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An Exploration of Pakistani ESL School Teachers' Acceptance of Computer-Assisted Language Learning 2.0

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ABSTRACT

Many Pakistani ESL teachers are still hesitant to use computer-aided language learning (CALL), even though the country has seen an explosion in information and communication technologies in the last several decades. This study aims to investigate the variables that impact the intentions of Pakistani English language school teachers to employ Web 2.0 technologies for language teaching. The structural Equation Modelling technique was used to test a seven-factor model based on the Technology Acceptance Model and the Technological Pedagogical Content Knowledge Model by collecting data from 131 Pakistani English as a second language school teachers using the purposive sampling technique. The findings revealed that Pakistani ESL school teachers were generally familiar with CALL 2.0 tools such as instant messenger and networking websites but slightly familiar with MOOC, Wiki, Online learning tools and Blogs, and unfamiliar with knowledge management tools which include the usage of Zotero, Evernote, Endnote, RefWorks etc. The results further showed that CSE positively influences PEU CALL 2.0 but has no significant influence on PU and IU CALL 2.0. FC positively influences PEU and IU but has no significant influence on PU CALL 2.0. SN positively influences IU CALL 2.0 but has no significant influence on PEU and PU CALL. 2.0. TRACK positively influences PEU and PU CALL. 2.0 but has no significant influence on IU CALL 2.0. Finally, PEU positively influences PU CALL. 2.0 but has no significant influence on IU CALL. 2.0. The current study's findings have important implications for increasing the acceptance of CALL 2.0 among ESL teachers in Pakistan and similar contexts.

Keywords: *English as a Second Language; Computer-assisted language learning; Facilitating conditions; Perceived ease of use; Subjective norm; Intention to use.*

INTRODUCTION

Importance of English Language

As the most widely spoken language today, English cannot be disputed or disregarded in today's society. To become fluent in English, one must practice and be patient. Students believe it is impossible to speak English fluently or with mastery(Hyland, 2009). Students that have this sort of inclination have a hard time learning English. Because most students learn English primarily for test purposes, they cannot produce a single phrase free of grammar errors (Nishanthi, 2018). A language is a tool people use to communicate to reach a common understanding between the people involved. The language itself may make it simpler for us to channel our thoughts, feelings, and various other emotions and thoughts. Many languages are spoken around the globe; even a single nation may speak up to two different dialects. Furthermore, in our

contemporary world, several languages are spoken by many people. The English language refers to a group of languages widely spoken by many people (Putra, 2020).

Five nations have English as their native language: the United Kingdom, the United States, Australia, Canada and New Zealand (Rintaningrum et al., 2015). Higher education and specialized training need fluency in English. Most books on any topic are published in English or rapidly translated into English, regardless of the subject. Most universities and higher education institutions throughout the globe provide education in English as a language of instruction (Reddy, 2016). English is required for obtaining a decent job and earning a higher salary. Many multinational companies and multinational business organizations need employees with a solid working command of English. Even job postings on the local market demand English proficiency. People who go overseas for business must also be fluent in English. English is required for various professions such as air hostess, pilot, tour guide, media manager, and so on (Reddy, 2016).

Since we learn a language different from our native language, we develop our brain intelligence, which is very significant for children and teenagers. As a result, young people studying English as a foreign language at its peak time will have a strong incentive to continue their studies(Hakim & Chiani, 2019). Learning English and teaching the brain makes it simpler for us to form connections since we can quickly speak with strangers. English makes it easier for us to understand technology to continue our education to a higher level (Sprenger, 2010). Aside from the English language issue, a variety of additional variables impact our decision to study English. A decline in health conditions or illness, a lack of training to improve English listening skills, whether with their classmates or with a native speaker, and, finally, a lack of motivation to make progress in learning English are all factors that contribute to difficulty with the language learning process (Kurniawati, 2015).

English plays a vital part in our daily lives; it is very useful in today's world. As a result, the usage of English and Hind, and other regional languages should be maintained. English is extensively used in business by the worldwide business sector (Edwards, 2016).

English is required to communicate across national boundaries and maintain contact with foreign business partners or professionals. In today's information superhighway environment, English is required to quickly access any information. Almost every piece of information is accessible in English. English is the language of the internet and information technology (Reddy, 2016).

English is necessary for access to global media and entertainment. News and opinions in English are broadcast on satellite stations all around the globe(Whannel, 2009). Live telecasts of games and sports are available, as are comments in English. English-language films, cartoons, and other media products are accessible(Reddy, 2016).

The elimination of English will hurt office productivity. Most office workers understand English, but many are illiterate in languages other than their home or regional language. As a result, they interact in English with one another daily. As a result, if office workers are asked to say good-by to the English language, they will have a tough time (Reddy, 2016).

Statement of the Problem

Before covid-19, the Acceptance of Computer-Assisted Language Learning 2.0 (CALL 2.0) was not a widely accessible option for ESL teachers in Pakistan. Over time, several teaching methods were proposed to continue education from home as teachers and students were advised to stay at home to restrict the spread of Covid-19. The conditions were deemed necessary for every educational sector throughout the country.

It was having a similar response from other countries simultaneously. The problem with ESL teachers in Pakistan was their exposure and understanding of accepting teaching through the Web.

However, many English-medium Web 2.0 technologies are available to Pakistanis, as they are in most ESL nations (such as Google, Facebook, Twitter, YouTube). When it comes to language learning, the use of these technologies is becoming more commonplace in Pakistan because they have been adopted for pedagogical purposes in many areas of language learning curricula, which provides valuable insights into how new ways of language learning can be fostered and to what extent these ways can contribute. CALL 2.0 adoption in Pakistan may not have been hindered by a lack of technology but rather by a lack of acceptability by ESL teachers of English-medium Web 2.0 settings in which Pakistani language teachers and learners may study English.

In light of the arrival of CALL 2.0 and the underutilization of Web 2.0 technologies by in-service ESL teachers in Pakistan, we opted to focus on the problem of preserve ESL teachers to look to the future. This selection was influenced by two factors: (a) these preserve ESL instructors have Web 2.0 expertise and are the primary Web 2.0 technology users; and (b) these teachers will play a role in selecting how CALL 2.0 will be used in their future classes (Hubbard, 2008). Therefore, ESL teachers in Pakistan must comprehend how the CALL 2.0 strategy and digital technologies might facilitate a more communicative classroom in various ways.

Research Objective

The study aims to identify the factors that significantly influence Pakistani ESL school teachers' intention to use CALL 2.0.

Research Question

The study aims to answer the following question:

1. How familiar are Pakistani ESL school teachers with CALL 2.0 tools?
2. What are the factors that significantly influence Pakistani ESL school teachers' intention to use CALL 2.0?

