Attitude, Self-Efficacy and Anxiety of University Teachers Towards Computer-Based Technology

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Abstract

The primary objective of this study was to assess university teachers' attitudes, self-confidence, and apprehensions regarding computer-based technology. This research aimed to examine these dimensions and discern disparities in attitudes, self-confidence, and anxiety levels related to computer-based technology use, particularly between public and private universities. Employing a quantitative research approach with a descriptive nature, data was collected through a survey method using a questionnaire, which was validated through pilot testing involving 50 teachers and evaluated for content and face validity by five subject specialists. The tool exhibited good internal consistency with a Cronbach's alpha of 0.88. The study focused on university teachers within the Bahawalpur district of Punjab, Pakistan, with 205 participants selected through systematic random sampling. The data was analyzed using independent sample t-tests, mean scores, and standard deviations through SPSS version 20. The findings revealed notable differences in attitudes, self-efficacy, and anxiety levels between teachers in public and private universities. Specifically, teachers in private universities exhibited more positive attitudes, and greater self-efficacy in using computer-based technology for teaching and learning, while public university teachers displayed a higher level of computer anxiety and less favorable attitudes toward technology. In light of these results, it is recommended that university administrations should organize training programs and short courses for both pre-service and in-service teachers to enhance their proficiency and alleviate anxiety associated with computer-based technology, facilitating its more effective integration into the educational process.

Keywords: Attitude, Self-Efficacy, Anxiety, Computer-Based Technology, University Teachers.

Introduction

Computers are a great invention of the late 20th century. As a teaching tool, they transformed the traditional teacher-centered classrooms into student-centered classrooms. Because of their usefulness in the learning environment many organizations and educational institutions considered computer-based technology tools as a crucial source to achieve their quality standards (Bozkurt, 2019). Computer-based technology in education is defined as the use of computer-based tools that integrate into daily classroom instructional processes. To prepare students for the present progressive era, instructors act as significant players in using CBT in their daily classrooms. This is because of the capability of CBT to create a teaching-learning environment more dynamic and proactive (Hatlevik & Arnseth, 2012). The instructor is considered a core element in demonstrating and organizing the learning environment. In this

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respect, instructors perform various tasks like deciding goals, choosing content, selecting media, deciding learning materials including courseware, selecting teaching methods, making groups of students, allotting time for the activities, facilitating individual differences, interacting with students, observing students' progress, and evaluating the learning effects.

Some of the basic factors for the acceptance and application of computer-based technologies in classrooms are the attitude, self-efficacy, and anxiety of teachers toward their use (John, 2015).

Generally, it is assumed that a positive attitude towards Computer-Based Technology is a crucial need of the present education system. Present educational institutions need to upgrade themselves and adopt modern Computer-Based Technology tools in the teaching and learning process. The successful integration of Computer-Based Technology tools in classrooms depends on instructors' attitudes. According to Roblyer (2003) from the beginning, instructors have a great impact on educational technology. Instructors' perception of technology, how they react toward Computer-Based Technology tools, how they relate it with their lessons, and how it helps them to accomplish their vision of teaching and learning impacts computer innovation in education. A positive attitude of instructors assists them in resolving difficulties, thinking critically, and cooperating with others (United States, 1988).

It also encourages them to modify the way they teach. An instructor, who possesses a positive attitude towards Computer-Based Technology, is more likely to move from a distributor of knowledge to an organizer and coach. It allows the instructor to inspire, guide, and help students participate actively in learning.

Self-efficacy refers to an individual's ability to understand whether he or she can perform a specific task. Specifically, the computer self-efficacy of teachers refers to their judgment about their knowledge and skills to use a computer in different situations (Compeau & Higgins, 1995).

Computer self-efficacy is consequently found in beliefs and self-confidence about what an individual can achieve with their abilities and previous information about computers they have (Zimmerman, 2000).

