 2.39 | Rarely used Competency |
| 18 | Connect students with the effective instructional materials, techniques, and resources to help their advancement of | 3 | Neutral Competency level |

academic skills.

| | | | |
|---|---|---|---|
| 19 | Provide ICT technologies to facilitate learning. | **1.91** | Very Rarely used Competency |
| | **Cumulative Mean Score** | **2.78** | |

Table 4.10 presents the mean score analysis for Technical Skills that says that the Technical Skills are significant contributors towards BL Teacher Competency Framework for college level. Mean Score (3.08) for statement 1 of the construct of Technical Skills depicts that a few teachers use subjective and objective data to figure out individual abilities, gaps**,** interests, and goals of every student, and use that data to personalized learning experiences. Mean Score (3.05) for statement no 2 shows again a few number of teachers Identify specific topics where each student needs extra help to understand a concept by continuously evaluating students' progress against clearly defined goals. Mean score (2.26) for statement no 3 indicates a low percentage of college teachers who adjust individual student guidance using data from various sources, including data systems, in a consistent manner. Mean score (2.88) for statement no 4 predicts about the medium level competency in the teachers with respect to the making ways of moving possession and analysis of information to students' to advance independent learning. Mean score (3) for statement 5 also shows a medium level competency of teachers that consistently assess advancements, tools, and instructional strategies to guarantee their effectiveness. Mean score (2.47) for statement 6 shows a low competency of teachers to give resources to students to learn content and give them the option to work independently or collaboratively. Mean score (2.50) for statement 7 also indicates a low percentage of

teachers that give resources to students to create evidence of their knowledge in various formats to show mastery.

Mean score (2.98) for statement for statement 8 indicates the medium number of teachers that make personalized learning goals with students, where learning objectives are connected to learning activities that are appropriate for each student's level of understanding. Mean score (2.98) for statement 9 also depicts a minimum number of teachers that modify content and educational techniques to individual learning objectives, needs, and interests. Mean score **(3.24)** of statement no 10 of the construct of Technical Skills shows that a medium number of teachers make educational methodologies and learning experiences that advance content based critical thinking and online collaboration. Mean score (2.86) for statement 11 indicates a medium percentage of teachers that create authentic assessments and projects that fulfill standard based criteria by estimating students' learning goals. Mean score (2.96) for statement for statement 12 indicates the medium number of teachers understand and control the online and face-to-face elements of lesson planning and management within a blended course. Mean score (2.96) for statement 13 also depicts a medium number of teachers that provide balanced opportunities for students to participate in online and face to face mods of interaction. Mean score (3.04) of statement no 14 of the construct of Technical Skills shows that a medium number of teachers represent, and provide respectful behaviors in both face to face and web based learning environments. Mean score (2.26) for statement for statement 15 indicates a low number of teachers demonstrate technical fixing skills during the online learning. Mean score (3.12) for statement 16 depicts a medium number of teachers use learning management system as well as other internet based cooperative

instruments to arrange and deal with the blended learning environment. Mean score (2.39) of statement no 17 of the construct of Technical Skills shows a low number of teachers that show expertise in the evaluation, choosing, and using efficient teaching methods, resources, and materials for students. Mean score (3) of statement no 18 shows that a medium number of teachers connect students with the effective instructional materials, tools, techniques, and resources to help their achievement and advancement of academic skills. Mean score **(1.91)** of statement no 19 shows that a very low number of teachers provide ICT technologies to facilitate learning.

Highest mean scores of the Technical skills subscale was about the item that "Make educational methodologies and learning experiences that advance online collaboration." (M=3.24). While overall mean score **(2.78)** presents that the teachers are using the Technical Skills very rarely in the context of blended teaching.

**Table 4.10.1**

*Comparison of Mean Scores of Subdomains.*

| Objective No | Subscales | Mean Scores | Status |
|---|---|---|---|
| 1 | Mindsets | 3.94 | Frequently used competency |
| 2 | Qualities | 3.34 | Moderately used competency |
| 3 | Adaptive Skills | 3.0 | Neutral competency level |
| 4 | Technical Skills | 2.78 | Rarely used competency |

By analyzing the mean scores in the above mentioned table it is evident that a large number of college teachers have changed their mindsets with respect to BT.

They have shifted from traditional to the blended learning and student centred classroom practices as the mean score of 3.94 is above the cut point. While the mean score 3.34 for Qualities subscale is also above the cut point that is indicating a large number of college teachers are also having and practicing the competencies of qualities subscale in the context of blended learning. As far as adaptive skills with respect to BL are concerned, above mentioned table is showing the mean value that is little less then mindsets and qualities construct. Mean score 3 is sufficient to support the fact that teachers are having as well as practicing these skills while teaching. While with respect to the blended learning teacher competency framework a small numbers of college teachers are using technical skills during teaching as the mean score of 2.78 is indicating a minimum score.

## 4.4 Section 3: Qualitative Analysis based on Interviews

Qualitative analysis was done with the help of research questions. Semi structured Interviews based upon the standards of Blended Learning Teacher Competency Framework were conducted for in depth exploration of phenomenon under study. 8 vice principals were interviewed regarding BLTC at college level for having the qualitative data. Findings based on interviews were analyzed with the help of themes. Following major themes were generated after the qualitative data analysis:

**Table 4.11**

*Themes*

| Theme No | Major Themes |
|---|---|
| Theme 1 | Vision of Teachers with respect to BT. |
| Theme 2 | Importance of Qualities in Teachers Regarding BT. |
| Theme 3 | Status of Adaptive and Technical skills. |
| Theme 4 | Significant of BL classroom environment. |
| Theme 5 | Effects of Blended Learning. |

A detailed list of all structural components related to the five study research questions that were discovered during the data analysis stage is provided in Table 4.11. Each theme is connected to the study's research questions. The unprocessed information from each participant provides a thorough account of the importance and current state of the BT in the public sector colleges in the Rawalpindi city. The chapter makes extensive use of quotations and spoken statements to illustrate its themes. Detail on each of the major themes is provided in this section, along with data to back up each claim.

**Table 4.11.1**

*Theme Mapping*

| Research Questions | Major Themes |
|---|---|
| **RQ1:** What are the new visions of teachers regarding teaching and learning in the context of Blended Learning? | **Theme 1:** Vision of Teachers with respect to BT. |
| **RQ2:** What is the importance of qualities like grit, transparency and collaboration for teaching? Do you practice these in your college? | **Theme 2:** Importance of Qualities in Teachers regarding BT. |
| **RQ3:** How do the college teachers use adaptive and technical skills like reflection, innovation, communication, data practices and instructional strategies in your college? | **Theme 3:** Status of Adaptive and Technical skills. |
| **RQ4:** How are the specific competencies of BLTCs Framework significant for blended learning classroom environment at college level? | **Theme 4:** significant of BL classroom environment |
| **RQ5:** What effects does Blended Learning have in bringing improvement? | **Theme 5:** Effects of BL. |

### 4.4.1 Theme 1: Vision of Teachers with respect to BT.

**RQ1:** What are the new visions of teachers regarding teaching and learning in the context of Blended Learning?


Fig. 14. *Word Cloud for Vision of Teachers with respect to BT.*

Theme generated for question 1 was **Vision of Teachers with respect to BT.** To triangulate the responses of teachers on questionnaire, the Vice principals were interviewed about the Vision of Teachers with respect to BT. Responses of the participants are as under:

One of the vice principals of college said that:

*i) "Our teachers are having new visions with respect to blended teaching. They prefer to use student-centered approaches to fulfill the personal needs of students, but sometimes they are unable to implement that vision because they*

*have a lot of workload in the form of teaching multiple classes."*

All other participants said that the teachers in their colleges are well trained and competent. They have new vision for teaching and learning with respect to blended teaching. All these similar responses are given below:

*ii)* "*Our college teachers are so creative that they inculcate this creativity and innovation in their students. They prefer to use student-centered approaches."*

*iii)* *"Yes, off course they all are having new visions of teaching with respect to BL as they all are well trained. They mostly use student-centered classroom approaches to enhance learning".*

*iv)* *" Yes, especially new teachers are having new vision towards BT. They implement their vision of activity based classroom learning which also have positive effects on the results of their students."*

*v)* *"In our college teachers produce flexible environment for learning. They also value team work and student -centred classroom approaches so that students can get the maximum advantage in learning. they are having new visions in teaching."*

*vi)* *"They are also having new visions for teaching. They value team work, collaboration and flexibility in the classroom environment. They also use student-centred classroom strategies."*

On the other hand two of the respondents told that their teachers have new visions of teaching and learning. They have the competencies of teamwork, creativity

and innovation but they are unable to implement them due to over-crowded classrooms and time constraints. Their statements are given as under:

vii) *"Although all teachers are having the competencies of team work, creativity and innovation, but due to overcrowded classrooms sometimes they are unable to implement that vision. Some newly inducted teachers are enthusiastic at the start and they implement their visions of creativity and innovations but soon they become the part of this rigid system when they face the shortage of time."*

viii) *"Teachers in our college are competent with respect to BL. They are having new visions. They use to enhance collaboration among students by creating student-centered classroom environment But due to the rigid system and multiple classes they can't continue to BT practices".*

After analyzing the above mentioned responses in the context of Vision of Teachers with respect to BT, it is found that college teachers of public sector are having new vision of blended teaching and learning. They are also well aware about blended teaching and learning. Most of them are practicing these skills during teaching, but they can't implement it fully due to excessive workload in the form of multiple classrooms as their responsibility.

### 4.4.2 Theme 2: Importance of Qualities in Teachers regarding BT.

**RQ2:** What is the importance of qualities like grit, transparency and collaboration for teaching? And do you practice these in your college?