Research Hypotheses

The study has posed the following research hypotheses:

H1: CSE has a statistically positive influence on IU CALL 2.0.

H2: CSE has a statistically positive influence on PEU CALL 2.0.

H3: CSE has a statistically positive influence on PU CALL 2.0.

H4: FC has a statistically positive influence on IU CALL 2.0.

H5: FC has a statistically positive influence on PEU CALL 2.0.

H6: FC has a statistically positive influence on PU CALL 2.0.

H7: PEU of CALL 2.0 has a statistically significant positive influence on IU CALL 2.0.

H8: PEU of CALL 2.0 has a statistically significant positive influence on PU CALL 2.0.

H9: PU of CALL 2.0 has a statistically significant positive influence on IU CALL 2.0.

H10: SN has a statistically positive influence on IU CALL 2.0.

H11: SN has a statistically positive influence on PEU CALL 2.0.

H12: SN has a statistically positive influence on PU CALL 2.0.

H13: TPACK has a statistically positive influence on IU CALL 2.0.

H14: TPACK has a statistically positive influence on PEU CALL 2.0.

H15: TPACK has a statistically positive influence on PU CALL 2.0.

Scope of the Study

The scope of the study is defined below:

- The data for the study were collected from Pakistani ESL school teachers only.
- The data for the study were collected from ESL school teachers based in Karachi only.
- The data were collected using a questionnaire only.
- The TAM and TPACK model were used to study Call 2.0 acceptance only.
- The data were collected during the months of October and November of 2021.

Significance of the Study

As the acceptance of CALL 2.0 is low among Pakistani ESL school teachers, so this study is significant as it tries to identify the factors which influence their intentions to use Call 2.0. This topic is under-researched in the Pakistani context, so this will be one of the first studies to explore this topic and fill the gap in the literature. The findings of this study may be helpful for the stakeholders in the Pakistani context who would like to implement CALL 2.0 in Pakistani ESL classrooms.

Finally, this study may inspire further research on this topic in the Pakistani context

LITERATURE REVIEW

Sozudogru et.al (2019) found that online social networking plays an important role in English language acquisition when looking at the cognitivist perspective. According to cognitivist philosophy, this research set out to look at how technology and online communication platforms affect relationships between people. A questionnaire was utilized to gather data for this quantitative investigation, which was then analyzed using SPSS. It is possible to generalize findings from the research by expanding the number of participants and ensuring that a large enough sample size is used to ensure that results are accurate. Cooperative learning

and dialogues promote cognitivist knowledge reflection and negotiation, according to the study results. Learning may benefit greatly from the usage of online communication technologies.

Bustamante (2019) investigated the integration of web 2.0 technology for foreign language teachers for the sake of professional development. In which the sample of 18 teachers from rural and urban areas both participated in this study. This study was qualitative case study. The technology composed the positive finding concerning positive learning experiences toward technology, pedagogy, content, and its integration. Whereas the participants got changed their nega90tive perceptions about technology, resulted more effective integration in the classroom. In evaluation proficiency-based rubrics showed effectiveness in the evaluation all assessment practices. Some teachers might find this technology-based assessment more difficult and might become a barrier to the technology integration.

Peeters (2018) stated the taxonomy of the online peer interaction processes applying by using of web 2.0 in foreign language learning class. As web 2.0 worked as supporting tool for learners to engage them in foreign language learning. Moreover, increase motivation in the social and collaborative interaction with the fellow learning online. Two Facebook projects were generated in which 5834 posts were generated by participants. In order to get the information, an API Explorer was used. More than 200 foreign language measures, divided into two categories, were developed to collect writing on Facebook. This has shown the students' involvement in cognitive and metacognitive processes. For scholarly reasons, the results were used to build taxonomy of the roles of peer relationships. During the coordinal learning activities, the students aimed to improve their cognitive, metacognitive, organizational and social functioning. Facebook conducted a two-year research of various communication functions, but it is not obvious how significant these findings will be in the continuing interactions of Facebook users. Therefore, network analyses are required for the communicative function. How much one communicative function is related to another communicative function? As the discussion often become malty faceted. They can generate additional questions that would be a new insight.

S. Ibraheem et.al (2018) researched the perceptions and attitudes of Japanizes students for the use of online social networking sites (SNS) as an important and integral part of the society. The study was conducted among 88 undergraduates and post-graduates' students in Japan. A poll was undertaken to determine whether or not Japanese students believe that Facebook is an effective platform for learning a foreign language online. A structured questionnaire with a random selection was utilized to gather the data. Students were found to have a positive opinion of Facebook as a medium for studying English online. As the study has been conducted in the territory of Japan motivating Japanese student's perceptions and attitudes may differ comparing to the other regions. The frequent use of the Facebook may find its benefits for the learning in dues more vocabulary in language unlike unfamiliar individuals to the Facebook.

Almekhlafi (2018) explored K-12 teacher's perceptions of web 2.0 applications in UAE. The investigation aimed to the teacher's perceptions toward web 2.0 applications and usage in UAE. The study comprised a quantitative data implying descriptive statistics and independent sample. T-test was used to analyze the quantitatively. The participants sample were 152 in number by divider in two groups of pre-service and in-service school teachers. A five-point lighted scale-based questionnaire was used to collect the information. The results showed the teachers high perceptions toward web 2.0 tools and applications. Based on two groups pre-service and in-service along with a gender difference there were differences in the perceptions for which T-test was used to investigate. The gender difference and the perception difference delineate the consistency of result.

Asiksoy (2018) conducted a study for ELT students the use of awareness towards the use of web 2.0 technologies for language learning. In which primarily he investigated the ELT students' attitudes toward the use of web 2.0 and to identify the tools use in wbe 2.0 technologies by the students. The number of 207

students was sampled for this study. The data were collected by using the attitude questionnaire for web 2.0 tools. Descriptive surgery design was implied the survey research model was appropriate for this study. Along with the findings of awareness of the majority of the students they belief that the tools is a helping hood has been emerged as the prominent finding that web 2.0 has developed the students English listening skills. The first limitation was composed of ELT Students in the study, the second limitations was the fewness was not considered in the study.