It is observed that instructors with high computer self-efficacy are more confident in utilizing Computer-Based Technology tools in teaching and learning. Instructors who have faith in their self-efficacy can easily deal with the challenges they face in the teaching and learning process (Kinzie, Delcourt, & Powers, 1994).

Anxiety can be defined as a psychological condition when an individual feels fear, stress, and tension about a particular phenomenon. Most of the instructors in higher education institutions are struggling with technology. They oppose the utilization of Computer-Based Technology tools in their classrooms. That is why, it is not surprising to know that numerous educators are not skilled enough and are afraid to utilize computers as an instructional tool (Mercer & Ralph, 1998). There can be immeasurable reasons behind teachers' anxiety. Instructors are encountering a fundamental challenge due to the rapid progression of knowledge. The emergence of advanced technologies necessitates instructors to acquire proficiency in their application for educational purposes. Consequently, these novel technologies accentuate the imperative for instructors' professional development. Gressard and Loyd (1985) deduced that an instructor's perspective toward contemporary technology significantly influences the effective implementation of computer-based teaching. They highlighted that instructors often possess less favorable attitudes towards computers, and these negative perceptions could potentially hinder the successful execution of computer-based tasks. Within the context of Pakistan, the integration of computer-based technology in educational institutions has evolved into an essential imperative, driven by the aspiration to attain international educational standards.

In Pakistan integration of computer-based technology in educational institutions has become a crucial need of the time, as is a desire to accomplish the international standards of education. Because of the rapid development of standards, computer-based technologies acquired more significance by instructors, scholars, and students. Traditional teaching methods have been transformed or are transforming into digital lectures and receiving remarkable consideration in educational institutions (Morse & Clintworth, 2000). From this perspective, the researcher conducted a study on the attitude, self-efficacy, and anxiety of university teachers toward computer-based technology. More specifically the research objectives of the study were

- To analyze the attitude, self-efficacy, and anxiety of university teachers toward Computer-Based Technology.
- To find out the difference among teachers' attitudes, self-efficacy, and anxiety while using Computer-Based Technology in public and private universities.

Research Methodology

A quantitative research design was chosen for the current study. The present study was descriptive. After reviewing the literature self-administrated questionnaire was developed on a five-point rating scale. The questionnaire comprised two portions. The first portion consisted of demographic information including gender, university name and its type, and designation of respondents. The second portion consisted of 5 constructs containing 43 close-ended questions. The intended population was the teachers of universities from Bahawalpur district, Punjab. The questionnaire was conducted on 205 university teachers through a systematic random sampling technique. A list of the respondents was taken from the universities' websites and then each respondent was given a specific number. Every 5th person on the list was selected for participation in the study, therefore K=5. A survey method was used for data collection. Data was collected through a questionnaire. After data collection, an independent sample t-test at 0.05 significance value, mean score, and standard deviation were applied via SPSS version 20 to analyze the difference among attitudes, self-efficacy, and anxiety of university teachers in public and private universities. If the p-value is less than 0.05 there is a significant difference between the groups.

Validation of the Instrument

A questionnaire with a five-point rating scale was developed to assess the attitude, self-efficacy, and anxiety of university teachers toward Computer-based Technology. The face and content validity of the questionnaire was assessed by 5 experts. Necessary amendments were made under their suggestions. The questionnaire was validated through pilot testing. A Pilot study was conducted on a small scale. 50 teachers from the Islamia University of Bahawalpur were considered for pre-testing to assess the reliability and validity of the instrument. The 50 teachers filled out the questionnaire. After pilot testing statements were edited and the sequence of some items was changed. Tool consistency was assessed by applying "Cronbach's alpha" through SPSS. The reliability of the tool was 0.88.

Findings

Table 1   Frequency Distribution of Demographic Information

Personal Information		*F*	%
Gender	Male	101	49.3
	Female	104	50.7
University	Public	156	76.1
	Private	49	23.9
Designation	Lecturer	111	54.1
	Assistant Professor	74	36.1
	Associate Professor	13	6.3
	Professor	7	3.4

The above table displayed the frequency distribution of demographic information. There were 49.3% of the respondents were male and 50.7% were female. 76.1% of respondents were from public universities and 23.9% were from private universities. While 54.1% were working as lecturers, 36.1% were assistant professors, 6.3% were associate professors and 3.4% were working as professors.