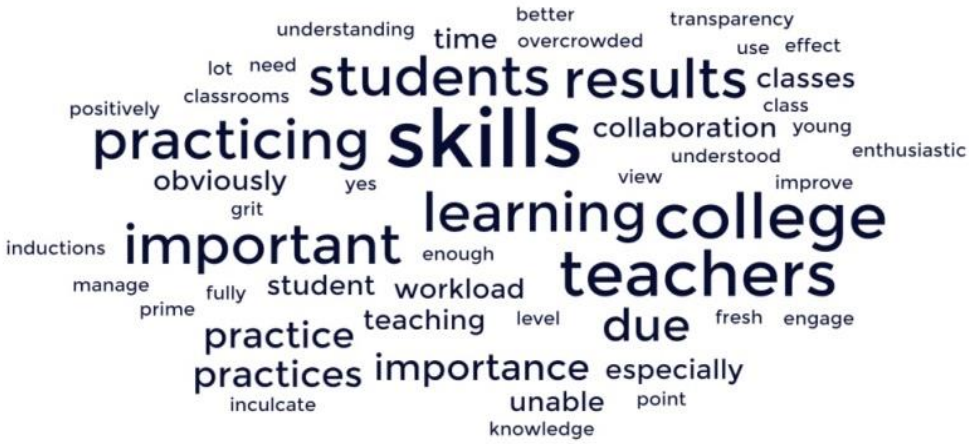


Fig.15 *Word Cloud for Importance of Qualities in Teachers regarding BT.*

**Importance of Qualities in Teachers regarding BT,** was the theme that was generated for the above mentioned question. **.**When the Vice Principals were asked about the importance of the qualities of grit, transparency and collaboration for students while teaching and the status or frequency of these practices in their colleges. All had given the similar responses which are given below:

i) *"Grit, transparency and collaboration improve student learning, level of understanding and results as well. Our teachers are also practicing these skills."*

ii) *"Yes, they are important for learning point of view our teachers also manage to inculcate these skills while teaching."*

iii) *"These skills are important for better learning and results of students. Many teachers in our college are practicing these skills especially young and fresh inductions are so enthusiastic for these practices."*

iv) *"They are very much importance as they positively effect on results and knowledge of students and we are also practicing them in our college."*

v) *"These are very important skills. in my college not all but some teachers are practicing these skills due to its importance. As with collaboration we can engage students in effective learning activities."*

While three of the respondents also acknowledged the positive effects and importance of grit, transparency and collaboration for teaching. But they told that their teachers are unable to implement these practices because of the excessive workload on teachers, overcrowded classrooms and also the limited time for each class. Their statements are as fellow:

vi) *"Obviously all these qualities are important for students while teaching. we can have good results due to these skills. We are unable to practice all these in our college because classes of especially compulsory subjects are too large to practice these plus teachers are also involved in the administration duties and their classes are already got suffered due to these types of workload."*

vii) *"It is understood that they are very important for student learning and results. But due to the workload on teachers and overcrowded classrooms we are unable to use these practices fully in our college."*

viii) *"Obviously these skills are of prime importance for students and we are also practicing in our college but not more as there is not enough time for each class. And these practices need a lot of time to practice."*

After analyzing the responses and the theme for the research question number four it is evident that public sector teachers are well aware of the importance of the qualities of grit, transparency and collaboration for blended Teaching and Learning, but they are unable to practice that in classroom due to excessive workload overcrowded classrooms and time constraints . Because these practices require a lot of time and the system in the public sector colleges does not allow them to practice all.

**4.4.3: Theme 3: Status of Adaptive and Technical Skills.**

RQ 3: How do the college teachers use adaptive and technical skills like reflection, innovation, communication, data practices and instructional strategies in your college?

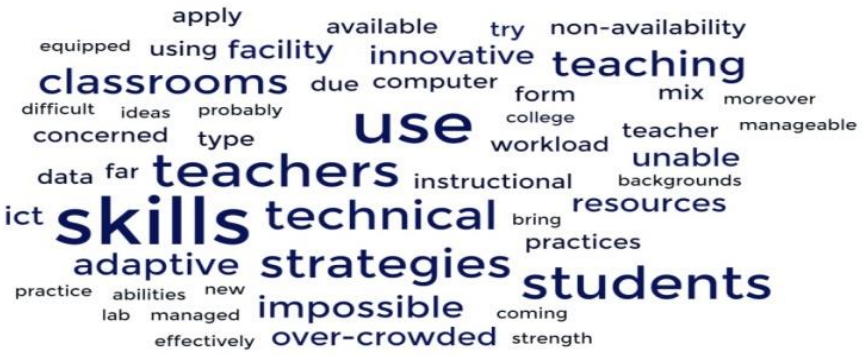


*Fig. 16 Word Cloud for Status of Adaptive and Technical Skills.*

After analyzing the responses and theme for the above mentioned research question it is found that maximum respondents have respond in the similar way but three of the participants have given different answers which are given below:

One of the participant said,

i) *"Teachers try to use adaptive skills. Teachers in my college are innovative. They bring new ideas of teaching and instructional strategies. As far as data practices are concerned students are coming with mix backgrounds and mix abilities that are why it is difficult or more probably impossible to use these data practices."*

ii) *"We are not having well managed and well equipped classrooms and our teachers are unable to apply adaptive and technical skills in the form of using ICT effectively."*

iii) *"We are not having the facility of computer lab that's why it is unable to practice both skills. Moreover strength of students are not manageable. we are having over-crowded classrooms. If a teacher wants to use instructional strategies then it will be quite impossible to manage these type of strategies in overcrowded classrooms."*

iv) *"teachers integrate adaptive skills in the form of innovating teaching strategies but they are unable to use technical skills as Resources are not available which hinder our teachers to use adaptive and technical skills. We have over-crowded class rooms and both skills are impossible to be implemented."*

v) *"Due to the non-availability of resources and overcrowded classrooms we are compel to use traditional methods of teaching. We don't have internet and multimedia facility for students. That is why technical skills are not been practiced for teaching learning purposes."*

vi) *"Our teachers are innovative and reflective but due to the non-availability of resources, over-crowded classrooms and lack of time and excessive workload on teachers hindering factors to use especially technical skills ."*

vii) *"As you know in government set up we are not having such types of facilities to implement affective and technical skills. Computers are not available for students. Although our computer teacher use these type of strategies but cannot use them for other students of different subjects."*

viii) *"They try their level best to teach their students by using both of these skills. They are also innovative. But as far as teaching with the help of ICT is concerned it is impossible for us as we are not having ICT facility for our students. Workload is also a factor that is a constraint to not apply these strategies in the classroom."*

After analyzing the above mentioned responses related to the question no five it is found most of the teachers are using adaptive skills but as far as technical skills are concerned, again the non-availability of resources, time bound system, overcrowded classrooms and workload are the constraints for using technical skills in the class rooms. Although it is also found after analyzing the above mentioned responses the students in

the public sector colleges are from mix backgrounds and mix abilities as well so it is impossible for the teacher to teach them by using data practices. As most of the students are un aware about the use of computers and lab tops. Even a large number of students don't have internet and lab top and mobile facility with them so it is difficult to use these strategies in such type of time bound and rigid system. In this way this theme also triangulates or validates the responses given by the teachers on questionnaire.

### 4.4.4: Theme 4: Significance of BLTCs classroom environment.

**RQ4:** How are the specific competencies of Blended Learning Teacher Competency framework significant for blended learning classroom environment at college level?


*Fig. 17 Word Cloud for* Significance of BLTCs classroom environment.

The fourth structural element identified was the **Significance of BLTCs classroom environment.** Question number one addresses the Fifth hypothesis that is, There is a close relationship between the effective teaching and the blended learning

Teacher Competencies. Significance of BLTCs classroom environment became much more prominent when it is evident that BLTCs have a positive effect on learning and the results of students. All Vice Principals which became the part of this research study acknowledged the significance of the BLTCs and their practices for the conducive classroom environment. One of the participants of interviews acknowledged that the BLTCs are of much importance while teaching by the following statement:

i) *"Off course these competencies during blended teaching are very important. Without these competencies we can't teach well and also can not have better results."*

Moreover another interviewee also highlighted the significance of BLTCs for students by the following words:

ii) *"As it is the era of technology and innovation. The world has moved to blended teaching strategies, so these competencies are also significant for students to have better understandings of what they have learnt. in order to compete the modern world our students must be taught in a way that enable them to become good learner. "*

On the other hand, other some of the participants acknowledged the role of BLTCs competencies with respect to the effective outcomes by giving the following statements:

iii) *"BLTCs are very significant as it improves students' knowledge and level of understanding which have positive effects on results."*

iv) *"BLTCs are important to achieve the best results of blended teaching."*

v) *"BLTCs are very important to have better student learning outcomes/SLOs."*

vi) *"They are having much importance. Due to these competencies we can have better results."*

Apart from the above mentioned statements regarding the significance of BLTCs classroom environment one of the Vice Principal highlighted the need and importance of the BLTCs with respect to the 21st century classroom in the following words:

vii) "*Yes, BLTCs are compulsory especially in 21st century classroom teaching and learning."*

One more vice principal highlighted the significance of BLTC framework with respect to effective teaching and learning in the following way:

viii) *"BLTCs are significant enough for effective teaching and effective learing."*

In short, the participants agreed upon the significance of BLTCs classroom environment. They also are of the view that it is the need of 21st century classroom environment. Students will also produce better results if they are given the BLTCs classroom environment. So this theme validates the results taken from the questionnaire and also the conceptual framework of this research study.