A study by Mei et. al. (2017) looked at whether or not English language instructors in China were open to computer-assisted language learning. Studying obstacles that keep English instructors from using web 2.0 technology for language learning purposes was the goal of the project. Structural Equation Model was used to analyze the data obtained from 295 EFL instructors, which included a model of technology acceptability and a model of technology redagical content understanding. The findings showed that by creating more favorable settings, people are more likely to utilize CALL 2.0. Teachers of English as a foreign language (EFL) may better maintain their willingness to adopt CALL 2.0 if facilitators make well-informed judgments. Using a non-experimental, anonymous sensory survey, a causal correlational technique was employed to evaluate the results of the research. A qualitative study is needed to provide more light on this problem since the preliminary research, which was based on an anonymous poll, cannot reveal which of the FC was most prevalent in individuals' minds when they gave their responses. As a result, future study should pay particular attention to the different FCs of different technologies.

It was found that educational activities employing web 2.0 boosted gamification effects for Ozdener (2017), who performed a quasi-experiment and then a case study in order to explore the impacts of gamification. As a consequence of the research, teaching candidates have a favorable view of wiki and gamification activities as an exploration of academic performance. More over the student capabilities were noted for making effective use of technology as were not found teachers. However, the success has been observed as a finding in students positively but no long-term effects have been noticed of the gamification approach. All the analyses will certainly require teacher specially those who are teaching younger targeted audience. Lessen the technology-based classrooms negative will be the rate of success to use a technology in the future the group of students were chosen for the study constant pre-service school teachers. Explanatory design was preferred to collect qualitative data and for repeated major analysis of variance. A Nova statistical test has been used.

ESL students' writing patterns and the difficulties they encounter while using an e-portfolio were examined by Barrot (2016). According to Barrat (2016), 171 first-year university students completed a 15-item self-report questionnaire to get information on their experiences with e-portfolio usage. The students' writing habits were positively influenced by the use of a Facebook-based e-portfolio. There were a number of issues that students reported that shook their faith in the system: formatting and reading issues, internet connectivity issues, typing and compilation issues, peer feedback issues, instructions that weren't clear, and concerns about whether or not Facebook was an appropriate resource.

Hamid et.al (2015) stated the understanding of student’s perceptions of the benefits of online social networking used for teaching and learning. The study catered the social technologies popular now-a-days in universities and the use of these technologies for online social networking in educational activities. The papers focused on the students experiences by online social networking (OSN) student – student and student – teacher interaction. A total of nine focus groups with the number of 46 students were accumulated conducting an innovative study. The hermetic analysis resulted positive outcomes among the students by using OSN by using the technologies there was a positive outcome resulted and improve interaction for learning purpose with in student – student and student – teacher interactions. The research was designed as in retire study due to which the findings were not readily generalizable to other countries.

Bennett et al. (2012) exploded through a collective case study the valuation of web 2.0 implementation in higher education. The study was undertaking have students are asserted for information and communication technologies in their learning. The study was conducted across three universities comprising a common evaluation strategy to collect comparable data from three different universities to analyze commonalities and differences the number of participants 772 from faculties of Art, science and commerce comprising divided into lab classes of 30 students per semester infect it was two stages research project in which first stage had collected the survey and interview data to observe the engagement of three different universities students using technologies mix method was used to collect the data the data contained field notes and relevant documents. Qualitative approach was chosen for the study to collect in-depth data about the web 2.0 technology implementation. The paper persecuted data evaluating web 2.0 technologies in higher education where some of the implementations were very much successful more the higher the degree of alignment between educational and web 2.0 practices involved. The effective use of web 2.0 develops the potential learning benefits. The possible pitfall of the student being unfamiliar with the technology may drag the attention of students are the tensions between web 2.0 technologies and educational practices.

RESEARCH METHODOLOGY

This chapter outlines the research method, design, population, sample, data collection tools, analysis techniques, and ethical considerations of the study. Research methodology refers to the systematic, scientific approach adopted to solve a research problem, encompassing theoretical, experimental, and statistical procedures (Rajasekar et al., 2006). As Kothari (2020) defines it, methodology is a way to systematically solve a research problem, justifying the logic behind each method and technique used (Cr, 2020). It governs the validity of the study and details every step taken in addressing the research problem.

Research Method

This study employs a quantitative approach, focusing on data collection, analysis, and testing relationships between constructs. Two common quantitative methodologies are survey research and experimental research (Creswell, 2009). A survey gathers information from respondents through structured questionnaires, examining behavior, attitudes, motivations, and demographics. An experiment manipulates independent variables to measure their effect on dependent variables, allowing the researcher to test hypotheses and draw inferences about a larger population.

Research Design

Research design provides the blueprint for data collection, measurement, and analysis (Creswell & Creswell, 1994). This study adopted a survey research design**,** collecting data through a structured questionnaire and analyzing it using structural equation modeling (SEM).

Population and Sample

Target Population

A population is a collection of individuals or elements about which researchers seek to generalize (Kothari, 2004). The target population comprised Pakistani ESL teachers holding master's degrees in English, working in public and private sector schools in Karachi (Barnsbee et al., 2018).

Sampling Technique

A purposive sampling technique was employed. Purposive sampling — also known as nonrandom or incidental sampling — is a non-probability method in which participants are selected based on accessibility and relevance to the study (Campbell et al., 2020). It is widely used for its speed, simplicity, and cost-effectiveness.

Sample Profile

The final sample consisted of 131 ESL teachers**.** Of these, 85 were male and 46 female; 103 were from private schools and 22 from public institutions. In terms of qualifications, 33 held MA (English), 49 held BS (English), and 17 held MPhil/MS (English) degrees. Regarding teacher training, 61 participants had attended no workshops, 38 had up to 15 hours of training, 15 had 16–30 hours, 5 had 31–50 hours, and 11 had more than 50 hours. In terms of age, 71 participants were aged 21–25, 28 aged 26–30, 10 aged 31–35, 15 aged 36–40, and 5 were 41 or above. Concerning experience, 79 had fewer than two years, 22 had 3–5 years, 20 had 6–10 years, and 9 had 11–15 years. Participants were assessed on familiarity with CALL 2.0 using a 5-point Likert scale ranging from *Not at all familiar* to *Extremely familiar*. Overall, participants demonstrated general awareness of CALL 2.0 technologies.

Data Collection Tools

Questionnaire

A structured questionnaire was used to collect data on participants' acceptance and familiarity with CALL 2.0 practices, including online learning tools, instant messaging, wikis, MOOCs, blogs, and file-sharing services. The questionnaire comprised two parts: the first captured demographic information and familiarity with CALL 2.0; the second contained 18 TAM items and 7 TPACK items. The original TPACK scale (Schmidt et al., 2009b), with high reliability (alpha = .92), was reduced to five items by Koh and Chai (2011). A six-point self-reported scale (Brown, 2004) was used, with two negative options (strongly disagree, mostly disagree) and four positive options (slightly agree to strongly agree). Items for PU, PEU, SN, and IU were adapted from Davis (1989) and Taylor and Todd (1995); CSE items from Ajjan and Hartshorne (2008); FC items from Thompson et al. (1991); and TPACK items from Koh et al. (2015). All items were modified to be specific to CALL 2.0, resulting in a 22-item instrument.