Table 2 Attitudes, self-efficacy, and anxiety of university teachers towards computer-based technology

Factors	Mean	S.D
Attitude	3.602	.55338
Self-efficacy	4.084	.55338
Anxiety	2.514	.55338

Table 2 displayed the attitudes, self-efficacy, and anxiety of university teachers towards computer-based technology tools. The total mean score of the self-efficacy factor was comparatively high (M=4.084) among other factors, while the mean score of the factor of attitude was 3.602, and the total mean score of the anxiety factor was 2.514 relatively low in all factors.

Table 3 Difference among attitudes, self-efficacy, and anxiety of university teachers towards computer-based technology in public and private universities

Factors	University	N	Mean	SD	t value	p-value
Attitude	Public	156	3.478	. 4862		
	Private	49	3.997	.5740	5708	.000
Self-efficacy	Public	156	4.011	.6784		
	Private	49	4.314	.5861	2.812	.005
Anxiety	Public	156	2.167	.9410		
					5.176	.000
	Private	49	3.200	1.293		

Table 3 illuminated teachers' attitudes, self-efficacy, and anxiety toward computer-based technology in public and private universities. The above table displayed the t value (5708) was significant at p .000 <0.05 for the attitude factor of university teachers towards computer-based technology. This indicates that there was a significant difference in the attitudes of teachers towards computer-based technology in public and private universities. It was observed that

teachers of private universities (M=3.997, SD=.5740) possessed a positive attitude towards computer-based technology. The group statistics about the self-efficacy factor revealed that the t value (2.812) at p .005 concluded that there was a significant difference between the groups. It was concluded that teachers of the private university (M= 4.314, SD=.5861) had a strong sense of self-efficacy towards computer-based technology. However, the final results of the anxiety factor displayed the t value (5.176) at p.000<0.05 significance value which highlighted that there was a significant difference between the groups. The final data showed that the teachers from private universities (M= 3.200, SD= 1.293) had more anxiety towards computer-based technology as compared to teachers from public universities.

Discussions

The present study's first and foremost limitation was data based on only public and private universities of Bahawalpur district Punjab that can be prolonged towards other districts as well. This research aims to assess the attitude, self-efficacy, and anxiety of university teachers towards computer-based technology. Findings in terms of the first objective illuminated that a positive attitude towards computer-based technology tools encouraged teachers to incorporate technology tools in classrooms and cheered them to better perform in their classroom activities. The research conducted by Albirini (2006) also concluded that the Positive attitude of instructors is the key factor for the successful implementation of computer-based technology tools in education.

The present study also provides empirical support that university teachers have strong self-efficacy. Teachers who have a strong sense of ability to understand their skill to incorporate technology were imposing effective teaching skills and utilizing computer-based technology tools better in classrooms and fulfilling the standards of quality education. Self-efficacy of an individual provides motivation, a sense of responsibility, and achievement. This study lined up with the Compeau and Higgins (1995) study that also concluded that instructors with high self-efficacy are more likely to use computers in their lectures. Teachers who have faith in their self-efficacy can easily deal with the challenges faced in the teaching and learning process. The current research depicted that Technophobia was the biggest hurdle in utilizing computer-based technology tools in teaching. Numerous instructors were struggling with computer anxiety. Like self-efficacy, computer anxiety also has a tremendous impact on the successful implementation of computer-based technologies in education. Van Raaij and Schepers (2008) also found that computer anxiety has a negative influence on the ease of use of computer-based technology tools.

