Factors Predicting Attitudes of Teachers' towards The Use of "ICT in Teaching and Learning"

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Abstract

The particular article is focused on evaluating several factors that are influencing the intention and attitude of teachers to use ICT in teaching in this digital era. The pandemic crisis during 2019-20 has boosted the growth of online education worldwide and after that most of the teachers are focused on improving their technical knowledge and using modern technologies in teaching. It enhances the efficiency of teaching and makes it easier for the students to understand different concepts. Considering this, identifying the critical factors that lead to the use of ICT by teachers is the main goal of this study.

Secondary sources are used for assembling qualitative data as there are many articles and journals based on the topic which are capable of providing relevant information. A total of 8 articles and journals are selected by following some criteria and the findings from these articles are presented through a systematic table. Presentation of results and findings through the content analysis process enhances the significance of this study. Apart from that, the thematic analysis process has been used for discussing all the findings. It is identified that the ease of teaching, efficiency in teaching, lack of time, school culture, self-enthusiasm, increasing demand of online learning and others are the crucial influencing factors the attitude of teachers for using ICT in teaching.

Keywords

Collaboration, Education, ICT, Learning, Online Education, Teaching, Technological Knowledge.

INTRODUCTION

Overview of the study

The use of "Information & Communication Technology (ICT)" is rapidly increasing in different sectors and it is beneficial for enhancing productivity. The study sheds light on the use of "ICT in education" and the factors that have been influencing the perspective of teachers towards the adoption of ICT for teaching and learning. In this digital era, the use of technology in education is common and that not only impacts the students but also the students [1]. Most of the teachers are willing to use modern technologies nowadays and there are different influencing factors this attitude of teachers. Hence, the study is based on identifying the particular influencing factors the intention of teachers to use "ICT in teaching and learning".

Aim and objectives

The study aims to identify the factors that are influencing or predicting the attitudes of teachers towards the use of "ICT in education". In regard to complete the goal, particular objectives are,

- To identify the factors that are influencing the use of "ICT in education" by teachers
- To understand the significant impact of "ICT on teaching and learning"
- To demonstrate the potential challenges for teachers to use "ICT in teaching and learning"
- To elaborate possible issues associated with the use of "ICT in teaching and learning"

Significance of the research

The specific article focuses on the use of "ICT in teaching and learning". The study not only discusses the impacts of ICT on education but also identifies the factors that have been influencing the attitudes of teachers to use ICT in recent times. Thus, a brief discussion about the influencing factors the attitude of the teachers enhances the significance of this study. Apart from that, the use of relevant articles and journals for gathering information about the topic sustains significance as well as presenting all the results through thematic analysis also ensures that the researches are significant.

METHODS AND MATERIALS

Research design

It is important to choose a relevant and appropriate method for assembling relevant materials. There are two categories of research designs such as qualitative design and quantitative design [2]. Both of the designs are efficient but qualitative design includes non-numerical data and quantitative design includes numerical data which requires more time. Due to lack of time, the *qualitative research design* has been chosen for this study. Particular methods are used for gathering qualitative data which are discussed below in this study.

Sources for data collection

There are primary and secondary sources which are used

for gathering qualitative data. Interviewing people is the primary qualitative method and observing articles and journals are the secondary sources for qualitative data [3]. Although both of the sources are capable of gathering relevant data, the use of secondary sources is faster and significant. Therefore, *secondary sources* such as articles, news, journals and others have been used for data collection in this study. A few articles and journals that are based on the research concept, are observed based on the topic and a *systematic table* is presented for presenting all the findings from the observed articles and journals.

Inclusion and exclusion criteria

Some particular criteria are followed while collecting data from the selected article and journals. The first and vital criteria were to select articles which have been published after 2018 in order to collect only valid and recent data for this study. Apart from that, the second criteria were to exclude articles that are doctoral dissertations for avoiding wrong information in this study. Further, all of the articles needed to be focused on the use of "ICT in education" for ensuring relevance of this study. All of these criteria were important for maintaining significance and reliability of this article.