Pilot Testing

A pilot test was conducted to assess the instrument's appropriateness in terms of format, content, clarity, terminology, and ease of completion (Lewis et al., 2005). Expert feedback was gathered, and the pre-test was administered to ESL teachers to evaluate understandability and completion speed.

Preliminary Study

A preliminary study was conducted as a "dress rehearsal" to detect any issues with the measures and survey design (Lewis et al., 2005). It followed the same procedures as the actual study and was carried out in 2022 through personal meetings with ESL teachers. Of 50 ESL teachers who participated, 12 were excluded due to incomplete responses, yielding a usable sample of 38. Respondents ranged in age from 20 to above 50, with a mean age of 28.32 years. Hypothesized relationships were estimated using SmartPLS 3.0 (Ringle et al., 2015; Kalra et al., 2017), appropriate for small samples. The measurement model was evaluated using bootstrapping with 1,000 samples. Results confirmed satisfactory reliability, validity, and path coefficient assessments, allowing progression to the full data collection phase.

Data Analysis Techniques

Descriptive statistics were first used to assess Pakistani teachers' familiarity with CALL 2.0, normalizing all items to measure central tendency. Structural equation modeling (SEM) was then applied to investigate teachers' acceptance of CALL 2.0.

Ethical Considerations

Ethical considerations were carefully addressed across four dimensions (Cohen et al., 2007): informed consent, access and acceptance, anonymity, and confidentiality.

Informed Consent

Informed consent involves participants voluntarily agreeing to participate after being fully informed of the study (Kitchener & Kitchener, 2009). Cohen et al. (2007) identify four elements: competence (informed decision-making), voluntarism (no coercion), full information (freedom to withdraw), and comprehension (understanding of the study). Participants were contacted via WhatsApp and provided an online link to complete informed consent forms.

Access and Acceptance

A consent letter describing the study's purpose and guaranteeing data confidentiality was sent to participants to secure their permission and cooperation.

Anonymity

Confidentiality of participants' identities was maintained throughout the study (Matveev, 2002a). Interviewees' names were replaced with codes to preserve anonymity in data analysis.

Confidentiality

Confidentiality requires that researchers not share identifying information gathered during the study (Cowan, 2011). Following Frankfort-Nachmias and Nachmias (1992), four techniques were applied: deletion of identifiers, use of crude data categories, micro-aggregation, and deliberate introduction of minor errors in individual records to prevent identification (Matveev, 2002b). Anonymity was preserved through the consistent use of codes and pseudonyms.

DATA ANALYSIS

The questionnaire was designed, and data was collected from the participants. The questionnaire contained three parts. The first part contains the demographics. The second part contains the familiarity, and the third part contains the acceptance. The third part of acceptance has 22 total items. In addition, the chapter presents the results of analyses conducted using the statistical technique discussed in the research methodology chapter. This chapter follows the widely accepted reporting style of PLS analysis as suggested by previous studies (Chin et al., 2010). First, the validity and reliability of the measurement model are assessed, and the structural model is validated. This thesis answers two important research questions regarding ESL teacher acceptance of CALL.2.0 in Pakistan.

Finding of Research Question 1 (Familiarity)

In this section, we analyzed our first research question: How familiar are Pakistani ESL school teachers with CALL 2.0 tools? We considered the mean value to describe the Pakistani ESL school teachers' engagement with CALL 2.0 tools to answer a research question.

Table 1
Descriptive statistics

		N	Mean	Std. Deviation
F1	Familiarity with CALL. 2.0.1. How familiar are you with the following CALL. 2.0 tool: online learning tools (Online dictionary, Prezi, FluentU, Vocabulary.com etc.).	131	2.52	1.172
F2	How familiar are you with the following CALL. 2.0 tool: networking websites (Facebook, Twitter, Snapchat, Link chat, LinkedIn etc.).	131	3.20	1.384
F3	How familiar are you with the following CALL. 2.0 tool: instant messenger (WhatsApp, Telegram, Viber, WeChat etc.)	131	3.40	1.245
F4	How familiar are you with the following CALL. 2.0 tool: Wikipedia, world Book Online, Citizendium, Infoplease etc.	131	2.76	1.369
F5	How familiar are you with the following CALL. 2.0 tool: MOOC (Massive online open courseware) such as Coursera, Canvas, Google Classroom, Brightspace, Blackboard Learn etc.	131	2.77	1.286
F6	How familiar are you with the following CALL. 2.0 tool: Blogs related to English Language Teaching, such as FluentU, Rosetta Stone, Mindsnaks, Memrise etc.	131	2.19	1.177
F7	How familiar are you with the following CALL. 2.0 tool: knowledge management tools (Zotero, Evernote, Endnote, RefWorks etc.).	131	1.90	1.101
Valid N (listwise)				

Table 1 shows the descriptive statistics of participants' familiarity with CALL. 2.0 practices. Participants recorded their responses with given options (1) not al all familiar, 2) slightly familiar, 3) somewhat familiar, 4) moderately familiar, 5) extremely familiar) for the familiarity with CALL 2.0 practices. A mean value of 3.40 and 3.20 suggested that participants were generally somewhat familiar to moderately familiar with instant messenger and networking websites. A mean value of MOOC, Wiki, Online learning tools and Blogs suggested that participants were slightly familiar to somewhat familiar with CALL 2.0 practices. Lastly, a mean value of 1.90 indicated that participants are not so familiar with knowledge management tools, including using Zotero, Evernote, Endnote, RefWorks, etc.

Therefore, we believe participants have sufficient knowledge about accessing instant messenger and networking websites for language learning purposes but are also inclined to access MOOC, Wiki, Online learning tools and Blogs in their routine language learning process. Although knowledge management tools (Zotero, Evernote, Endnote, RefWorks etc.) are widely considered important tools for researchers, few participants used such tools. Overall, it can be presumed that web 2.0 can be adopted for language learning purposes.

Finding of Research Question 2

In this section, we analyzed our second research question: What are the factors that significantly influence Pakistani ESL school teachers' intention to use CALL 2.0? Research question two aims to identify the factors influencing the acceptance of CALL 2.0. To identify these factors, a model was constructed using TAM and TPACK, which was tested using the Structural Equation modeling technique.