### 4.4.5 Theme 5: Effects of BL.

**RQ 5**: What effects does BL have in bringing improvement?


*Fig. 18 Word Cloud for Effects of BL.*

When Vice principals were asked about the effects of BL in bringing improvement then same responses were found which are given below:

i) *"BL positively effect on the student learning outcomes. Students' level of understanding got improved. But we can not practice BL competencies fully in our colleges because of the tightly bounded system and lack of time and resources."*

ii) *"We have moved towards change and improvement in teaching, which positively affected the results of students. Because of overcrowded classrooms and excessive workload we cannot fully implement BL practices."*

iii) *"BL improved the students' level of understanding related to the topics and also the results."*

iv) *"BL practices such as student-centered classroom, collaboration and creativity produce better results as compared to traditional classroom learning."*

v) *"As told earlier, out teachers believe in teamwork and collaboration. They also produce flexible learning environment for students. That is why they improved their results."*

One of the vice principals highlighted the effective role of BL practices during COVID 19 In the following words:

vi) *"During Covid 19 all teachers used blended teaching. Teachers engaged their students in teaching and learning with the help of BL practices. In this way maximum learning took place which also positively affected the results of students as well."*

On the other hand, two of the participants pointed out that due to rigid system, and over-crowded classrooms teachers are unable to shift towards BL.

vii) *"The system is too rigid as we have already designed system. It is difficult for teachers to practice all competencies with respect to blended teaching."*

viii) *"Yes we got a little bit effects in the form of improvement in learning and results. As you know we are having 100 plus students for compulsory subjects like English and urdu and it is impossible for a teacher to practice all these things in such type of overcrowded classroom."*

After having all the above mentioned responses and generating theme with respect to teaching practices it is find that teachers have moved towards change and improvement in teaching and learning. BL practices positively affected the learning outcomes and results of students. But in some of the colleges where the students' strength is not manageable they have the restrictions in the form of overcrowded classrooms and tightly bound system that don't allow them to practice the student-centered approaches like BL. Teachers are tightly bound in the rigid system that a few teachers who even want to bring change in their teaching practices by using blended teaching. So they are bound to teach by using traditional methods of teaching. Although one of the participants pointed out that during COVID-19 their teachers used blended teaching strategies which became helpful for the learning of their students. On the whole this theme also validates the responses of the questionnaire given by the teachers.

## 4.5 Summary

An elaborative description of the participant's observations and experiences of the level of BLTCs in their respective colleges are given by this chapter. Five major themes are developed after interviewing eight Vice Principals of male and female colleges. Direct quotes from the participant interviews, which were transcribed, were used to support each theme. The educational leaders or vice principals talked about their experiences with the obstacles and limitations that their teachers encounter when trying to practice and implement the BLTC framework in their classrooms. It was found that college teachers have moved towards BL and related innovation teaching strategies. They focus on students centered and activity based classrooms by promoting teamwork, flexibility and collaboration. All participants also expressed their views some factors

affected the teaching learning environment and the learning outcomes of the students. They also included the lack of resources and time side by a large strength of students in class rooms and the excessive work load on teachers that hinder them to practice all of the competencies mentioned in framework, especially the competencies belong to Technical Skills.

# CHAPTER NO 5

## SUMMARY, FINDINGS, DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

This chapter includes a summary, the research study's findings, a discussion, conclusions, and recommendations based on findings. In the study, a mix method research approach was used to examine the phenomenon of blended learning teacher competencies. The research questions acted as the impetus for revealing information about the college-level blended learning teacher competency framework. The first section of this chapter elaborates on the research study's executive summary, and the second section is devoted to the study's findings based on the questionnaire and the research questions. The third section will comprise on the discussion. The conclusion will be shown in sections four. The study's recommendations will be given in the section no 5.

### 5.1 Section 1: Summary

This chapter comprised on the findings of the study. The study was conducted to explore the blended learning teacher competency at college level. It was a phenomenological study. Mix method design was used for this study. The researcher used a questionnaire for the collection of quantitative data. This tool was adapted to explore and investigate the blended learning teacher competencies. Demographic sheet was also developed for the questionnaire to get the basic information related to the participants' regarding teachers' gender, grade, experience of teaching and the age. For having qualitative data five interview questions based on the questionnaire were developed. The theoretical framework of the study was based on the international association for K-12

online learning (iNACOL). Data was collected from the colleges of Punjab government in Rawalpindi city. 11 female, 3 male and 1 Co-education College were the samples of the research study. Purposive sampling technique was used for the sample of the study. Teachers of computer science, Urdu and Islamiat were excluded from the research study the competency level of the teachers of computer science is already high as per judgment. On the other hand the teachers of Urdu and Islamiat were also excluded from the sample as the theoretical model of the research study is not implemented on the teachers of Urdu and Islamiat. Furthermore, the questionnaire was filled from the Respondents having experience of more than two years as the blended teaching competency level remains high in the teachers having the experience of two or less than two years. Qualitative data was collected with the help of semi structured interviews from eight vice principals for the verification of the responses given by the participants. Five research questions were formulated for the interviews. The total size of the sample was 243 college teachers of Punjab government working in the colleges of Rawalpindi city. Among these 243 teachers 200 were female and 43 teachers were male. Qualitative results are confirmed with the help of thematic analysis based on interviews. While quantitative results are confirmed with the help of mean analysis. Both qualitative and quantitative results are also triangulated with each other for confirmation of the results.

## 5.2 Section 2: Findings of the study

Findings of this research study are based on the two sections. Section one is comprised on the findings based on questionnaire and the section two is comprised on the findings based on the interviews. Alternate hypotheses were formulated to show the relationship between the BL Teacher Competencies and their significance with respect to

the college level. With the aid of a questionnaire, quantitative data was gathered, and mean analysis and response percentages were used in the SPSS software to analyze the results. While the qualitative data obtained from the interviews were analyzed with the help of thematic analysis. Structural themes were generated for each question. Thus triangulation of quantitative data was done in this way. At the end, in light of the research study's collected data, a conclusion is provided. In light of the research findings and observational observations, a conclusion is reached and recommendations are given. Moreover, recommendations are made for future researchers as well.

It was found that the teachers of public sector colleges of Rawalpindi city are well aware about the significance of BL. Maximum teachers are having BL competencies with respect to Mindsets, Qualities, Adaptive and Technical Skills, but they are lacking in the practices of those competencies and skills especially technical skills due to the non-availability of resources, rigid system, overcrowded classrooms and excessive workload.

## 5.2.1 Findings based on the objectives of the research study

### 5.2.1.1 Findings of the study based on the Questionnaire:

In table 4.3 percentages of frequently used responses of teachers related to the Mindsets domain are found. It was found that the **55.4%** teachers frequently produce flexible environment for learning that rely on the collaboration. On the other hand the lowest percentage of responses with respect to the mindset domain remained **33%.** That means only 33% of college teachers frequently model and urge others to be free and independent students.

Above mentioned highest and the lowest values related to the mindset domain were above the cut points which were indicating the change in the mindsets of college

teachers. A large number of teachers understand the importance of BT and they have moved towards the blended teaching and learning.

Table 4.4 shows the percentages of the responses of teachers related to the Qualities domain. The highest percentage related to this domain was found **57.3 %**. This indicated that the 57.3% teachers keep up with and demonstrate endurance, certainty, and positive thinking to sort out issues. While only **27.7%** of college teachers frequently take part in intended practices towards long term educational and professional goals. It was evident from the frequencies of responses that a large number of college teachers were having and practicing the qualities competencies in the context of BL.

In table 4.5 percentages of the responses of teachers related to the domain of Adaptive Skills were found. It was found that **36.9%** college teachers frequently or very frequently observe continuously that what is or isn't working well in the class with respect to adaptive skills. On the other hand a small percentage of teachers only **8.4%** frequently use ICT inventively and purposefully to work effectively and proficiently. After analyzing the frequencies of responses with respect to Adaptive Skills it was found that the percentages of this skill were below the cut points. Small number of teachers were having and using this competency in the class room.

Percentages of the responses of teachers related to the domain of Technical Skills were found in table 4.6. **46.6%** of teachers were found frequently make educational methodologies and learning experiences that advance online collaboration. On the other hand it was found that only **3.4%** of teachers frequently provide ICT technologies to facilitate learning. It was found that the highest and the lowest frequency values related to the Technical Skills ranges between 46.6% to 3.4%. This indicated that a small number

of college teachers are using the competencies related to the Technical Skills while teaching.

In table 4.7 it was found that the mean scores in the mindset subscale ranged between 4 to 3.78 and both values indicated that majority of respondents had BL teacher competency at high level with respect to mindsets. Overall mean score was 3.94 indicated that a large number of college teachers have changed their mindsets from traditional to blended and online learning. Instructional methods have changed significantly, over a long period of time. Innovation in pedagogical methods is based on the use of technology. As a result, blended learning, which combines face to face and online learning, is being explored more and more as a useful learning strategy (Aurangzeb, 2018).

The result of data shows that the college teachers of public sector have moved from teacher centred approaches to students centred approaches. They also know the value of teamwork in order to improve the learning of students. They try to produce flexible environment for learning that rely on the collaboration. They also have actively started changing in the light of students' requirements. Maximum college teachers in public sector model and urge others to be free and independent students. It is found from the data analysis that the mindsets contributes significantly towards BL Teacher Competency Framework for college level.

In table 4.8 the mean score for the Qualities construct remained between 4 and 3.03. Both values were above the cut point which indicated that majority of respondents had BL teacher competencies with respect to the Qualities construct. Overall mean for Quality subscale was 3.34, that also indicated an appropriate level of the characteristics

like grit, collaboration, and transparency in the college teachers that assist the teachers with making the progress towards effective approaches for teaching and learning The result of data shows that the college teachers accomplish organizational goals, strike a balance between self-initiative and teamwork and also actively look for opportunities to learn from and with various subject-matter specialists.

