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Research Article

Perception Towards The Use Of Digital Technology And Factors Generating Techno-Stress Among Teacher Educators

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Abstract

The primary purpose of this study is to find out the ability rate of using Tech-tools in classroom teaching, measure the perception of using digital technology in the classroom and assess the factors generating Technostress among the Teacher Educators. To fulfill the objectives of the study, the investigator adopted a normative survey method. The investigator was selected 150 Teacher Educators as the sample from Kasaragod and Kannur districts in random sampling techniques. The investigator has used a self-prepared tool it covers the rate of level skills of technology usage, measures the perception of using digital technology in the classroom, and assesses the factors generating Technostress. It will be easy to get an appropriate answer for each statement from the teacher educator, and it was constructed and validated by the investigator. The findings of the study were: 33.3% of the sample not at all feel anxious, 34.7% of the sample contact a little anxious, 24% of the sample feel somewhat anxious, and only 8 % feel very anxious while thinking about technology. Only 6.7 % of teacher educators are weak in using computers or laptops; the remaining of them are 44 % average, 36 % strong, and 13.3 % very strong to use computers or laptops for their academic purpose. There are 31.3% of Teacher Educators who have high stress because of the fear of damage or loss of storage materials. 28% of Teacher Educators have high stress because of the anxiety about the loss of internet data, and 23.3% of the sample has high stress due to the fear of viruses or threats.

Keywords

Tech-Tools, Perception, Ability Rate, Anxious, Factors, Digital Technology, Technostress, etc.,

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Introduction

Technologies make life easier, freeing the complicities and adding more and more amenities in day-to-day life. The explosive advancement in technology has broad profound changes in social life, introducing the technologies like Artificial intelligence and the Internet of things in day-to-day events (Zhang & He, 2020). The impact of technology using mini gadgets and small conveniences shifted from a specifically oriented smart device and its penetration in the various domains of social life. The Internet has become the medium of social life in the 21st century, even for the socio-emotional concerns of individuals. The argument on the emotional concern became quite unexpected, but life has moved to that understanding; people use and support the Internet for being happy. Emotions are even addressed by technology (Steinert & Roeser, 2020). At the same time, the inflex of smart devices in social life has created stress which can be attributed as techno-stress where the people to find it difficult to balance their needs and their technical competencies where others can do in very effective way, this state of imbalance creates over anxiety and fear to many different devices like smartphone, computer software, hardware even managing the personal feeling in social media. Understanding technostress in a virtual learning environment has been operated in isolation by the research communities (Loderer, Pekrun, & Lester, 2020). The exponential rise in computer software and internet technologies has created new product options and set specific benchmark criteria, altering the flow of social life in a conventional society (Fischer & Riedl, 2017). Some people have adopted the virtual environment in a free-flow manner where others feel it like struggling in a stream receiving no help from the environment.

Techno-stress is a term for debates where the people perceive on one side as the change in attitude towards digital technologies. Still, on the other hand, it is their conceptualization of digital algorithmic procedure which works in the same logic in almost all devices where people need to get trained. As a policy, when the system is introducing technology in all the domains of professional life that change over from one face to other has to be taken place in threshold way rather than the lightning speed so that the phobia to these digital technologies to an extent can be minimised. The immediate change in the professional space where the technological gadgets replaced the conventional procedure may cause technological fatigue and hostility for the incompetence, which creates technostress in their professional life.

The ICT is dominating our education sphere. In personal life or academic life the influence of digital technology has an immense role. In the classroom, the teacher may face lot of difficulties while using the latest digital technological tool or devices. It leads the stress to the teachers' community because some of the teachers have the inferiority complex towards their technical skills compare to their student's abilities (Vijila & Thiyagu, 2019). In some cases, perception towards technology integration in the teaching and process, as well as the technical knowledge and skills, also influences the persons' Technostress. It seems a lot of external and internal factors are generating the Technostress to the teaching community. Most of the teachers are from the digital immigrants generation; they could not use digital technological tools or devices in the classroom in a proper manner. These are the issues that create stress for the teachers' community. Therefore, the investigator attempt to do the research work to find out the ability rate of using Tech-tools in classroom teaching, measure the perception of using technology in the classroom, and assess the factors generating Technostress among the Teacher Educators.