Measurement Model

A measurement model is a model that quantifies the relationship between research findings (indicators) and theoretically underlying constructs or factors (Werts et al., 2017)

Figure 1 Established Measurement Model

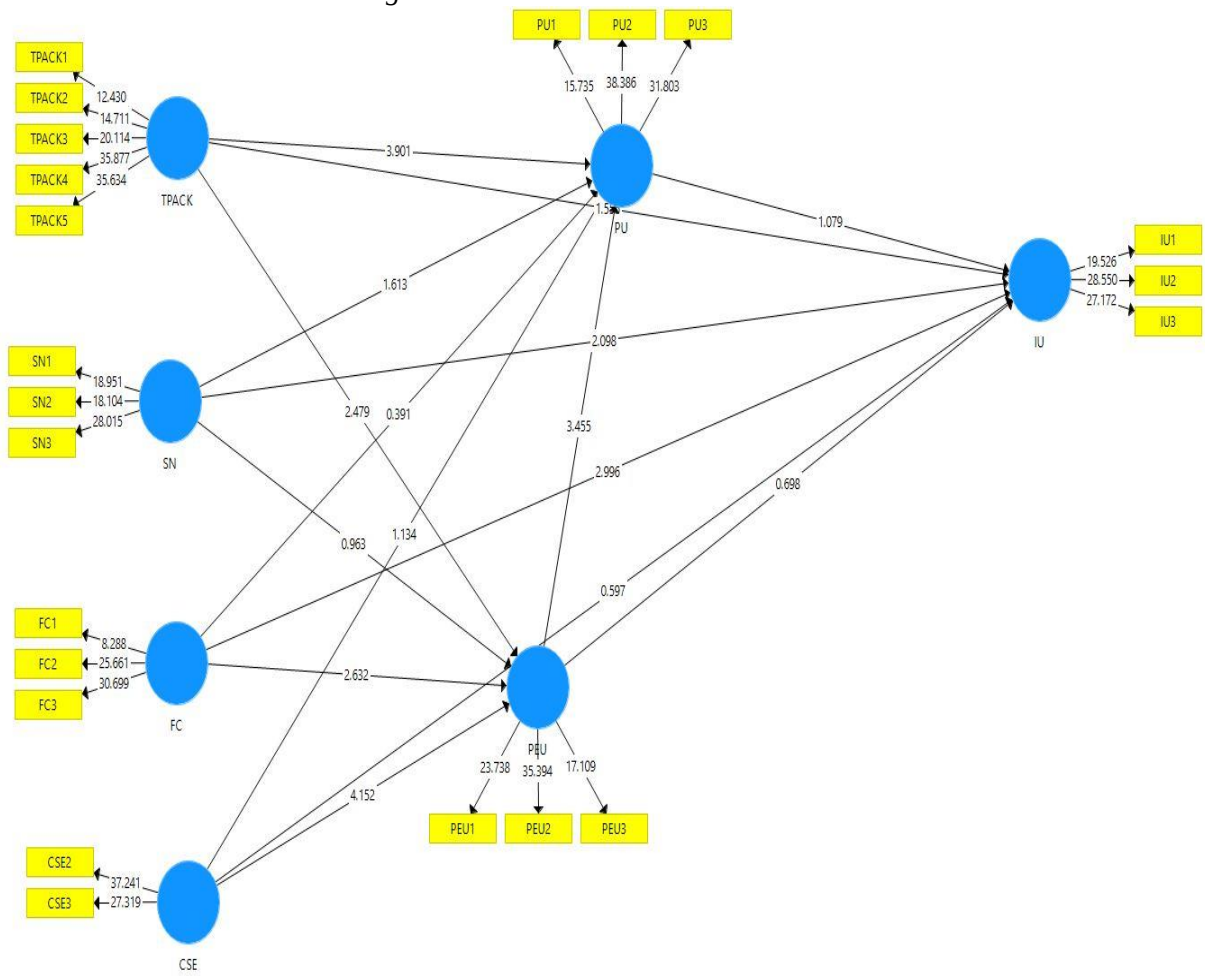

Table 2
Results of Measurement Model (Construct Reliability and Validity)

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
CSE	0.710	0.715	0.873	0.775
FC	0.713	0.753	0.837	0.633
IU	0.808	0.808	0.887	0.723
PEU	0.796	0.797	0.880	0.710
PU	0.835	0.853	0.900	0.750
SN	0.770	0.771	0.867	0.685
TPACK	0.858	0.871	0.898	0.639

Table 2 shows the rule of Cronbach's Alpha if the value is 0.07 or above, so the questionnaire is reliable and valid for collecting the data and having research on its base. The above chart comes-up the level of acceptance. The AVE values in the table above are greater than 0.50; the current research model fits this study.

Discriminant Validity

Discriminant Validity by FLC

Table 3
Discriminant Validity by FLC

	CSE	FC	IU	PEU	PU	SN	TPACK
CSE	0.880						
FC	0.446	0.796					
IU	0.515	0.669	0.850				
PEU	0.627	0.578	0.605	0.843			
PU	0.562	0.465	0.548	0.677	0.866		
SN	0.469	0.616	0.652	0.571	0.426	0.828	
TPACK	0.620	0.593	0.675	0.667	0.669	0.679	0.799

Table 3 shows that the results of Discriminant Validity show that all constructs are unique and captures phenomenon not represented by other variables in the model.

Discriminant Validity by Cross Loading

Table 4
Discriminant Validity by Cross Loading

	CSE	FC	IU	PEU	PU	SN	TPACK
CSE2	0.893	0.397	0.508	0.569	0.497	0.373	0.495
CSE3	0.868	0.387	0.394	0.534	0.492	0.457	0.602
FC1	0.233	0.685	0.428	0.331	0.215	0.433	0.282
FC2	0.372	0.841	0.529	0.445	0.389	0.541	0.482
FC3	0.425	0.850	0.616	0.564	0.460	0.497	0.593
IU1	0.451	0.657	0.812	0.513	0.471	0.562	0.513
IU2	0.433	0.513	0.870	0.459	0.474	0.557	0.584
IU3	0.428	0.530	0.869	0.568	0.453	0.542	0.625
PEU1	0.542	0.473	0.460	0.845	0.548	0.476	0.542
PEU2	0.512	0.506	0.570	0.859	0.554	0.543	0.619
PEU3	0.531	0.480	0.495	0.824	0.610	0.421	0.523
PU1	0.379	0.301	0.364	0.481	0.834	0.274	0.454
PU2	0.534	0.459	0.495	0.606	0.889	0.395	0.671
PU3	0.522	0.425	0.540	0.648	0.874	0.416	0.583
SN1	0.377	0.422	0.482	0.485	0.460	0.809	0.670
SN2	0.392	0.523	0.526	0.478	0.274	0.822	0.531
SN3	0.396	0.585	0.609	0.455	0.318	0.852	0.484
TPACK1	0.630	0.448	0.381	0.475	0.407	0.540	0.718
TPACK2	0.440	0.526	0.526	0.488	0.431	0.581	0.750
TPACK3	0.435	0.429	0.529	0.548	0.650	0.481	0.811