In table 4.9 the mean score for the Adaptive Skills subscale remained between 4 and 2.13 that show the medium number of respondents using the Adaptive skills with respect to BL teacher competency framework. Overall mean for Adaptive Skills subscale was 3.0 that also show few numbers of teachers having or practicing BT with respect to the Adaptive skills.

As a result it is evident that a medium number of college teachers in public sector colleges are reflective in their teaching practices and establish open channels of communication with the students, teachers, and other stakeholders both in person and online to aid in student learning. Moreover medium numbers of teachers take part in problem-solving through ongoing planning, evaluating, and transforming of instructional strategies, identify and connect students to information sources other than the teacher and textbook.

In table 4.10 the mean score for the Technical Skills subscale was between 3.24 and 1.91. Both values are below the cut point which indicated a very low number of teachers practicing the technical skills for blended teaching. Overall mean score for the Technical Skills subscale is 2.78, that is very low. Data indicated that teachers in public sector colleges use the competency of technical skills rarely.

Table No 4.10.1 reflects the comparison of the subdomains of blended learning teacher competency framework. It indicates the statistical significant differences in the responses of all subscales. Highest value was of mindset construct that remained 3.94 and the lowest value was of technical skills that was only 2.78. By comparing the highest and lowest values of mean it is evident that a large number of college teachers have changed their minds from traditional to the blended learning and student centered classroom practices Mindsets is found the most effective subscale with respect to BTCs after the analysis of the quantitative data as most of the teachers have moved towards the change of mindsets. Mindsets are prerequisite to move towards other BT competencies. While a small number of college teachers are using or having technical skills as the mean score of 2.78 is indicating a minimum score. Constructs of Qualities and Adaptive Skills remained 3.34 and 3.0 respectively that shows the medium number of teachers practicing or having these two competencies while teaching.

#### 5.2.1.2 Findings of the study based on the Interviews

For this study, five research questions were formulated to investigate and triangulate the phenomenon. The information gathered gave rise to five main themes. The first research question examines the “Vision of Teachers with respect to BT.”’ The second theme: Importance of Qualities in Teachers regarding BT was based on the second question. While the third theme explores the “Status of Adaptive and Technical Skills.” Fourth research question explored the effectiveness of 12 specific competencies of Blended Learning Teacher Competency. The major structural theme for these elements that emerged related to this question was: “Significance of BL classroom environment”.

Fifth research question investigated the “Effects of BT.” All the above mentioned themes also support the hypotheses and validate the quantitative data taken with the help of questionnaire.

All of the responses to the five research questions have already been discussed in Chapter 4. The relevance of each research question to the major theme will be explicitly indicated in this section. What we discovered is as follows:

1. The first theme based on the first research question was “**Vision of Teachers with respect to BT”** first research question was: What are the new visions of your teachers regarding teaching and learning in the context of BL?

   The participants provided practical and day to day examples of how their teachers were having new vision for BL practices. Findings for the second question validated the mindsets subscale. it is suggested that teachers have new vision in the form of student-centered and activity based classroom. Teachers are also creative as they innovate student centered classroom environments for the effective teaching and learning.

2. The Second theme: Importance of Qualities in Teachers regarding BT was based on the following research question: What is the importance of grit, transparency and collaboration for teaching? Do you practice these in your college?

   Quantitative results of Qualities subscale was validated with the help of question no four. All the participants agreed upon the importance of grit, transparency and collaboration while teaching. Quality construct also important to produce better results as well. On the other hand few respondents mentioned the factors that hinder the teachers to practice the above mentioned qualities fully

while teaching. Main constraint was the time. As these practices require a lot of time and the system in the public sector colleges does not allow them to practice all. They also pointed out other factors such as the excessive workload and limited time allocated for a class which do not allow them for such practices in the classroom. It was also mentioned by one of the participants that newly inducted teachers apply these skills while teaching but with the passage of time due to the above mentioned hindering factors they also start to adopt the traditional methods of teaching.

3. How do the college teachers use adaptive and technical skills like reflection, innovation, communication, data practices and instructional strategies in your college? This research study deals with the theme of skills. Such as: Status of Adaptive and Technical Skills.

Subscales of Adaptive and Technical Skills in the questionnaire were triangulated with the help of question number three. Most of the participants had given the same answers. They pointed out that their teachers are well aware about the adaptive skills but they are unable to use them fully because of the issue of non-availability of resources, shortage of time, rigid system and the excessive workload these factors hinder the teachers to use especially technical skills in the classroom. Moreover due to the mix background of students, as all of students don't have the facility of mobiles, laptops, and internet. That is why it is impossible to use adaptive and technical skills while teaching. On the other hand one of the participants told that they have all necessary resources with respect to adaptive and technical skills and their teachers are also practicing them in the classroom. That also has a positive effect

on the learning of the students as well. It was found that due to the use of ICT students can now explore more advanced learning dimensions. Students gain independence and a sense of their own areas of interest in this way. The acceptance of newer learning concepts has been aided by the flexibility of time and space provided by the integration of ICT in blended learning classroom environments (Amin, 2015).

4. Fourth question for having qualitative data was about the Significance of BL classroom environment. The fourth question was: How are the specific competencies of BLTCs Framework significant for blended learning classroom environment at college level?

   I had to adhere to the precepts of the framework of Blended Learning Teacher Competencies by the International Association for K–12 Online Learning (iNACOL) in order to better understand the participant's experiences and observations which gave me a basis for understanding the phenomenon's nature. On the basis of the data gathered, the first structural component, the "Significance of BL classroom environment," emerged. All participants are the vice principals in the public sector colleges. When they were asked about the Significance of BL classroom environment associated with their respective colleges. All participants agreed upon the significant contribution of BLTCs classroom environment for the effective learning. They also highlighted the importance of BLTCs for the better and productive outcomes of students in the form of results.

5. The next theme which explored the level of adaptive skills was: **Effects of BL.** The question for this theme was: What effects does BL have in bringing improvement?

The participants elaborated that their teachers have moved towards change and improvement in teaching practices with respect to BLTCs which have positively affected the results of students but some of the participants said that the only restricting factor is workload and rigid system and overcrowded classroom. On the other hand a participant was of the view that during COVID-19 these online teaching practices based on BT were highly effective for their students. Teachers used online forum to teach during pandemic which produced better results.

## 5.3 Section 3: Discussions

This portion comprises on the discussion of the findings of both quantitative and qualitative data according to hypothesis and objectives in the light of previous researches. Quantitative data was acquired with the help of questionnaire from the college teachers while qualitative data was gathered with the help of semi structured interviews from the Vice Principals for in depth investigation of the phenomenon under study. According to Finlay (2014), and Miller and Barrio Minton (2016), interpretative phenomenology Analysis IPA aims to understand complex subjective phenomena by carefully examining a subject's lived experience of a phenomenon. Five research questions based on the items of BLTCs asked in the questionnaire were designed. Interviews were conducted for the triangulation of quantitative data acquired from the teachers with the help of questionnaire.

First hypothesis based on the objective No 1 of the study was “Mindsets are significant contributor towards BL Teacher Competency Framework for college level”. According to the findings of this study, teachers at college level demonstrated readiness and awareness in utilizing blended learning based on Mindsets. Study that supported these findings are of Ye et al (2022) in his study he noted the significance of adopting positive mindset and perspective when teaching in blended learning environments. Hypothesis was accepted as the mean scores of the mindset subscale ranged between 4 to 3.78. Overall mean score was 3.94 that presents a large number of college teachers have changed their mindsets from traditional to blended and online learning. Same findings were also concluded by Taghizadeh and Hajhosseini (2021) these advantageous attitude tendencies can consequently affect how students perceive and feel about their education in a blended learning environment.

Research Question number one was formulated to collect qualitative data for the mindsets subscale. All participants validated that the teachers in their respective colleges have moved from teacher centered approaches to students centered approaches which indicates that the mindsets contribute significantly towards BL Teacher Competency Framework for college level. These findings are in line with the studies mentioned in the literature (Jwaifell et al., 2018).

2nd hypothesis based on the objective No 2 of the study was “Qualities are significant contributors towards BL Teacher Competency Framework for college level”. Findings of Qualities construct were in line with Bruggeman et al. (2021, p. 8), who after interviewing expert educators, outlined a number of key teacher qualities that promote effective blending learning. These include having an emphasis on academics, placing a

high value on education, and having flexible mindset. The statistical analysis of showed that the hypothesis was accepted as the mean score for the Qualities construct remained between 4 and 3.03. Both values were above the cut point which indicated that majority of respondents had BL teacher competencies with respect to the Qualities construct. Overall mean for Quality subscale was 3.34. Findings of this study are in line with the study of Milthorpe et al. (2018) who contend that teachers must value creativity, teamwork, and adaptability in their pedagogical practices if they are to deliver effective instruction in a blended learning environment.

Research question number Two was formulated to validate the Qualities subscale. The data collected through the interviews also indicated the acceptance of research hypothesis. These findings are supported by the findings of Bowles, M., & Kaviani, A. (2023) who highlighted that the qualities of a teacher are crucial for effectively engaging students in meaningful learning experiences. On the other hand it is also elaborated by the small number of participants of interview that the teachers in public sector colleges face the burden of excessive work load in the form of academic activities, assessment making tasks, additional administrative duties as well as the load of multiple classes that is why implementation of this vision of quality construct with respect to BT in the classroom remain a challenge for them.