Review Of Research Literature

Techno stress is the pervasive use of digital technologies in the modern society (La Torre, Esposito, Sciarra, & Chiappetta, 2019). Technology induced stress always keep the employees to turn into deviant behaviours in the online activities (Güğerçin, 2020). The employees always struggle to counterbalance the effect of techno stress in their workplace which is supported through synchronization of neutralization theory and organizational behavior. Studies showed that techno stress always affect the performance of the people in an organization so it should be dealt with highest priority. The different psychological factors attributes to techno stress and personality of the individual vary with techno stress (Ebrahimi, Jani, & Bakar, 2019). The various components like overload, invasion, complexity, insecurity and uncertainty which create techno stress are always related to counter productive work behavior (Kim & Lee, 2021). The failure of coping with the

technological changes due to the increased use of new gadgets keep an adaptation disorder known as techno stress (Çoklar, Efilti, Sahin, & Akçay, 2016). Techno stress is an additional stress infused into the professionals because of their change in employment demands over depended on technology (Saganuwan & Ahmad, 2013). Information security techno stress also affects the individual satisfaction of the employees in a professional organization (Ho-Jin & Cho, 2016).
ICT has become an important element in the teacher training models adopted at various levels. Synthesis of Qualitative Data model describes the six different teacher preparation strategies to evaluate the increasing rate of technology knowledge and rate of technology adoption (Hsu & Lin, 2020). The present generation of learners and the new generation teachers can be called as the digital generation so the mindset of conservative teachers to abstain from the use of digital resources or technical devices will be an outdated concept in education very soon (Li, Worch, Zhou, & Aguiton, 2015). Opportunities to respond has become another important concept which gives the influence of the use of technology by teachers to increase the student outcomes (Rila, Estrapala, & Bruhn, 2019).

Research Questions

The study on factors generating techno stress and the use of digital technology has been conducted by framing the following research questions

1. How long the teacher educators have the experiences to use the computer and Internet?
2. What is the rate of Teacher Educators' ability to use Tech-Tools in classroom teaching?
3. What is the level of perception among teacher educators in the use of digital technology in teaching?
4. How much the teacher educators feel anxious/fear when they think about technology?
5. What are the factors generating Techno stress among Teacher Educators?

Methods Of Research

The study intends to find out the level skills of technology usage, measure the perception of using digital technology in the classroom, and assess the factors generating Techno stress among the Teacher Educators. Therefore, the present study was conducted by using the method of normative survey.

Population Of The Study

In this study, all the teacher educators who are teaching in colleges of education but located in Kasaragod and Kannur have taken as the population for the study. The sample had chosen by using a simple random sampling technique. It is one in which each element of the population has an equal and independent chance of being included in the sample. 150 Teacher Educators had selected as the sample from Kasaragod and Kannur districts.

Tools For The Present Study

Normative survey method was used to collect the data for the study. Rating scales were used as tools to collect data regarding the technological skill, measure the perception of teachers regarding technology integration in teaching and factors generating techno stress. The investigators were very much adamant to elicit the responses from the participants. The rating scales were so specifically structured and constructed by reviewing many of the studies done for the similar purpose and context. The draft scales prepared were given to psychometric specialist, teacher educators and experts in the field for specific reviews and their feedback were taken positively to modify each and every item in the scale. The language of the tool was made very simple and clear so that respondents get clear picture of the context and items specified. The investigators used self-prepared tool as it covers the level of skills in technology usage, perception on integrating technology in classrooms and assesses the factors generating techno stress. Participants have no difficulty in answering the items in the scale and the tool was statistically validated to ensure its purpose.

Reliability Of The Tool

The quality of assessment tools become a high degree of concern in establishing the authenticity of the results (Crozier, 2018). Reliability is one among them which ensures the consistency in measurement through statistical testing. In the present study Cronbach's Alpha Value and split half coefficient were calculated by the investigators to ensure reliability of the tools employed in the study. The value of Cronbach's Alpha is found to be 0.947, which indicated a high level of internal consistency for the Techno stress scale. The reliability coefficient was found to be 0.919 for the perception towards digital technology which was established through spearman brown formula. So, through this the reliability of the quantitative estimates like Perception towards digital technology and techno stress was established properly which adds additional confirmation to the research findings given.