TPACK4	0.455	0.451	0.606	0.485	0.545	0.543	0.859
TPACK5	0.551	0.526	0.621	0.648	0.597	0.585	0.849

Discriminant Validity by HTMT

Table 5
Discriminant Validity by Cross Loading

	CSE	**FC**	**IU**	**PEU**	**PU**	**SN**	**TPACK**
CSE							
FC	0.605						
IU	0.675	0.863					
PEU	0.834	0.743	0.751				
PU	0.717	0.564	0.654	0.819			
SN	0.638	0.831	0.825	0.728	0.517		
TPACK	0.810	0.728	0.801	0.800	0.764	0.840	

Table 5 shows how the Heterotrait-Monotrait ratio (HTMT) of the items of individually variable items compares to one another. The items of the variable are not related to one another in any way, and all of the items are distinct in their right nature. Specifically, according to Hussain and Endut (2018), the values must be less than 0.85 to arrive at the desired outcome or outcome.

The Results of Hypothesis Testing

Table 6: *Finding of H1: CSE has a statistically positive influence on IU CALL 2.0.*

Relation	β	SE	t-test	p-value
CSE → IU	0.053	0.088	0.597	0.551

Table 6 shows that the relationship between CSE and IU is statistically non-significant (β = 0.053 *p-value* > 0.05). Therefore, H1 is not supported.

Table 7: *Finding of H2: CSE has a statistically positive influence on PEU CALL 2.0.*

Relation	β	SE	t-test	p-value
CSE →PEU	0.312	0.075	4.152	0.000

Table 7 shows that the relationship between CSE and PEU is positively significant (β = 0.312 p-value < 0.001). Therefore, we can claim that H2 is supported.

Table 8: *Finding of H3: CSE has a statistically positive influence on PU CALL 2.0.*

Relation	β	SE	t-test	p-value
CSE → PU	0.110	0.097	1.134	0.257

Table 8 shows that the relationship between CSE and PU is statistically non-significant (β = 0.110 p-value > 0.05). Therefore, H3 is not supported

Table 9: *Finding of H4: FC has a statistically positive influence on IU CALL 2.0.*

Relation	β	SE	t-test	p-value
FC→ IU	0.110	0.097	1.134	0.003

Table 9 shows that the relationship between FC and IU is positively significant (β = 0.110 p-value < 0.05). Therefore, we can claim that our H4 is supported.

Table 10: *Finding of H5: FC has a statistically positive influence on PEU CALL 2.0.*

Relation	β	SE	t-test	p-value
FC → PEU	0.305	0.102	2.996	0.009

Table 10 shows that the relationship between FC and PEU is positively significant (β = 0.305 p-value < 0.05). Therefore, we can claim that our H5 is supported.

Table 11: *Finding of H6: FC has a statistically positive influence on PU CALL 2.0.*

Relation	β	SE	t-test	p-value
FC → PU	0.034	0.088	0.931	0.296

Table 11 shows that the relationship between FC and PU is statistically non-significant (β = 0.034 p-value > 0.05). Therefore, H6 is not supported.

Table 12: *Finding of H7: PEU of CALL 2.0 has a statistically significant positive influence on IU CALL 2.0.*

Relation	β	SE	t-test	p-value
PEU → IU	0.067	0.095	0.698	0.486

Table 12 shows that the relationship between PEU and IU is statistically non-significant (β = 0.067 p-value > 0.05). Therefore, H7 is not supported.

Table 13: *Finding of H8: PEU of CALL 2.0 has a statistically significant positive influence on PU CALL 2.0.*

Relation	β	SE	t-test	p-value
PEU → PU	0.397	0.115	3.455	0.001

Table 13 shows that the relationship between PEU and PU is positively significant (β = 0.397 p-value < 0.001). Therefore, we can claim that H8 is supported.

Table 14: *Finding of H9: PU of CALL 2.0 has a statistically significant positive influence on IU CALL 2.0.*

Relation	β	SE	t-test	p-value
PU → IU	0.107	0.100	1.079	0.281

Table 14 shows that the relationship between PU and IU is statistically non-significant (β = 0.107 p-value > 0.05). Therefore, H9 is not supported

Table 15: *Finding of H10: SN has a statistically positive influence on IU CALL 2.0.*

Relation	β	SE	t-test	p-value
SN → IU	0.225	0.107	2.098	0.036

Table 15 shows that the relationship between SN and IU is positively significant (β = 0.225 p-value < 0.05). Therefore, we can claim that our H10 is supported.

Table 16: *Finding of H11: SN has a statistically positive influence on PEU CALL 2.0.*

Relation	β	SE	t-test	p-value
SN → PEU	0.109	0.113	0.963	0.336

Table 16 shows that the relationship between SN and PEU is statistically non-significant (β = 0.109 p-value > 0.05). Therefore, H11 is not supported.

Table 17: *Finding of H12: SN has a statistically positive influence on PU CALL 2.0.*

Relation	β	SE	t-test	p-value
SN → PU	-0.162	0.100	1.613	0.107

Table 17 shows that the relationship between SN and PU is statistically non-significant (β = -0.162 p-value > 0.05). Therefore, H12 is not supported.

Table 18: *Finding of H13: TPACK has a statistically positive influence on IU CALL 2.0.*

Relation	β	SE	t-test	p-value
TPACK →IU	0.192	0.123	1.556	0.120

Table 18 shows that the relationship between TPACK and IU is statistically non-significant (β = 0.192 p-value > 0.05). Therefore, H13 is not supported.

Table 19: *Finding of H14: TPACK has a statistically positive influence on PEU CALL 2.0.*

Relation	β	SE	t-test	p-value
TPACK → PEU	0.276	0.111	2.479	0.014

Table 19 shows that the relationship between TPACK and PEU is positively significant (β = 0.276 p-value < 0.05). Therefore, we can claim that H14 is accepted.

Table 20: *Finding of H15: TPACK has a statistically positive influence on PU CALL 2.0.*

Relation	β	SE	t-test	p-value
TPACK → PU	0.425	0.109	3.901	0.000

Table 20 shows that the relationship between TPACK and PU is positively significant (β = 0.425 p-value < 0.001). Therefore, we can claim that H15 is supported.