Sample collection

There are many articles and journals based on the topic of using "ICT in teaching and learning". Choosing articles and journals that will be relevant for this study is important and the mentioned criteria are followed for ensuring that. At first, 20 articles were identified on the same concept; among these

articles 7 articles were published before 2018 and other 5 articles were doctoral dissertations. Therefore, 12 articles were excluded from the identified articles based on the criteria and then a total of *8 articles* were selected for data collection. Thus, it can be stated that the sample size is 8 for this study and the process of collecting samples is presented through the flowchart below.
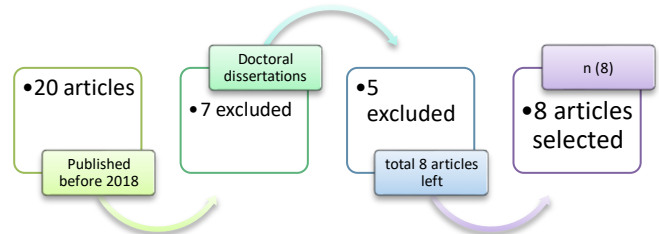

Figure 2.4: Flowchart (Source: Self-created)

Data analysis methods

Data analysis is one of the most vital parts of a research study which requires the use of relevant methods. It is previously mentioned in this study that secondary sources are used and qualitative data are collected; therefore, it is important to choose a process which is suitable to analyse qualitative data properly. *Thematic analysis* process is one of the most significant qualitative data analysis processes and this has been chosen for this study [4]. Particular themes are created based on the results and findings which are briefly discussed with proper citation.

RESULTS

Table 1: Results through systematic table (Source: Self-created)

Sl. No.	Source	Methods	Key findings	Significance
1.	Qaddumi et al. 2021 [5]	-primary quantitative -questionnaire survey -207 school teachers and 276 students -statistical analysis	● The use of ICT enhances efficiency in teaching which enhances thinking and decision-making skills of the students ● Most of the teachers have opinionated that ICT helped them to move towards curricular goals ● ICT enhances the involvement of students with learning disabilities	Integration of "ICT for teaching and learning" enhances the efficiency of the teachers and that positively impacts the learning of the students. It enhances the involvement and attentiveness of the students.
2.	UGWU & Nnaekwe, 2019 [6]	-secondary sources -qualitative analysis -reviewing articles and journals	● Easy availability of updated data and access to needful information through the use of ICT enhances teaching efficiency of teachers ● ICT improves connection with geographically dispersed regions which leads to the enhancement of divergent thinking ability of students ● Video conferencing, WWW, blog, social media and others are the core components of "ICT for teaching and learning"	ICT enhances the access of essential data and information which improve the ability of teachers to teach on different concepts easily. The use of online equipment is significant for better efficiency of teachers.

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3.	Aminullah et al. 2019 [7]	-primary quantitative -questionnaire survey -19 respondents -statistical analysis	• Lack of proper ICT equipment in educational institutions is one of the major challenges for teachers to use ICT • Improper regulation policies and lack of competency within educational institutions are other challenges for teachers to use ICT • ICT enhances efficiency in teaching is aspect of planning, evaluation and reflection as per the perspective of the respondents	Unavoidability of proper equipment and tools within educational institution is one of the major challenges for teachers to use "ICT for teaching and learning".
4.	Ahmed et al. 2020 [8]	-primary quantitative -questionnaire survey -81 respondents -statistical analysis	• Integration of ICT improves "EFL learning" and motivates students to learn English • Inadequate ICT tools in the department is a challenge for teachers to be adaptive with ICT in teaching • Lack of computer competence and technological skills among teachers is another big challenge for using "ICT in teaching and learning"	ICT helps the teachers to maintain authentic English culture through bringing authentic English but it also brings some challenges for the teachers. It requires proper equipment and adequate technological knowledge. Unavailability of these aspects brings challenges for teachers to use "ICT in teaching and learning"
5.	Guillén-Gámez & Mayorga-Fernández (2020) [9]	-The non-experimental study -Primary quantitative data collection tool -Conduct an online survey process	• Make the continual growth in the teaching and learning process, ICT has great responsibility. • ICT has motivated university teaching staff that impact on their attitude • Based on the teaching process, there is an average attitude.	Gradually observing the effectiveness of ICT, the teachers have become aware of the importance of ICT in the learning process. Accompanied by ICT training teachers can promote more incorporation in the educational field. Especially for the students this could be a better approach to support the positive attitude toward developing more skills and knowledge with the help of ICT in the education process.
6.	Sundqvist, Korhonen, & Eklund (2021) [10]	-Primary quantitative data collection tool -Conduct an online survey process with 161 participants	• Rapid technological development has brought transformation in the educational field. • The demand of current educational process teachers has become influenced to use different types of ICT. • Adoption of ICT in the learning and teaching process can help in understanding the structure of teachers' beliefs.	Using ICT in home economics (HE) is impartially exceptional and can explain the core curriculum equally partly. ICT framework has no remarkable indirect or direct impact on teachers' ICT use. The level of learning and teaching system is also dependent on the positive attitude of teachers towards the use of "ICT in education". In order to deal with the everyday lifestyle, ICT is one of the essential advanced technologies that can help in managing today's education system.
7.	Das, (2019) [11]	-Secondary qualitative data collection tool	• ICT has brought new challenges to education quality. • ICT has changed several perspectives of lives. • It has bounded the knowledge area of both teacher and students. • Using a combination of ICT has become a great challenge for the	Nowadays the growing use of ICT in the educational field has bounded the knowledge of the students as it is able to serve a limited knowledge regarding the subject. Responsible authorities continuously try to overcome these barriers and want to serve a better educational background. In addition, due