Validity Of The Tool

Validity is canonically acknowledged as the test to measure what does it intends to measure (Truijens, Cornelis, Desmet, De Smet, & Meganck, 2019). Validity of the research tools gives the accuracy with which research findings based on the data received from the tools can be justified (Roberts, Priest, & Traynor, 2006). The content validity and construct validity of the research tool was established in different ways and the criterion related validity was also estimated for the tools on Techno stress and perception to digital technology.

Statistical Techniques Used

The investigator used the frequency and percentage analysis to describe the data. The data collected were scored as per the norms established, and the responded items were scored based on the scoring key in the form of a matrix table. The composed data were fed into the computer and analyzed using SPSS Statistics Version 22.

Analysis Of Data

Research Question 1

How long the teacher educators have the experiences to use the computer and Internet?

Table 1
Analysis of the sample in terms of year of experience with computer and Internet

Year of Experience	Computer		Internet	
	Frequency	Percentage	Frequency	Percentage
<3 years	34	22.7	37	24.7
3-5 years	27	18.0	31	20.7
Above 5 years	89	59.3	82	54.6

As revealed by the table, 34 Teacher Educators (22.7%) have less than 3 years of experience; 27 Teacher Educators (18.0%) have an experience with computers between 3 to 5 years; 89 Teacher Educators (59.3%) have an experience with computers above 5 years. As per the table description, 37 Teacher Educators (24.7%) have less than 3 years of Internet experience, 31 Teacher Educators (20.7%) have 3 to 5 years of experience with the Internet and 82 Teacher Educators (54.6%) have Above 5 years of experience with the Internet.

Graph 1
Bar Diagram of sample in terms of year of experience with computer and Internet

Research Question 2

What is the rate of Teacher Educators' ability to use Tech-Tools in classroom teaching?

Table 2
Analysis of the sample in terms of Teacher Educators' ability rate of using Tech-tools in classroom teaching

Tech tools	Weak		Average		Strong		Very strong	
	f	%	f	%	f	%	f	%
Computer or Laptop	10	6.7	66	44.0	54	36.0	20	13.3
Mobile Devices	11	7.3	55	36.7	60	40.0	24	16.0
Multimedia Projector	26	17.3	58	38.7	48	32.0	18	12.0
Digital Camera	61	40.7	58	38.7	27	18.0	4	2.7
Smart Boards	45	30.0	59	39.3	38	25.3	8	5.3
Word	13	8.7	52	34.7	61	40.7	24	16.0
PowerPoint	7	4.7	47	31.3	66	44.0	30	20.0
Excel	43	28.7	66	44.0	31	20.7	10	6.7
Paint / Photoshop	53	35.3	72	48.0	18	12.0	7	4.7
SPSS	83	55.3	42	28.0	19	12.7	6	4.0
Google Apps	14	9.3	66	44.0	50	33.3	20	13.3
Edmodo	104	69.3	32	21.3	14	9.3	0	0.0
Screen casting	101	67.3	33	22.0	13	8.7	3	2.0
Youtube	14	9.3	52	34.7	53	35.3	31	20.7
Blog/Wiki	30	20.0	55	36.7	49	32.7	16	10.7
Social network	11	7.3	52	34.7	51	34.0	36	24.0
MOODLE	81	54.0	45	30.0	18	12.0	6	4.0

The

above table presents the analysis of the sample in terms of Teacher Educators' ability rate of using Tech-tools in classroom teaching. Only 6.7 % of teacher educators are weak in using computers or laptops; the remaining of them are 44 % average, 36 % strong, and 13.3 % very strong to use computers or laptops for their academic purpose. 7.3 % of teacher educators are weak to use mobile devices, the remaining of them are 36.7% average, 40 % strong, and 16 % powerful skills to use mobile devices. 17.3 % of teacher educators are week to use multimedia projects, but the remaining of them are 38.7% average, 32 % strong, and 12 % solid skills. In the capability to use a digital camera, only 2.7 % of teacher educators have a great ability, and the remaining 18 % have strong, 38.7 % have moderate, and 40.7 % have weak in this. Similar smartboards usage skills are soft by the 30 % teacher educators. 69.3 % of the samples are weak to use the Edmodo tool; 67.3 % of teacher educators are vulnerable to use screen casting tools, and 55 % of samples are weak to use MOODLE. More percentage teacher educators have the ordinary skills to use google apps, youtube, blogs, wiki and social networks.