Table 21: *Results of hypotheses testing*

Relation	β	SE	t-test	p-value
CSE → IU	0.053	0.088	0.597	0.551
CSE →PEU	0.312	0.075	4.152	0.000
CSE → PU	0.110	0.097	1.134	0.257
FC → IU	0.305	0.102	2.996	0.003
FC → PEU	0.208	0.079	2.632	0.009
FC → PU	0.034	0.088	0.391	0.696
PEU → IU	0.067	0.095	0.698	0.486
PEU → PU	0.397	0.115	3.455	0.001
PU → IU	0.107	0.100	1.079	0.281

SN → IU	0.225	0.107	2.098	0.036
SN → PEU	0.109	0.113	0.963	0.336
SN → PU	-0.162	0.100	1.613	0.107
TPACK →IU	0.192	0.123	1.556	0.120
TPACK → PEU	0.276	0.111	2.479	0.014
TPACK → PU	0.425	0.109	3.901	0.000

Table 21 shows that CSE is statistically non-significant with IU (β=0.053, P=0.551). CSE is found to be statistically significant to PEU (β=4.152, P=0.000). CSE is found to be statistically non-significant to PU (β=1.134 P=0.257). FC is found to be statistically significant to IU (β=2.996 P=0.003). FC is found to be statistically significant to PEU (β=2.632 P=0.009). FC is statistically non-significant to PU (β=0.391 P=0.696). PEU is statistically non-significant to IU (β=0.698, P=0.486). PEU is found to be statistically significant to PU (β=3.455, P=0.001). PU is statistically significant to IU (β=1.079, P=0.021). SN is found to be statistically significant to IU (β=2.098, P=0.036). SN is statistically non-significant to PEU (β=0.963, P=0.336). SN is statistically non-significant to PU (β=1.613, P=0.107). TPACK is statistically non-significant to IU (β=1.556, P=0.120). TPACK is statistically significant to PEU (β=2.479, P=0.014). TPACK is statistically significant to PU (β=3.901, P=0.000).

This study investigates Technological Pedagogical Content Knowledge, subjective norms, CALL 2.0 self-efficacy and facilitating condition factors that influence ESL teaching. Teaching methods, especially individual intention to use CALL 2.0 and its underlying intervention between the stated factors TAM and TPACK research model, were followed to conduct the study. The sample size was 131, which was sufficient to find statistical significance. Only two lack statistical significance of CSE on IU (β=0.053, P=0.551) and FC on PU (β=0.391 P=0.696), which show weak contribution in this sample.

The rest of the results are:

H1: CSE has no statistically positive influence on IU CALL 2.0.

H2: CSE has a statistically positive influence on PEU CALL 2.0.

H3: CSE has no statistically positive influence on PU CALL 2.0.

H4: FC has a statistically positive influence on IU CALL 2.0.

H5: FC has a statistically positive influence on PEU CALL 2.0.

H6: FC has no statistically positive influence on PU CALL 2.0.

H7: PEU of CALL 2.0 has no statistically significant influence on IU CALL 2.0.

H8: PEU of CALL 2.0 has a statistically significant positive influence on PU CALL 2.0.

H9: PU of CALL 2.0 has no statistically significant positive influence on IU CALL 2.0.

H10: SN has a statistically positive influence on IU CALL 2.0.

H11: SN has no statistically positive influence on PEU CALL 2.0.

H12: SN has no statistically positive influence on PU CALL 2.0.

H13: TPACK has no statistically positive influence on IU CALL 2.0.

H14: TPACK has a statistically positive influence on PEU CALL 2.0.

H15: TPACK has a statistically positive influence on PU CALL 2.0.

All of the summaries of the above-discussed findings are predicted in the following Table 4.22 below;

Table 22 Summary *of findings*

Hypothesis	Results
H1	CSE has no statistically positive influence on IU CALL 2.0.
H2	CSE has a statistically positive influence on PEU CALL 2.0.
H3	CSE has no statistically positive influence on PU CALL 2.0.
H4	FC has a statistically positive influence on IU CALL 2.0.
H5	FC has a statistically positive influence on PEU CALL 2.0.
H6	FC has no statistically positive influence on PU CALL 2.0.
H7	PEU of CALL 2.0 has no statistically significant positive influence on IU CALL 2.0.
H8	PEU of CALL 2.0 has a statistically significant positive influence on PU CALL 2.0.
H9	PU of CALL 2.0 has no statistically significant positive influence on IU CALL 2.0.
H10	SN has a statistically positive influence on IU CALL 2.0.
H11	SN has no statistically positive influence on PEU CALL 2.0.
H12	SN has no statistically positive influence on PU CALL 2.0.
H13	TPACK has no statistically positive influence on IU CALL 2.0.
H14	TPACK has a statistically positive influence on PEU CALL 2.0.
H15	TPACK has a statistically positive influence on PU CALL 2.0.

Table 22 shows a summary of the overall findings that are already present in the above section. Overall, we can conclude that this research study has presented some substantial contributions and are practically valid to implement in the Pakistani context.

DISCUSSION AND CONCLUSION

In this chapter, important results are discussed and concluded. A detailed discussion is carried out to answer the study's research questions. In this research study, we investigated the familiarity of Pakistani ESL school teachers with CALL 2.0 tools and analyzed factors that significantly influence Pakistan ESL school teachers' intention to use CALL 2.0. In this study, we have also given important practical implications, limitations and future recommendations to further improve the essence of current research work. Finally, the whole work is precisely concluded.

Discussion of Key Findings

In this study, we have investigated Call 2.0 self-efficacy, facility conditions, perceived usefulness, subjective norm, and technological pedagogical and content knowledge influence teachers' intention to use CALL.2.0. Furthermore, teaching methods, especially individual intention to use CALL 2.0 and its underlying intervention between the stated factors Tam and Tpack's research model, were followed in the study.

Pakistani ESL School Teachers' Familiarity with CALL 2.0 Tools

In this study, our first research question was How familiar are Pakistani ESL school teachers with CALL 2.0 tools? We used the mean value to analyze the results to answer a research question. The study's findings showed that Pakistani ESL teachers are moderately familiar with CALL 2.0 tools and continuously access such tools in the language learning process. A mean value of 3.40 and 3.20 suggested that ESL school teachers were somewhat and moderately familiar with instant messenger and networking websites. A mean value of MOOC, Wiki, Online learning tools and Blogs suggested that participants were slightly familiar to somewhat familiar with CALL 2.0 practices. Lastly, a mean value of 1.90 indicated that participants are not so familiar with knowledge management tools, including using Zotero, Evernote, Endnote, RefWorks, etc. However, their knowledge management tools familiarity still needs to be enhanced as it is a very important tool for researchers, which is not in line with the other research studies. The findings are supported by the study of Alotumi (2020), who found a similar ESL teacher perception of using web technologies. On the contrary, a study by McCarty (2007) reported that ESL teachers in developed countries are well aware of effectively and efficiently implementing web technologies for teaching purposes.