The 3rd hypothesis based on the objective No 3 of the research study was, “Adaptive Skills are significant contributors towards BL Teacher Competency Framework for college level”. Findings of this construct is in the line with the study of Barron (2006) who states that learning to be adaptable is not only a desirable trait but also a necessity especially in situations where the entire pedagogical context and settings are

being reconfigured and the learning content is being mediated through the use of a new digital platform. Reflecting on one's teaching experiences and using what is learned to improve future instruction is a crucial process competency. Moreover, these findings are also in line with the study of Smith (2021, p. 188) who demonstrates how his reflections on teaching in a blended learning environment helped him advance his knowledge of the subject matter, technology integration, and the capacity to use synchronous and asynchronous comment tools for coaching. The findings showed that the 3rd hypothesis is also achieved. Findings of this study are also in line with the study of Barnett & Jackson, (2019) who pointed out that we need to be adaptable and flexible as we reorganize our own teaching ecology in a blended learning environment because we are teachers with extensive experience in both teaching online and teaching in-person. The mean score for the Adaptive Skills subscale remained between 4 and 2.13. Overall mean for Adaptive Skills subscale was 3.0 that show the medium number of teachers practicing BT with respect to the Adaptive skills.

Research question number three was formulated for the triangulation of Adaptive and Technical subscales. It is found that the teachers are adaptive to their teaching practices they have moved towards change and improvement in teaching practices with respect to BLTCs due to the the effectiveness of these practices. Many researchers have also demonstrated the significance of the tendency to magnify teaching in innovational pedagogical ecologies (Sahan, 2020; Guida and Cinganotto, 2021; Gil-Quintana & Osuna-Acedo, 2020; Fan et al. , 2022). Principals also highlighted some restricting factors such as workload and rigid system that restrict the teachers to fully implement the adaptive skill. If teachers start to practice and adopt the adaptive skills fully in their

classrooms their syllabus and results will get compromised. Aurangzeb (2018) also supported the results and concluded that blended learning in Pakistan differs from ICT advanced countries, where students and teachers receive better capacity building. However, implementing blended learning in Pakistani universities faces certain challenges. 4$^{th}$ hypothesis based on the objective No 4 of the study was "Technical Skills are significant contributors towards BL Teacher Competency Framework for college level". The findings are supported by the research study of Heilporn et al (2022) who demonstrate how using effective instructional techniques in a blended learning environment improves student engagement and clarity.

The mean score for the Technical Skills subscale was between 3.24 and 1.91, both values are below the cut point which indicated a very low number of teachers practicing o the technical skills for blended teaching. Overall mean score for the Technical Skills subscale was 2.78. That is also very low that also indicated a negative aspect of respondents towards technical skills. The same findings were also concluded by Bayne et al, (2020). In a blended learning approach, it is crucial, in our opinion, that the online component of a course is not positioned as the preferred mode of instruction.

Research question number three also triangulates the results of the quantitative data for Technical skills. It also shows the same trend. Participants pointed out the factors which hinder their teachers to use technical skills during their classes. The teachers in public sector colleges don't have facility of computers, multimedia and other such resources of technical instructions in their colleges. Moreover, one of the vice principals pointed out that students come from mix backgrounds and having mix abilities that most of them don't have internet access and the availability of gadgets that help them

in blended learning with respect to technical skills. That is why it is very rarely used competency in public sector colleges. Aurangzeb (2018) also supported the results and concluded that blended learning in Pakistan differs from ICT advanced countries, where students and teachers receive better capacity building. However, implementing blended learning in Pakistani universities faces certain challenges. These include technical difficulties like the lack of technology for online classrooms, limited computer access for some students due to the socio-economic state of the country, and the hindrance of English language competency in understanding instructions and assignments. Teachers also face obstacles such as lack of awareness about blended learning, inadequate computer literacy, and resistance to change.

The findings of this research are also in line with the findings given by Rasheed, Kamsin, and Abdullah (2020) who pointed out that the implementation of learning management systems (LMSs) that are suited to student learning preferences, the complexity of technology, the high cost of producing electronic content, the cost of online learning technologies, the overly complex technology distracting students, and the institutional barriers to adopting BL were the biggest institutional challenges. As Zhu et al. (2021, p. 6154) contend that when their use has been distinctly defined and made simple for the student, learning technologies are of utmost significance in a blended learning environment. Findings of this subscale is also in the line with that of Antonio (2022) who highlighted that a competent use of and integration of technology has a positive impact on students' learning and achievement, so it is crucial that teachers are able to comprehend and use various technologies effectively and meaningfully (Antonio,

2022). This can involve learning effective ways to use the tools and features of cutting-edge digital platforms or how to use big data to assess students' progress.

5th hypothesis is based on the fifth objective. 5$^{th}$ hypothesis is further divided into a sub hypothesis. Both are as follow: There is a close relationship between the effective teaching and the blended learning Teacher Competencies. Sub hypothesis for the 5th hypothesis was: There are a number of effective blended teaching competencies used for blended teaching. By comparing the overall mean it is concluded that Mindsets, and Qualities and are major contributors in BL. Both constructs are frequently used by the teachers than the adaptive and technical skills. These findings are supported by the findings of Ossiannilsson (2017), It should be noted that many experts in the field feel that blended learning should be more focused on the mindsets, qualities and the pedagogy employed by the teachers than the technology (Ossiannilsson, 2017, p. 13).

Fifth hypothesis as well as its sub hypothesis was tested with the help of research question number fourth, fifth and also by comparing the mean analysis of each subscale. Both hypotheses are achieved as the data support the hypotheses. All participants acknowledged the positive relationship between the effective teaching and the blended learning Teacher Competencies. They highlighted the significant contribution of BLTCs in the learning process. These findings are in line with the study of Bowles, M., & Kaviani, A. (2023), who pointed out that the effective blended learning programs rely heavily on the BL competencies of teachers. According to us, the qualities, expertise, and skills of teachers are crucial to the overall success of a blended learning program. An approach to conceptualizing these is to list the essential competencies needed for efficient teaching and learning (Bowles, M., & Kaviani, A. 2023).

Without having BLTCs mentioned in the framework a teacher cannot teach in an effective way and students cannot produce better learning outcomes as well. These findings were in line with findings of Lai et al. (2022), who pointed out that after examining more than 100 empirical studies, it is evident that blended teaching methods have a moderate positive impact on students' academic performance. The most significant improvement is noted in their motivation to learn and emotional well-being (Lai et al., 2022). In this study, we discovered that a competency framework is a helpful repository of critical traits and abilities that are crucial for teachers to develop in a new blended learning environment. It works best when we can examine our attitudes, convictions, and actions and compare them to specific, outlined standards. Additionally, it has given us a clear benchmark and increased our awareness of the obligations that teachers have in a blended learning environment. These findings are also in line with the Ossiannilsson (2017, p. 14). It is important for teachers to be "well prepared, motivated, and have sufficient time and resources," and a teaching competency framework can be a very helpful tool to direct and support professional development activities.

## 5.4 Section 4: Conclusion

The essential point of the study is to explore and investigate the blended learning teacher competency framework at college level. The following conclusion was deduced after going through the findings of the study.

1. On the basis of 1st finding, it is concluded that the Mindsets are significant contributor towards BL Teacher Competency Framework for college level. Teachers working in the public sector colleges of Rawalpindi city have changed their mindsets from traditional or teacher cantered classroom

environment to the learner centered and BTL environments.

2. On the basis of 2nd finding, it is concluded that Qualities such as grit, transparency and collaboration are significant contributors towards BL Teacher Competency Framework for college level, that assist teachers for better teaching and learning approaches. It is also concluded that the rigid system and overcrowded classrooms restrict the teachers to fully operationalize the qualities construct.
3. On the basis of 3rd finding, it is concluded that the Adaptive Skills are contributing at low level towards BL Teacher Competency Framework at college level. The Qualitative data also supports the third finding as the college teachers are having the adaptive skills but the main reason for the minimum practice of adaptive skills analyzed by qualitative data is the workload on teachers, shortage of time and resources. Although newly inducted teachers adopt these skills while teaching but with the passage of time due to the above mention hindering factors they also became a part of the traditional system.
4. On the basis of 4th finding, it is concluded that the Technical Skills are contributing at low level towards BL Teacher Competency Framework for college level due to the lack of resources and time as well as the mix abilities and mix backgrounds of the students it is impossible to practice all these in the classroom. As students coming from weak financial backgrounds don't have internet access and the relevant gadgets.
5. Findings based on the research questions indicate the close relationship

between the effective teaching and the BLTCs. That also supports the conceptual framework of this research study. It is concluded from the findings that the Mindsets and Qualities competencies are frequently used competencies at college level.

## 5.5 Implications

This research presents valuable insights into how college teachers incorporate BLTCs into their teaching practices. The outcomes encourage educational institutions' top decision-makers to reassess current teaching norms and consider implementing reforms to enhance the learning environment in relation to BL. The findings of this research have significant results for the implementation of organizational strategies in the field of education. Administrators should recognize the importance of blended learning (BL) and provide teachers with the necessary resources and facilities to reach their full potential. The higher management can also consider introducing reforms to create a BL-friendly environment, as it significantly benefits student learning. This study also highlights the need for college teachers to familiarize themselves with blended learning and its practices, particularly the technical aspects. Conducting training sessions and awareness campaigns at the college level can help transition towards a blended learning classroom environment.

## 5.6 Section 5: Recommendations

1. As the study supported that a large number of college teachers are aware of BLTCs and its significance with reference to Mindsets so it is recommended that the college management may ensure the availability of BL related facilities and resources i.e. ICT infrastructure available in the classroom for better BL

environment.