Research Question 3

What is the level of perception among teacher educators in the use of digital technology in teaching?

Table 3
Analysis of sample in terms of statement wise perception of digital technology in teaching

Statements	Agree		Neutral		Disagree	
	f	%	f	%	f	%
Using digital technology in my profession enables me to do the task more fast.	144	96.0	5	3.3	1	0.7
Using digital technology improves my academic performance.	135	90.0	11	7.3	4	2.7
Using digital technology enhances the effectiveness of my teaching.	140	93.3	6	4.0	4	2.7
Using digital technology makes it easier to do my classroom work.	132	88.0	13	8.7	5	3.3
My profession enhances the productivity with the help of technology	124	82.7	23	15.3	3	2.0
It is easy for me to become skillful at using technology	111	74.0	32	21.3	7	4.7
In the future, I plan to use electronic learning more often.	126	84.0	17	11.3	7	4.7
I feel that my students are so happy when I integrating technology in my teaching.	133	88.7	17	11.3	0	0.0
Digital Technology provides lot of professional inputs to me.	136	90.7	11	7.3	3	2.0
I feel much comfortable to use Digital technology in my teaching	131	87.3	16	10.7	3	2.0

The above table presents the analysis of the sample in terms of statement wise perception of use of technology in teaching. Out of 150 Teacher Educators, 140 (93.3%) of them have the positive favorableness of Using technology improves their academic performance; 132 (88 %) of teacher educators have the favorable perception of technology makes them easier to do their classroom work; 125 (82.7 %) of teacher educators gave the agreeable opinion that digital technology helps them to enhance the productivity of the profession; 111 (74 %) of teacher educators have the favorable perception that using technology makes them very skillful in a natural way; 126 (84 %) of them plan to use electronic learning more often in their classwork; 133 (88.7%) of them feel that their students are so happy when they are integrating technology in their teaching; 136 (90.7 %) of them think that digital technology provides a lot of professional inputs to them; 131 (87.3 %) of teacher educators are very much comfortable to use technology in their teaching.