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			modern education system.	to a lack of proper knowledge of how to handle ICT, many educational centers could not use it. It needs different types of supportive Infrastructure facilities to make the approach of ICT in the educational field and to reduce the issues.
8.	Singhavi & Basargekar, (2019) [12]	-Primary quantitative data collection tool -Conduct an online survey process -515 participants have selected randomly	● The role of teachers is one of the barriers that limited ICT use. ● Due to a lack of internet facilities in many educational fields, ICT has been not implemented. ● Power supply issues are other limitations in ICT use among teachers.	Insufficient internet causes bandwidth or speed limitations which reduce the intention of ICT use in the educational field. In addition to that, lack of content in the national language is also a serious area in not installing ICT. Insufficient number of the interactive whiteboard or any other educational Software also brought the problem. There are many school computers out of date which could not install ICT. Along with this, many times it has become too difficult to integrate ICT use into the curriculum. Thus, most parents are not in favor of the use of ICT at school and it causes limitations of using ICT.

DISCUSSION

Theme 1: Significant use of "ICT in teaching and learning"

In the teaching and learning process, using ICT is capable of supporting the process of sharing experience and information with other. However, ICT also helps in improving "innovative teaching skills" which enables an efficient classroom to provide something better to the students. Most of the teachers have opinionated that ICT helped them to move towards curricular goals. ICT has contributed to the growth of society to transform the living style of people [5]. Implementation of ICT makes the teachers capable of motivating students and develop an interest in the learning process that can serve a better result at the end of the entire educational system. In addition to that, ICT is engaged in promoting technology literacy and supporting the distance learning process. However, it is one of the helpful techniques that are able to prepare the learner for the real world by preparing competitiveness.

It has been observed by the constant development and increasing demand for ICT that it is really effective for improving learning teaching procedures. Developing efficacy of the educational institutes and efficiency of the teaches at every level, improving efficiency of the classroom and developing the entire education sector ICT has proved as the best approach [13]. Integration of ICT for teaching and learning enhances the efficiency of the teachers and that positively impacts the learning of the students. Especially country-wide for distance learners ICT provides a better option with online educational materials. Thus, it also gives greater exposure to "vocational and workforce skills students". Depending on this, getting new sources of knowledge and resources has become easy and simple to make the world more advanced.

ICT enhances the learning capabilities of students and make them capable of participating in the new economy belonging to modern thoughts. In order to get developments in education, economy and society, ICT is beneficial as it not improves the efficiency of teachers but also the students. ICT is engaged in improving the connection with geographically dispersed regions that is leading to the enhancement of the divergent thinking ability of students [6]. In addition to that, getting quality educational service, and gaining a high level of knowledge and skills among students, ICT has a great advantage. Accompanied by using ICT in the educational field, setting the target and increasing the skill level can be easy and simple. Many educational policies reflect the requirements of ICT infrastructure and are implemented in the educational field to modify the entire framework of the learning and teaching system. Developing the entire educational system and enhancing the quality of educational information, is considered a better approach in this modern world.

Theme 2: Challenges for teachers to use ICT in teaching

In the 21st century, all teachers have more access to gaining knowledge with the help of advanced technology and global access to the internet. People who are connected in the educational sector in this century have more knowledge about many sectors than previous generations and they are able to acquire a range of skills in different sectors to develop better knowledge. The usage of technologies and social

media helps to increase their knowledge in different sectors and motivates everyone towards their learning and encourages them to establish betterment in their literacy. The ICT process can boost all the major fields of a teacher and can help them to increase their knowledge in different sectors. The teachers are able to enhance their learning power by gaining knowledge from different online resources that impact their educational careers.