2. It is suggested to hire sufficient staff so that workload can be managed and teachers can only be engaged in teaching rather than administrative duties. In this way teachers can concentrate on BLTCs with reference to Qualities as BL teaching-learning environment require more time for planning and execution.
3. As it was found that a small number of teachers were having and using adaptive skills in the classroom. It is suggested that the college management may arrange training sessions, workshops and enrolment of college teachers on global forums in the context of adaptive skills. Moreover sufficient staff must be hired to overcome the problem of shortage of staff that hinders teachers to use adaptive skills.
4. Arrange specialized training programs by curriculum experts for college teachers to enhance individualized instruction /personalized instruction which will improve their technical skills, as well as the incorporation of contemporary technologies into the educational process, also enhance digital literacy which fosters student motivation as well.
5. Mix up group work style during ICT related activities can be initiated to improve the technical skills of students.
6. As the study suggests that there are a number of effective BT competencies so it is recommended the need for college teachers to propagate BLTCs culture through in house faculty discussions/discourse, awareness seminars bringing in, motivational speakers to talk on the subject of blended learning.

- **Recommendations for future Researches**

1. The study was limited to public sector colleges which are having overcrowded class rooms, excessive workload, rigid system and lack of resources that hinder them to use BLTCs in their colleges. There is need for exploration of the BLTC phenomenon in private colleges as well.
2. This research study was conducted with respect to Blended Learning Teacher Competencies by the international association for K-12 online learning (iNACOL) was used as the theoretical framework for this research study. Although, there is still room to access the phenomenon of BLTCs in the light of later-proposed latest theories.
3. A comparative research may be conducted by acquiring data from male and female colleges.
4. A study concerning BL infrastructure may also be accomplished.
5. It is recommended for the future researcher to design and carry out a survey about the impact of BLTCs on the performance, personality development and learning outcomes of the students in order to generalize the study's results to a larger population.
6. The same research study can also be replicated with the teachers from schools and universities to derive additional insights.

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# APPENDICES

## APPENDIX A

NATIONAL UNIVERSITY OF MODERN LANGUAGES
FACULTY OF SOCIAL SCIENCES
DEPARTMENT OF EDUCATION

ML.1-4/2021/Edu

Dated: 27th June 2022

To: Javerea Meer
16 MPhil/Edu/S21

Subject: APPROVAL OF MPHIL THESIS TITLE AND SUPERVISOR

1. Reference to Letter No, ML.1-4/2021-Edu, dated 27-06-2022, the Competent Authority has approved the title and supervisor in 13th BASR meeting dtd 1st June 2022 on the recommendations of Faculty Board of Studies vide its meeting held on 12th April 2022.

   a. Supervisor's Name & Designation
      Dr Wajeeha Aurangzeb (Supervisor)
      Associate Professor
      Department of Education, NUML, Islamabad.
   b. Thesis Title

**Blended Learning Teacher Competency at College Level: A Phenomenological Study**

2. You may carry out research on the given topic under the guidance of your supervisor and submit the thesis for further evaluation within the stipulated time. It is to inform you that your thesis should be submit within described period by 31st December 2023 positively for further necessary action please. ***(Timeline attached)***

3. As per policy of NUML, all MPhil/PhD thesis are to be run on Turnitin by QEC, NUML before being sent for evaluation. The university shall not take any responsibility for high similarity resulting due to thesis run from own sources.

4. Thesis is to be prepared strictly on NUML's format that can be taken from (Dr Saira Nudrat, Coordinator MPhil/PhD)

Telephone No: 051-9265100-110 Ext: 2094
E-mail: snudrat@numl.edu.pk

Dr. Wajeeha Shahid
Head
Department of Education

Distribution:

Javerea Meer (MPhil Scholar)

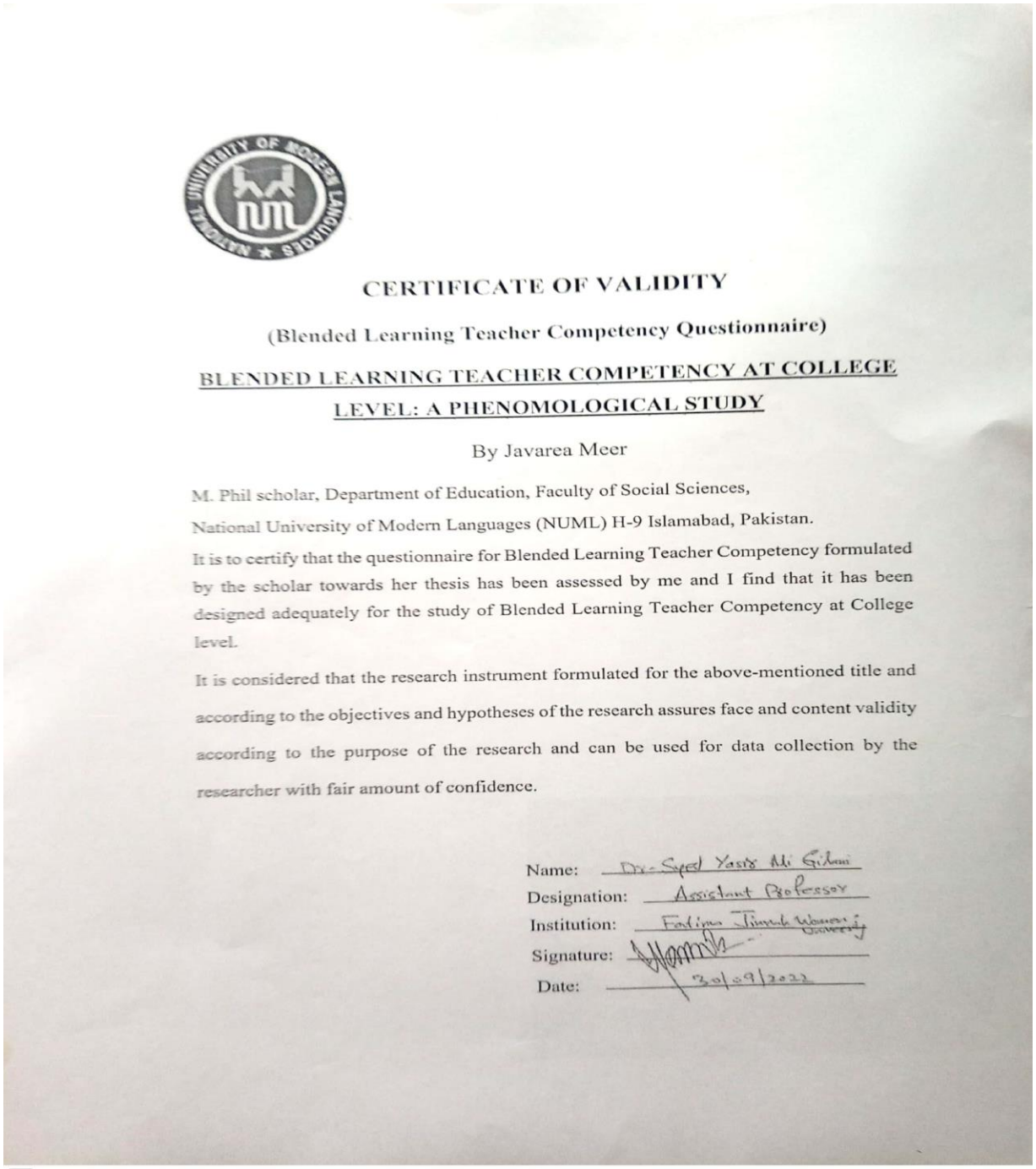
Dr. Wajeeha Aurangzeb (Thesis Supervisor)

**APPENDIX B**

| Sr. # | List of Institutions of (RWP City) | Catagory |
|---|---|---|
| 1. | GOVT. KHADIJA UMAR DEGREE COLLEGE FOR WOMEN, TENCH BHATTA, RAWALPINDI | Female |
| 2. | GOVT. DEGREE COLLEGE FOR WOMEN-MOHAN PURA, RAWALPINDI | Female |
| 3. | GOVT. DEGREE COLLEGE FOR WOMEN-PESHAWAR RD, RAWALPINDI | Female |
| 4. | GOVT. COLLEGE FOR WOMEN MURREE ROAD RAWALPINDI | Female |
| 5. | GOVT. DEGREE COLLEGE FOR WOMEN DHOKE HASSU RAWALPINDI | Female |
| 6. | GOVT. DEGREE COLLEGE (W) DHOKE RATTA RAWALPINDI | Female |
| 7. | GOVT. DEGREE COLLEGE FOR WOMEN JHANDA CHICHI, RAWALPINDI | Female |
| 8. | GOVT. DEGREE COLLEGE FOR WOMEN, GAWALMANDI, RAWALPINDI. | Female |
| 9. | GOVT. DEGREE COLLEGE FOR WOMEN, DHOKE MANGTAL, RAWALPINDI | Female |
| 10. | GOVT. DEGREE COLLEGE FOR WOMEN, DHOKE SYEDAIN, RAWALPINDI | Female |
| 11. | GOVT. DEGREE COLLEGE FOR WOMEN DHAMYAL, RAWALPINDI | Female |
| 12. | GOVT. GORDON COLLEGE RAWALPINDI | Male, Female |
| 13. | GOVT. DEGREE COLLEGE FOR BOYS DHOKE SYEDIN | Male |
| 14. | GOVT. DEGREE COLLEGE FOR BOYS DHAMYAL, RAWALPINDI B | Male |
| 15. | GOVT. POST GRADUATE COLLEGE ASGHAR MALL RAWALPINDI B | Male |

**APPENDIX C**

## Validity Certificates



CERTIFICATE OF VALIDITY

(Blended Learning Teacher Competency Questionnaire)

BLENDED LEARNING TEACHER COMPETENCY AT COLLEGE LEVEL: A PHENOMOLOGICAL STUDY

By Javarea Meer

M. Phil scholar, Department of Education, Faculty of Social Sciences,
National University of Modern Languages (NUML) H-9 Islamabad, Pakistan.