Research Question 4

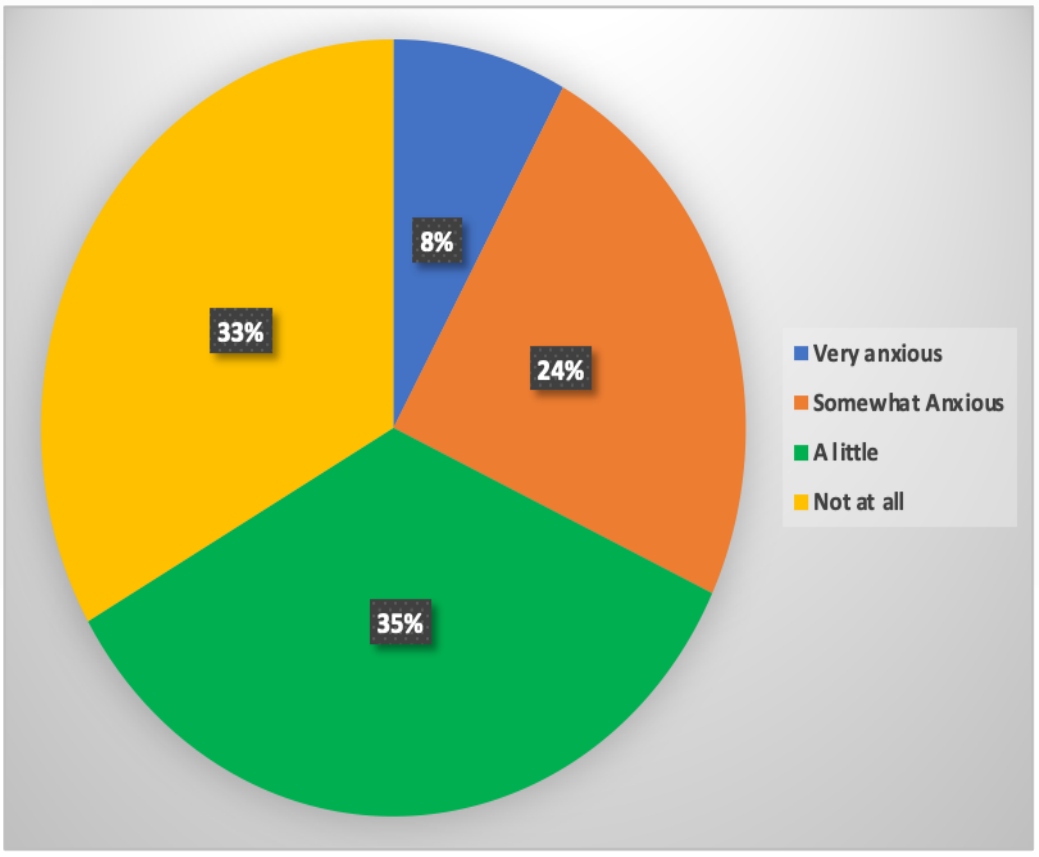
How much the teacher educators feel anxious/fear when they think about technology?

Table 4
Analysis of the sample in terms of anxiousness when think about technology

Level of Anxiousness	No. of Teacher Educators	Percentage (%)
Very anxious	12	8.0
Somewhat Anxious	36	24.0
A little	52	34.7
Not at all	50	33.3

As seen from the above table, 50 (33.3%) of the sample not at all feel anxious, 52 (34.7%) of the sample contact a little anxious, 36 (24.0%) of the sample feel somewhat anxious, and 12(8.0%) feel very anxious while thinking about technology.

Graph 2
Pie Diagram of the sample in terms of anxiousness when think about technology



Research Question 5

What are the factors generating Technostress among Teacher Educators?

Table 5
Analysis of the sample in terms of factors generating Techno stress

Factors	No Stress		Low Stress		Moderate Stress		High Stress	
	f	%	f	%	f	%	f	%
Skill about Latest Technology	47	31.3	48	32.0	49	32.7	6	4.0
Hardware Failures	17	11.3	49	32.7	58	38.7	26	17.3
Software Failures	17	11.3	42	28.0	63	42.0	28	18.7
Power / Electricity Failure	31	20.7	35	23.3	54	36.0	30	20.0
Network Failure	33	22.0	29	19.3	52	34.7	36	24.0
Loss of Internet data	24	16.0	37	24.7	47	31.3	42	28.0
Outdated technology	27	18.0	48	32.0	58	38.7	17	11.3
Damage or loss of storage materials	17	11.3	29	19.3	57	38.0	47	31.3
Fear about Viruses / threats	23	15.3	33	22.0	59	39.3	35	23.3
Forget to retrieve the saved work	24	16.0	33	22.0	50	33.3	43	28.7

As seen from the above table, There are only 47 (31.3%) Teacher Educators who have no stress about the knowledge and skill of the latest technology, 33 (22 %) of them has no stress during the network failure, 31 (20.7%) of the not have stress when they face the electricity failure. There are 63 (42%) of teacher educators have the moderate stress when the face the software failures, 59 (39.3%) of them have mild stress due to fear about virus or threats, 58 (38.7% there are 47 (31.3%) Teacher Educators who have high stress because of the fear of damage or loss of storage materials. 42 (28.0%) Teacher Educators have high stress because of the anxiety about the loss of internet data, and 35 (23.3%) of the sample has high stress due to the fear of viruses or threats.) of sample have the moderate stress due to the outdated technology.