The study's second aim was to ascertain variations in attitude, self-efficacy, and anxiety levels towards computer-based technology between public and private universities. The outcomes of this objective highlighted a substantial distinction in the attitudes, self-efficacy, and anxiety levels of university teachers regarding computer-based technology tools when comparing private and public universities. It was observed that private university teachers had uplifting attitudes towards computer-based technology tools and had a strong sense of self-efficacy about computer-based technology. While on the other hand as compared to public university teachers private university teachers were more technophobic and were struggling with computer anxiety. These findings are supported by the results of Guillen-Gamez and Mayorga-Fernandez (2020) and Yasmeen, Alam, Mushtaq, & Alam Bukhari (2015).

Conclusion

It was concluded that computer-based technology has become a crucial need for the modern teaching-learning environment. For the accomplishment of quality standards, instructors are considered the most important element in the education system. Generally, it is believed that attitude, self-efficacy, and anxiety are the core factors to upgrade educational standards. It was

observed that there was a significant difference in the attitude of teachers toward Computer-Based Technology tools. Teachers from private universities possess a positive attitude towards the use of Computer-Based Technology tools in classrooms as compared to teachers from public universities. As well as teachers from private universities had a strong sense of self-efficacy toward the use of computers. It was also determined from the results that teachers of private universities were struggling with computer anxiety. While the teachers from public universities had control over their computer anxiety and successfully used computer-based technology tools in classrooms.

References

- Albirini, A. (2006). Teachers' attitudes toward information and communication technologies: The case of Syrian EFL teachers. *Computers & Education, 47*(4), 373-398.
- Bozkurt, A. (2019). From distance education to open and distance learning: A holistic evaluation of history, definitions, and theories *Handbook of Research on Learning in the Age of Transhumanism* (pp. 252-273): IGI Global.
- Compeau, D. R., & Higgins, C. A. (1995). Computer self-efficacy: Development of a measure and initial test. *MIS quarterly*, 189-211.
- Gressard, C., & Loly, B. H. (1985). Age and Staff Development Experience with Computers as Factors Affecting Teacher Attitudes toward Computers. *School Science and Mathematics, 85*(3), 203-209.
- Guillén-Gámez, F. D., & Mayorga-Fernández, M. J. (2020). Identification of variables that predict teachers' attitudes toward ICT in higher education for teaching and research: A study with regression. *Sustainability, 12*(4), 1312.
- Hatlevik, O. E., & Arnseth, H. C. (2012). ICT, teaching and leadership: How do teachers experience the importance of ICT-supportive school leaders? *Nordic Journal of Digital Literacy, 7*(01), 55-69.
- John, S. P. (2015). The integration of information technology in higher education: A study of faculty's attitude towards IT adoption in the teaching process. *Contaduría y administración, 60*, 230-252.
- Kinzie, M. B., Delcourt, M. A., & Powers, S. M. (1994). Computer technologies: Attitudes and self-efficacy across undergraduate disciplines. *Research in higher education, 35*(6), 745-768.
- Mercer, P., & Ralph, J. (1998). Computer-assisted learning and the general dental practitioner. *British dental journal, 184*(1), 43-46.
- Morse, D. H., & Clintworth, W. A. (2000). Comparing patterns of print and electronic journal use in an academic health science library. *Issues in Science and Technology Librarianship, 28*(26.04), 2008.
- Roblyer, M. D., & Roblyer, J. E. (2006). Integrating Educational Technology Into Teaching with Other: Upper Saddle River, NJ: Pearson Prentice Hall.
- United States, C., Office of Technology Assessment, OTA. (1988). *Power on: New Tools for Teaching and Learning*.
- Van Raaij, E. M., & Schepers, J. J. (2008). The acceptance and use of a virtual learning environment in China. *Computers & education, 50*(3), 838-852.
- Yasmeen, S., Alam, M. T., Mushtaq, M., & Alam Bukhari, M. (2015). Comparative study of the availability and use of information technology in the subject of education in public and private universities of Islamabad and rawalpindi. *SAGE Open, 5*(4), 2158244015608228.
- Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary educational psychology, 25*(1), 82-91.