It is to certify that the questionnaire for Blended Learning Teacher Competency formulated by the scholar towards her thesis has been assessed by me and I find that it has been designed adequately for the study of Blended Learning Teacher Competency at College level.

It is considered that the research instrument formulated for the above-mentioned title and according to the objectives and hypotheses of the research assures face and content validity according to the purpose of the research and can be used for data collection by the researcher with fair amount of confidence.

Name: Dr. Syed Yasir Ali Gilani
Designation: Assistant Professor
Institution: Fatima Jinnah Women University
Signature:
Date: 30/09/2022

**APPENDIX D**

## CERTIFICATE OF VALIDITY

**(Blended Learning Teacher Competency Questionnaire)**

**BLENDED LEARNING TEACHER COMPETENCY AT COLLEGE LEVEL: A PHENOMOLOGICAL STUDY**

By Javarea Meer

M. Phil scholar, Department of Education, Faculty of Social Sciences,

National University of Modern Languages (NUML) H-9 Islamabad, Pakistan.

It is to certify that the questionnaire for Blended Learning Teacher Competency formulated by the scholar towards her thesis has been assessed by me and I find that it has been designed adequately for the study of Blended Learning Teacher Competency at College level.

It is considered that the research instrument formulated for the above-mentioned title and according to the objectives and hypotheses of the research assures face and content validity according to the purpose of the research and can be used for data collection by the researcher with fair amount of confidence.

Name: Dr Malik Behlol

Designation: Prof HOD

Institution: Fatima Jinnah women university

Signature:

Date: 30/9/2022

**APPENDIX E**

## CERTIFICATE OF VALIDITY

**(Blended Learning Teacher Competency Questionnaire)**

**BLENDED LEARNING TEACHER COMPETENCY AT COLLEGE LEVEL: A PHENOMOLOGICAL STUDY**

By Javarea Meer

M. Phil scholar, Department of Education, Faculty of Social Sciences,

National University of Modern Languages (NUML) H-9 Islamabad, Pakistan.

It is to certify that the questionnaire for Blended Learning Teacher Competency formulated by the scholar towards her thesis has been assessed by me and I find that it has been designed adequately for the study of Blended Learning Teacher Competency at College level.

It is considered that the research instrument formulated for the above-mentioned title and according to the objectives and hypotheses of the research assures face and content validity according to the purpose of the research and can be used for data collection by the researcher with fair amount of confidence.

Name: Dr. Farkhanda Jabeen.

Designation: A.P.

Institution: FJWU.

Signature:

Date: 26th Dec, 2022.

**APPENDIX F**

## Confidentiality Agreement

Name of Signer: Javarea Meer

During the course of my activity in collecting data for this research: **"BLENDED LEARNING TEACHER COMPETENCY AT COLLEGE LEVEL: A PHENOMONOLOGICAL STUDY",** I will have access to information, which is Confidential and should not be disclosed. I acknowledge that the information must remain confidential, and that improper disclosure of confidential information can be damaging to the participant. By signing this Confidentiality Agreement, I acknowledge and agree that:

1. I will not disclose or discuss any confidential information with others, including friends or family.
2. I will not in any way divulge, copy, release, sell, loan, alter or destroy any confidential information except as properly authorized.
3. I will not discuss confidential information where others can overhear the conversation. I understand that it is not acceptable to discuss confidential information even if the participant's name is not used.
4. I will not make any unauthorized transmissions, inquiries, modification or purging of confidential information.
5. I agree that my obligations under this agreement will continue after termination of the job that I will perform.
6. I understand that violation of this agreement will have legal implications.
7. I will only access or use systems or devices I'm officially authorized to access and I will not demonstrate the operation or function of systems or devices to unauthorized individuals. Signing this document, I acknowledge that I have read the agreement and I agree to comply with all the terms and conditions stated above.

**Signature:** _____ **Date:** _____

**APPENDIX G**

## Consent Letter

Signature of Investigator: _____

Blended Learning Teacher Competency at College Level: A Phenomenological Study.

You are invited to participate in a research study of BLTCs. You were selected as a possible participant due to association withCollege Level. Please read this form and ask any questions you may have before acting on this invitation to be in the study.

This study is being conducted by Javarea Meer, an MPhil Education Scholar at National University of Modern Languages (NUML) Islamabad.

**Background Information:**

The purpose of this study is to investigate the level of BLTCs.

**Procedures:**

If you agree to be in this study, you will be asked to fill in a questionnaire or will be asked to participate in a short interview that may be audio recorded.

**Voluntary Nature of the Study:**

Your participation in this study is strictly voluntary. If you initially decide to participate, you are still free to withdraw at any time later.

**Risks and Benefits of Being in the Study:**

There are no risks associated with participating in this study and there are no short or long-term benefits to participating in this study. In the event you experience stress or anxiety during your participation in the study you may terminate your participation at any time. You may refuse to answer any questions you consider invasive or stressful.

**Compensation:**

There will be no compensation provided for your participation in this study.

**Confidentiality:**

The records of this study will be kept private. In any report of this study that might be published, the researcher will not include any information that will make it possible to identify you. Research records will be kept in a locked file, and only the researcher will have access to the records.

**Contacts and Questions:**

The researcher conducting this study is Javarea Meer. The researcher's faculty Supervisor

is Dr. Wajeeha Aurangzeb- Associate Professor and HOD of Educational Sciences, NUML. If you have questions later, you may contact them via landline number 051-9265100. If you have questions about your participation in this study, you will receive a copy of this form from the researcher

**Statement of Consent:**

I have read the above information. I have asked questions and received answers. I consent to participate in the study.

Printed Name of Participant: _____

Participant Signature: _____

Participant Email: _____

Participant Contact No: _____

Signature of Investigator: _____

**APPENDIX H**

# Research Instrument

**Serial No:_____**

## BLENDED LEARNING TEACHER COMPETENCY AT COLLEGE LEVEL: A PHENOMOLOGICAL STUDY

Dear Respondent,

I am M.Phil scholar (Education) working on my research work on the above mentioned topic. You are requested to fill in the Questionnaire attached. The first part of the questionnaire consists of demographic information. The remaining part of this questionnaire form deals with the blended learning teacher competency at college level.

It is assured that your response will be kept confidential and will not be disclosed to any person or authority. The survey form is developed to collect data for my research work only.

Javarea Meer

M.Phil scholar Department of Education,

National University of Modern Languages,

Islamabad, Pakistan.

## DEMOGRAPHICS:

| | | | | | |
|---|---|---|---|---|---|
| **a.** | **Gender** | Male | Female | | |
| **b.** | **Classes Taught** | 1st Year | 2nd Year | 3rd Year | 4th Year |

## INSTRUCTIONS:

You are requested to give your responses against the responses ranging from 5 to 1. (5 Very Frequent, 4 Frequent, 3 Neutral, 2 Rare, 1 Very Rare).

| Sr.No | Do You? | VR | R | N | F | VF |
|---|---|---|---|---|---|---|
| **1** | Move from teacher centered approaches to student centered approaches to fulfill the students' personal needs. | 1 | 2 | 3 | 4 | 5 |
| **2** | Value teamwork with different stakeholders to improve student learning. | 1 | 2 | 3 | 4 | 5 |
| **3** | Produce flexible environment for learning that rely on the collaboration. | 1 | 2 | 3 | 4 | 5 |
| **4** | Model a growth- orientation towards learning for others. | 1 | 2 | 3 | 4 | 5 |
| **5** | Have an inventive spirit and hold innovativeness and creative mind. | 1 | 2 | 3 | 4 | 5 |
| **6** | Actively start change in light of students' requirements. | 1 | 2 | 3 | 4 | 5 |
| 7 | Accept uncertainty and ambiguity as a feature of further developing teaching and learning procedures. | 1 | 2 | 3 | 4 | 5 |
| **8** | Model and urge others to be free and independent students. | 1 | 2 | 3 | 4 | 5 |
| **9** | Exhibit the professional responsibility to put up to the effectiveness**,** transformation, and vitality of the teaching profession. | 1 | 2 | 3 | 4 | 5 |
| **10** | Take part in intended practices towards long term educational and professional goals. | 1 | 2 | 3 | 4 | 5 |
| **11** | Keep up with and demonstrate endurance, certainty, and positive thinking to sort out issues. | 1 | 2 | 3 | 4 | 5 |
| **12** | Openly and regularly share achievements, defeats, and challenges. | 1 | 2 | 3 | 4 | 5 |
| **13** | View impartially at all outcomes (both positive and negative), to help other people to do likewise. | 1 | 2 | 3 | 4 | 5 |
| **14** | Balance individual initiative with teamwork to achieve organizational | 1 | 2 | 3 | 4 | 5 |