Scope For Future Research

The primary goal of the study was to rate the skill of using technology, measure the perception of teacher educators towards use of digital technology and factors generating techno stress. The study was conducted at a period where teacher educators, teachers and even physical trainers were using web-based medium for transaction of their content or programmes. The academic period before 2020 were regarded as the period of natural transition to digital technology through latent inculcation of various digital strategies and devices in the academic environment. The year 2020 was regarded as the year of Massive Open Online Courses MOOCs) when due to the pandemic situation every type of learning has shifted to virtual modality from the real time creative presence of educators in the classrooms as experienced previously. So this over exposure to technology has created a state of imbalance to convert all the available resources which were used previously in bulk to modern sophisticated form of digital content. Based on the findings the following suggestions are made for future research.

1. Virtual learning or MOOCs have become the new normal. So policy studies should concentrate on making this transition hassle free and motivating for the conventional teachers.
2. Case studies should be promoted on experienced teachers to ensure that they are welcoming the importance of transition positively and they get really modelled to adapt technological pedagogical content knowledge strategies in their classrooms
3. Teacher education curriculum should be re-modeled making it challenging to accept the demands of the technical skills of the future learners.
4. Techno stress becoming an increasing factor in our professional settings there should be some psychological studies factoring out the symptoms and consequences of techno stress of the teachers
5. The future research should focus on the pervasive effect of increased technological platforms on transaction, evaluation and performance assessment of learners by comparing the efficiency of one over the other
6. Policy research also should highlight on the extent of technological transition in each and every professional domain.
7. The research on psychological and sociological factors affecting techno stress need to be promoted regularly.

Educational Implications Of The Study

The influence of educational technology has reached at its peak over the last five years. Technology enhanced learning has become a common process in distance education and giving its significance in blended learning (Scanlon, 2021). The nuances and subtleties of teaching profession has gone for a paradigm shift from the conventional face to face mode to new form of blended learning. The teaching profession has been modelling with the 21st century skills through the emergence of competitive teaching strategies. The socio-cultural context of learning become an important determinant of the teaching learning in higher education even at the time of Covid pandemic (Ando, 2021). The over influence of technology use in everyday life on the other hand creates stress in the individuals. The drastic change over in the professional skill demands keep employees under nervousness so there needs a perfect coping mechanism to counterbalance the effects of change. If in cases where the situation demands for a 100% transition from the conventional ways of working to technology integrated mode, then the adaptation pace shall be regularly monitored through action research to ensure it is free from techno stress. In the case of teacher education system, the advancement in technology has been a dominant force in enhancing and altering teaching pedagogies in Universities and colleges across the discipline. The IT has penetrated to all domains where digitization of the work has become the new standards in procedures so when an overhaul from the existing system takes place it should be properly substantiated with quality skill-based training. The word facilitator of knowledge is becoming a synonym for the teachers rather than masters in a discipline. In the present classrooms' teachers are compelled to perform using technical gadgets rather than demonstrating their flair of presentation or depth in comprehension of the knowledge or analyzing the concept in unfamiliar situations and this keeps teachers stressed always. So, to make classrooms more interesting, joyful and a to make it as a place where actual thought processes are initiated teachers need to be motivated, trained technically on skill development and to meet the adverse consequences of the circumstances. Policy makers, stakeholders and educationist must find ways to lower the techno stress, keeping a healthy institutional climate, providing all technical facilities, and giving sufficient leisure time for the teachers to facilitate new learning.

Conclusion

Technology can be used as the new platform of academic transaction. Teachers brings changes in the classrooms by integrating technology in their classrooms. Teacher educators need to comprehend the flexible integration of technology in classrooms by making it as a very simple and easy ongoing process. The rate of technology use in classrooms many a time affects teacher's decision making. Experience always relates with the degree to which teachers use technology support in teaching and learning (Baek, Jung, & Kim, 2008). But normally in the classrooms students are deviating to social media and other non-academic activities at the time of teaching because of their addiction to smartphones and other digital gadgets (Vahedi, Zannella, & Want, 2019). Technology has changed the face of each classrooms from the primary

level to university system and it has been established beyond doubt at the same time teacher educators should be cautious while integrating technology in their classrooms (Archer et al., 2014).

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