Several research studies have been conducted on teachers' familiarity with the CALL 2.0 tool (Moussaoui and Moubtassim, 2020; Palli, 2020). A study by Bing Mei et al. (2017) showed that ESL school teachers' familiarity with online learning tools and social networking sites was moderate to extremely familiar. Our results showed that ESL school teachers are familiar with instant messenger and social networking sites at a somewhat to familiar moderate level. In their study, knowledge management tools familiarity was high in ESL school teachers, but it was found very low in ESL school teachers in Pakistan. Such similarities and differences are based on different educational backgrounds and facilities offered in their educational environment. Therefore, we can say that foreign researchers have widely used knowledge management tools. Knowledge management tools are not frequently used among Pakistani ESL teachers because of research orientation. In Pakistan, teachers are mostly course oriented than research.

Factors Influencing ESL School Teachers' Acceptance of CALL 2.0

Our second research question of this study was about the factors influencing ESL school teachers' Acceptance of CALL 2.0. This study investigates the factors influencing ESL school teachers' acceptance of CALL 2.0, such as Call.20 self-efficacy has a significant impact on Perceived usefulness, but Call.20 self-efficacy has no significant impact on IU and PU call.20. Which corroborates the findings of Saade and Kira (2009), who observed a strong positive relationship between Call 2.0 self-efficacy and PEU. Furthermore, Consistent with previous studies (Lin, Zimmer, & Lee, 2013; Teo, 2010), FC was found to be a significant and substantial factor influencing IU and PEU CALL 2.0. Nevertheless, FC was found to have no significant influence on PU CALL. 20. Without the specification of the FC in this study, we can only speculate as to what conditions matter. However, FC includes several facets.

Additionally, SN findings match those (Lin et al., 2013). SN was found to be a positive and significant influence on IU CALL.2.0 But SN has no substantial impact on PEU and PU CALL.20. A study by Lin et al. (2013) examined that subjective norms revealed a strong and considerable element are impacting IU CALL 2.0. Without knowing the SN, we can only guess what circumstances matter. However, SN has several sides. Early technical assistance for classroom technology is critical to minimize fear or confusion. Well-planned courses might be derailed by a sudden Internet outage, faulty software, or faulty hardware. Such support should include training to use the school's technology version. FC needs technical guidance, device management, support and training, and other logistics. Therefore, we can conclude that their study supports what we have analyzed in our study.

Besides that, TRACK was found to significantly influence PEU and PU CALL.2.0, which is consistent with the study (Teo, 2010). However, TRACK has no significant influence on IU CALL. 2.0. A study by Teo (2010) examined technological pedagogical and content knowledge positively influencing ESL school teachers using CALL 2.0. It is clear that beyond infrastructural and policy support, these processes are generally EFL instructors recognize the need to integrate pedagogy, technology, and topic understanding. This component of language instruction needs the prospective teacher to go beyond their English proficiency, teaching abilities, and capacity to work in the Pakistani social and technology context. Successful CALL 2.0 in EFL demands teachers who know how to use Web 2.0 technology. In addition to adequate TRACK, the viability of CALL 2.0 rests on instructors' ability to use such tools in English class.

Finally, PEU CALL 2.0 has a significantly positive influence on PU CALL. 2.0, consistent with the finding of (Chinomona, 2013), indicates it is easier for the ESL school teacher to access the internet for learning purposes. Inconsistent with the findings of earlier studies is that PEU did not have any statistically significant influence on IU (Zhou, 2008; Baker et al., 2010; Yi and Hwang, 2003). Therefore we can conclude that previous research studies strongly support our research work. At the same time, several studies contradicted what is supported in our studies. Such differences are possible in research because of different cultural and educational backgrounds.

The Implication of the Study

This study has some important implications given below

- For practitioners, the research has immediate implications for CALL stakeholders (including English language instructors, teacher educators, school administrators, and educational policymakers).
- It can promote schooling in rural areas of Pakistan. Future teachers should be aware of CALL 2.0 and encouraged to use it to create creative language learning opportunities.

- Pakistani teachers, educators, and policymakers must assist ESL instructors' TPACK growth to encourage CALL 2.0 in future ESL classrooms.

- In-service ESL teachers in Pakistan should also access quality professional development opportunities. ESL teachers trained in TPACK will also be able to raise their Intention to CALL 2.0 levels.

Limitations of the Study

In this research work, several limitations are highlighted,

- The first limitation of this study is that it contains a very small number of participants. Sometimes, an error may occur due to the small sample size, making it difficult to determine if an outcome is true. The study could have yielded more promising results if a large sample size had been taken. The results could be more reliable if there is a large sample size. The results will be invalid if the sample size is too small. Accuracy can be achieved if the sample size is large enough. A small sample size will also raise doubts about the results.

- The study is limited to school-level teachers only. As a result, the study had a narrow focus and a small geographic scope. Performing this study on college and university-level teachers will give more diverse results.

- Another limitation is that we have targeted only the same city. Studies could be performed in different cities to have diverse findings.

- This study divides private and government sectors disproportionally. Therefore, reliable results can be expected if the sample size is equally collected from the private and public sectors.

- The study focuses only on ESL (English as a second language) teachers, which is a major limitation of this study. The study excludes ESOL, EFL, and ELL teachers. Including teachers other than ESL teachers will give more broad results.

Recommendations for the Future

- A qualitative study should be conducted to explore the individual reasons and perspectives behind FC-related responses, as anonymous surveys cannot identify which FC factors were prominent in participants' thinking.

- Future survey studies should explicitly model the three main categories of FC and replicate the TPACK framework using Schmidt et al.'s (2009) content, pedagogical, technical, and interaction scales to verify its applicability within CALL 2.0.

- Research should be extended to teachers from diverse institutions, policy jurisdictions, and subject areas (e.g., mathematics, science, other languages) to assess whether findings are broadly generalizable beyond ESL contexts.

- A longitudinal study is recommended to establish a relationship between teachers' intention to use CALL 2.0 and its actual classroom use, while also identifying effective intervention programs during teacher training and the transition to active teaching.

- Mixed-methods research across multiple ESL teacher training sites, including both pre-service and in-service teachers working under varying facilitating conditions, is essential to corroborate and deepen the current findings.

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