| | goals. | | | | | |
|---|---|---|---|---|---|---|
| **Sr. No** | **Do You?** | **VR** | **R** | **N** | **F** | **VF** |
| **15** | Proactively seek to learn from and with different specialists in the field. | 1 | 2 | 3 | 4 | 5 |
| **16** | Continuously observe what is or isn't working (e.g student-level information, innovation applications, teaching approaches, and so on). | 1 | 2 | 3 | 4 | 5 |
| **17** | Collaboratively seek out criticism from students, parents, and colleagues to improve pedagogical strategies. | 1 | 2 | 3 | 4 | 5 |
| **18** | Apply lessons and look at their own experiences as students, online as well as offline, to their work with students. | 1 | 2 | 3 | 4 | 5 |
| **19** | Take part in problem solving through continuous planning, testing, and transformation of teaching strategies. | 1 | 2 | 3 | 4 | 5 |
| **20** | Use ICT inventively and purposefully to work effectively and proficiently. | 1 | 2 | 3 | 4 | 5 |
| **21** | Associate students to sources of data beyond the classroom teacher and textbook. | 1 | 2 | 3 | 4 | 5 |
| **22** | Lay out and keep up with open correspondence channels, online and face to face, with the students, teachers, and other stakeholders to help student learning. | 1 | 2 | 3 | 4 | 5 |
| **23** | Use data to figure out individual abilities, gaps**,** interests, and goals of every student**.** | 1 | 2 | 3 | 4 | 5 |
| **24** | Continually assess student progress against clearly defined goals to recognize specific topics in which each student needs extra help to master a concept. | 1 | 2 | 3 | 4 | 5 |
| **25** | Use data from different sources, including data systems, in a common way to adjust individual student guidance. | 1 | 2 | 3 | 4 | 5 |
| **26** | Make ways of moving possession and analysis of information to students to promote independent learning. | 1 | 2 | 3 | 4 | 5 |
| **27** | Consistently assess advancements, tools, and instructional strategies to guarantee their effectiveness. | 1 | 2 | 3 | 4 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **28** | Give resources to students to learn content and enable them to work autonomously or in cooperative groups. | 1 | 2 | 3 | 4 | 5 |
| **29** | Give resources to students to create evidence of their knowledge in various formats to show mastery. | 1 | 2 | 3 | 4 | 5 |
| **30** | Make personalized learning goals with students, where learning goals are linked to learning experiences, matched to the individual student's learning level. | 1 | 2 | 3 | 4 | 5 |
| **31** | Modify content and educational techniques to individual learning objectives, needs, and interests. | 1 | 2 | 3 | 4 | 5 |
| **32** | Make educational methodologies and learning experiences that advance online collaboration. | 1 | 2 | 3 | 4 | 5 |
| **33** | Create authentic assessments and projects that fulfill standard based criteria by estimating students' learning goals. | 1 | 2 | 3 | 4 | 5 |
| **34** | Understand and manage the face-to-face and online components of lesson planning and organization within a blended course. | 1 | 2 | 3 | 4 | 5 |
| **35** | Provide balanced opportunities for students to participate in online and face to face modes of interaction. | 1 | 2 | 3 | 4 | 5 |
| **36** | Represent, and provide respectful behaviors in both face-to-face and online learning environments. | 1 | 2 | 3 | 4 | 5 |
| **37** | Demonstrate technical fixing skills during the online component of learning (e.g., change passwords; download plug-ins, etc). | 1 | 2 | 3 | 4 | 5 |
| **38** | Use learning management system as well as other internet based cooperative instruments to arrange and deal with the blended learning environment. | 1 | 2 | 3 | 4 | 5 |
| **39** | Show expertise in the assessment, selection and the use of effective instructional materials, tools, techniques, and resources for students. | 1 | 2 | 3 | 4 | 5 |
| **40** | Connect students with the effective instructional materials, tools, techniques, and resources to help their achievement and advancement of academic skills. | 1 | 2 | 3 | 4 | 5 |
| **41** | Provide ICT resources to facilitate learning. | 1 | 2 | 3 | 4 | 5 |

**APPENDIX I**

# Consent Letter for Research Work

DEPARTMENT OF EDUCATION
FACULTY OF SOCIAL SCIENCES
National University of Modern Languages
Sector H-9, Islamabad
Tel.No: 051-9265100 Ext: 2090

ML.1-3/2020-Edu

Dated: 30-08-2022

***WHOM SO EVER IT MAY CONCERN***

Ms. Javaria Meer D/O Pervaiz Iqbal Meer, students of M.Phil (Edu) Department of Education of National University of Modern Languages is engaged in project of Research Work.

She may please be allowed to visit your Institution / Library to obtain the required information for her Research Work.

This information shall not be divulged to any unauthorized person or agency. It shall be kept confidential.

Education Dept

Dr Wajeeha Shahid
Head,
Department of Education.

**APPENDIX J**

# Interview Questionnaire

| **Topic:** | **Blended Learning Teacher Competency at College Level: A Phenomenological Study** |
|---|---|

Date: _____
Time: _____
Place: _____
Interviewer: _____
Interviewee: _____

*Demographic Survey*

| | | | |
|---|---|---|---|
| Age: | 26 – 35 ___ | 36 – 47 ____ 48 – older_____ | |
| Educational Level: | MA/M.Sc _____ | MPhil _____ | Ph.D____ |
| Occupational Status: Principal_____<br><br>Current Service Grade: _____ | Vice Principal: _____ | | |
| Overall administrative Experience: | _____ | | |

You are requested to please share your responses regarding the following questions in the context of the research topic.

1. What are the new visions of teachers regarding teaching and learning in the context of BL?
2. What is the importance of qualities of grit, transparency and collaboration for teaching? Do you practice these in your college?
3. How do the college teachers use adaptive and technical skills like reflection, innovation, communication, data practices and instructional strategies in your college?
4. How are the specific competencies of Blended Learning Teacher Competency framework significant for blended learning classroom environment at college level?
5. What effects does BL have in bringing improvement?

**APPENDIX K**

# The Alignment Table

| Research Objectives | Hypotheses | Research Questions | Findings | Recommendations |
|---|---|---|---|---|
| 1.To explore the Blended Learning Teacher Competency with reference to Mindsets at college level. | Mindsets are significant contributor towards BL Teacher Competency Framework for college level. | What are the new visions of teachers regarding teaching and learning in the context of Blended Learning? | **Findings of the study based on the Questionnaire** A large number of teachers understand the importance of BT and they have moved towards the blended teaching and learning. **Findings of the study based on the Interviews:** Findings for the first question validated the mindsets subscale. it is find that teachers have new vision in the form of student-centered and activity based classroom. | As the study supported that a large number of college teachers are aware of BLTCs and its significance with reference to Mindsets so it is recommended that the college management may ensure the availability of BL related facilities and resources i.e. ICT infrastructure available in the classroom for better BL environment. |
| **2.** To examine the Blended Learning Teacher Competency with reference to Qualities at college level. | Qualities are significant contributors towards BL Teacher Competency Framework for college level. | What is the importance of grit, transparency and collaboration for teaching? Do you practice these in your college? | **Findings of the study based on the Questionnaire** a large number of college teachers were also having the BT competencies related to quality construct as they were practicing the activities related to the quality construct. **Findings of the study based on the Interviews:** All the participants agreed upon the importance of grit, transparency and collaboration while teaching. Quality construct also important to produce better results as well. On the other hand few respondents mentioned the | It is suggested to hire sufficient staff so that workload can be managed and teachers can only be engaged in teaching rather than administrative duties. In this way teachers can concentrate on BLTCs with reference to Qualities as BL teaching-learning environment require more time for planning and |

| | | | | |
|---|---|---|---|---|
| | | | factors that hinder the teachers to practice the above mentioned qualities fully while teaching. Main constraint was the time. As these practices require a lot of time and the system in the public sector colleges does not allow them to practice all. They also pointed out other factors such as the excessive workload and limited time allocated for a class which do not allow them for such practices in the classroom. | execution. |
| **3.** To investigate the Blended Learning Teacher Competency with reference to Adaptive Skills at college level. | Adaptive Skills are significant contributors towards BL Teacher Competency Framework for college level. | How do the college teachers use adaptive skills like reflection, innovation, communication, and instructional strategies in your college? | **Findings of the study based on the Questionnaire**<br>Small number of teachers were having and using this competency in the classroom.<br>**Findings of the study based on the Interviews:**<br>Participants pointed out that their teachers are using adaptive skills but they also expressed the issue of non-availability of resources, shortage of time, rigid system and the excessive workload that hinder the teachers to use these skills frequently. | As it was found that a small number of teachers were having and using adaptive skills in the classroom. It is suggested that the college management may arrange training sessions, workshops and enrolment of college teachers on global forums in the context of adaptive skills. Moreover sufficient staff must be hired to overcome the problem of shortage of staff that hinders teachers to use adaptive skills. |
| **4.** To assess the Blended Learning Teacher Competency with reference to Technical Skills at | Technical Skills are significant contributors towards BL Teacher Competency Framework for college | How do the college teachers use technical skills like data practices in your college? | **Findings of the study based on the Questionnaire**<br>A very low number of teachers practicing the technical skills for blended teaching.<br>**Findings of the study based on the Interviews:**<br>Non availability of resources, shortage of time, and mix | Arrange specialized training programs by curriculum experts for college teachers to enhance individualized /personalized instruction which will improve their |

| | | | | |
|---|---|---|---|---|
| college level. | level. | | background of students are the hindering factors to use technical skills | technical skills, as well as the incorporation of contemporary technologies into the educational process, also enhance digital literacy which fosters student motivation as well. Mix up group work style during ICT related activities can be initiated to improve the technical skills of students. |
| **5.** To identify the most effective blended teacher competencies being adopted by the college teachers. | There is a close relationship between the effective teaching and the blended learning Teacher Competencies.<br><br>There are a number of effective blended teaching competencies used for blended teaching. | How are the specific competencies of Blended Learning Teacher Competency framework significant for blended learning classroom environment at college level?<br><br>What effects does Blended Learning have in bringing improvement? | **Findings of the study based on the Interviews:**<br>All participants agreed upon the significant contribution of BLTCs classroom environment for the effective learning. They also highlighted the importance of BLTCs for the better and productive outcomes of students in the form of results.<br><br>Teachers have moved towards change and improvement in teaching practices with respect to BLTCs which have positively affected the results of students but some of the participants said that the only restricting factor is workload and rigid system and overcrowded classroom. | As the study suggests that there are a number of effective BT competencies so it is recommended the need for college teachers to propagate BLTCs culture through in house faculty discussions/discourse, awareness seminars bringing in, motivational speakers to talk on the subject of blended learning. |