Besides that, the ICT procedure changes the teaching attitudes of the teachers and helps them to improve their teaching attitudes and with that, they are very effectively able to increase their teaching process. Apart from this, teachers have different aspects in their teaching career and teaching process as it helps to improve the different teaching planning aspects of the teachers. The other aspects of teachers that effectively impact their teaching process are the aspects of evaluation and aspects of their teaching reflections that help to improve their teaching process [7]. However, there are some issues that cause problems in their teaching processes such as the old school policies, internal problems with using ICT and many others.

Technologies have improved every sector of people's lives by advancing the technologies and the advancement in technologies is increasing every day. Technological advancement provides more advancement in the educational field and provides better opportunities for teachers. The ICT process helps to build up the learning process of the teacher and the students from the educational firm. On the other hand, this process strengthens the languages of the students from the educational firms and through proper guidance of the teachers it increases the knowledge about different languages and helps develop a clear vision about the language and understand each of the languages with depth. Apart from this, the ICT process helps to enhance the learning power of the teachers about different languages.

However, different teachers have different attitudes towards using ICT in the language teaching process and these different attitudes impact the teaching process of them. On the other hand, many students are more interested in learning different languages but the teaching attitudes impact their learning process negatively. However, those teachers who have learnt the ICT language process are able to implement new technologies in the teaching process and are able to establish changes in the educational sectors. Many people have negative attitudes towards learning different languages but a teacher with positive thoughts can influence their interest in learning different languages [8]. Apart from that, having positive attitudes toward adopting new technologies in learning different languages is not enough to implement changes in every field of the education system.

Theme 3: Factors predicting the attitude of teachers towards the use of "ICT in education"

Identification of the particular influencing factors the attitude of teachers to use "ICT in teaching and learning" was a main goal of this study. It is identified that there are several

factors in this digital Era that are precisely influential towards the intention and attitude of teachers to use ICT in teaching. Firstly, the demand of online education is increasing among students and that is a great factor that influences the attitude of teachers. *About 60%* of internet users pray for online learning in recent times [14]. Apart from that technology competence of the teachers', school culture, availability of ICT resources in institutions and technology knowledge of teachers are the other core factors predicting the attitude of teachers towards the use of ICT in teaching [15]. Although in recent times teachers are trained with technology skills, a huge percentage of teachers are not capable of using ICT efficiently.

Therefore, technology competence of teachers is one of the major factors that predict the intention of teachers regarding the adoption of "ICT in education". It is identified that teachers have become more aware about the importance of "ICT in education" and that is leading towards a positive attitude towards teachers regarding the use of ICT [9]. Furthermore, using "technologies in teaching and learning" requires some particular equipment such as computers, internet and others. The availability of those equipment in educational institutes is important and a factor that influences the attitude of teachers. It is identified in some articles that teachers have opinionated about the unavailability of proper ICT equipment and its negative impact on the use of these "technologies in education".

On the other hand, school culture is also a significant factor that influences the attitude of teachers towards the use of "ICT in teaching and learning". The number of schools and educational institutes that support the use of technology in education is increasing worldwide along with the number of students who prefer online learning. The level of efficiency in learning and teaching is based on the teachers attitude and that is influenced by school culture [10]. Therefore, if the school culture is supportive towards the use of "ICT in teaching and learning" then it has a positive influence towards that attitude of teachers.

Theme 4: Issues related to the use of "ICT in education"

ICT is beneficial for improving "teaching and learning systems" but there are some potential issues and barriers for teachers and students regarding the use of "ICT in education". Firstly, inadequate access to ICT equipment such as strong internet connection computers and others is one of the biggest barriers for teachers related to the use of "ICT in education" [16]. Lack of effective software and inadequate technological skills among teachers are other barriers and issues associated with the use of "ICT in education". Apart from that, these technologies have bounded the knowledge area of teachers and students which is an issue of using "ICT in education" as well as it requires effective knowledge regarding technology which brings challenges for teachers to use ICT [11].

In addition to that, the implementation of ICT equipment

in educational institutes is quite expensive and that is another issue regarding the use of "ICT in education". Several tools and equipment need to be implemented as well as teachers also need to be trained for efficiently using those ICT based tools. Lack of these expertise in schools and institutes are other barriers and issues associated with the use of "ICT in education" [12].

CONCLUSION

It is identified in this research that the use of ICT enhances the compatibility of teaching and learning and that has a positive impact on the productivity of the students. Computer access, internet access, technology competence and preference of students regarding online learning are the major factors that have been predicting the intention of teachers regarding the use of "ICT in teaching and learning". Using ICT equipment efficiently is a challenge for teachers as it requires a high level of technology but it improves the teaching process and that has a positive impact on the learning of students.

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