

Teachers' Digital Competence in Relation to Psychological Well-Being among Higher Education Teachers

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Abstract

Digital technologies have been rapidly adopted into higher education resulting in a change of the ways teaching and learning, communication, assessment and academic administration are carried out and therefore teacher's digital competence is emerging as a professional need. At the same time, because of the new problems of using technology in the teaching-learning process, teachers' psychological health might be impacted too. The main objective of the present study is to explore the Teachers' Digital Competence and Psychological well-being among the Higher Educational Teachers of Tripura. From this, the present study aimed to examine teachers digital competences at higher education institutions and their psychological conditions as well as exploring possible connections between these two factors. The study can use a descriptive and correlational research design. The data can be collected from the higher educational teachers of Universities, colleges and other HEIs, the Sesame points of digital competence and mental wellbeing can be selected from the standards with a structured questionnaire on Tripura. Appropriate statistical analysis method descriptive, correlation and regression can be used for data analysis. The study is hypothesized to obtain information regarding the bidirectional relationship between teachers' psychological state, and their digital technology skill levels in effective instruction. The results can guide H.E. institutions to build their digital training, professional development, and institutional support programmes to promote successful technology use and teachers' well-being.

Keywords: Teacher Digital Competence, Psychological Well-Being, Higher Education Teachers, Digital Literacy, Digital Skills, Technology Integration, Teacher Well-Being, Higher Education, Educational Technology.

Introduction

Looking back on the past ten years, the Higher Education sector has seen a radical shift in the methods of teaching, learning, assessment, communication, research and academic administration as a result of the rapid development of digital technologies. It is now common to find digital platforms, LMSs, online resources, virtual classrooms, artificial intelligence applications, digital assessment tools and collaborative technologies as part of everyday lives of learners and educators in higher education. They have offered new possibilities for teacher educators to develop teacher competence in delivery, engagement and give students opportunities to access a range of teaching materials to teach innovatively. These technologies, however, require teachers to develop their knowledge, skills, attitudes and confidence in their use. In the field of higher education, therefore, digital competence of teachers has been on centre stage as a dimension of teachers' professional competence. Digital competence is more than merely using a computer or a computer-based digital application; it is about recognising, understanding, developing, sharing and using digital information and technology appropriately, responsibly and effectively in educational settings. It is expected, therefore, that teachers at the level of higher education will constantly enrich their digital literacy as well as adjust their educational approaches and methods to the evolution of technological environments.

The role of the teacher in digital competence is important, especially given that digital competence needs to be enabled not just from the point of view of digital infrastructure. A range of learners' differing needs are taken into consideration, including use of digital technology to support the learning task, instructional practices and evaluation practices. All of these are features that can be accomplished by a competent teacher and digital

technologies: Interactive learning environment, timely feedback, supporting collaborative learning, personalization, enhanced access to learning content. Lacking digital competence, however, in the production of digital learning resources/products, platforms, digital assessment tools or the constant and ever evolving needs of technology, can also cause problems. Teachers may need to allocate more time to orienting teachers to the new technologies and adapting teaching styles as needed. This would involve creating a sense of digital competence in teachers which also has a personal component as it relates to the teachers' self-confidence, satisfaction, stress exposure and overall psychological health and wellbeing.

Besides the dwellings aspect, anything to do with mental wellbeing is also important in the personal and professional lives of school teachers. It is a general term for positive psychological significance, purpose and meaning, autonomy, positive connections, personal growth, mastery of the environment and acceptance of oneself. In Higher Education, teachers may also hold a number of positions other than that of classroom educator, including conducting research, developing course curricula, supporting students in their learning, evaluating students, administer responsibilities, develop institutional strategies and ongoing professional learning. The possibility of these digital technologies proliferating in their role and in the expectation that they will be even more a part of those responsibilities may increase as expectations for constant online engagement, instant communication, digital documentation, virtual meetings and digital pedagogy grow louder. Digital technologies can be used to enhance flexibility and/or efficiency, but can also result in perceptions of workload or pressure when the expectations of being supported with technology are too high, lack of training on the technologies, technical constraints and the need for constant adjustment. This connection between digital competence and psychological well-being on the part of teachers is important as this can inform the creation of enabling and sustainable digital teaching spaces.

The context of Tripura can be a suitable one to explore this relationship between the higher education teachers. In a digital era when a variety of technologies are integrated into teaching and learning, educators must gain new skills and abilities that are increasingly needed in a changing educational environment. There may be differences between teachers in their background, level of experience and access to digital technologies, experiences with academic programs to develop digital competence. Individual teachers may have differing levels of education, experience, resources to access digital information, institutional support and experiences related to digital competence. In the interim, their psychological well-being could be affected by the psychological demand of their jobs, working relationships, institutional environments, the demands of technical innovation and of adapting classroom practice. Considering these dimensions together would help to gain a better insight into the human aspects of digital transformation in Higher Education.

In view of the above, the present study "Teachers' Digital Competence in relation to Psychological Well-Being among Higher Education Teachers in Tripura" deals with two major variables namely, Teacher Digital Competence and Psychological Well-Being. The main objective of the research is to assess the state of teachers' digital competence and their psychological state in higher education institutions and draw a conclusion whether there is the correlation between digital competence and psychological state of the teachers. Familiarizing oneself with this relationship can assist educational institutions in determining in which areas teachers need training in digital culture, professional support, technology, and well-being interventions. The study also may be pertinent and inform the broader debate around digitally capable, and healthy cognitively, emotionally, professionally, higher education teaching contexts.

Literature Review

The correlation between teacher's digital competence and technology acceptance in vocational education was compared by Antonietti, Cattaneo and Amenduni (2022). One of the key factors affecting teachers' readiness and tendency to integrate technology in the education outcomes indicated by the study is 'digital competence'. The results provide support regarding the linkage between high levels of digital competency and teachers' understanding of the importance of digital technologies, as well as their ability to integrate them into the lesson. This study is directly relevant for the current investigation as it establishes the relevance of digital competence as

a professional attribute of teachers and this extends the current discussion on the wider context influences on teachers' experiences in a technology-rich learning environment.

The theme of distance learning as a resilience was timestamp put at the forefront of the research field in the context of Italian education that is the object of study by Appolloni et al. (2021). The results of the study emphasised that education institutions were not only able to move from the traditional learning model to an online learning model, but were also adaptable to a radical shift. This study revealed the coping strategies and experiences of the educational institutions and teachers in adapting to the abrupt shift from a classroom environment to online learning. Distance learning was a tool of continuity for teaching and learning in a time period of disruption, but also presented technology and organization challenges for teachers. This study is applicable to the current research due to the development of digital teaching environment and the impact it has on the adaptation, resilience and professional experiences of teachers. It also reflects on the significance of the teachers' competencies in responding to the changing educational situation in the effective use of digital technologies.

Social Learning Theory (Bandura, 1977): Theories emphasize the inter-across links between people, their surroundings and their viewing experiences. Observation, imitation, reinforcement and social interaction are factors that influence learning. The theory can provide conceptual structure to the way the teachers learn digital competency as it is possible to learn technology and technology practice through observation, training, peer communications and experience. Bandura's work is relevant since his theory could have implications for the current study as well as teachers' confidence regarding and their repertoire of responses to digital technologies were related to pre-service experiences with them.

It was further developed by Bandura 1986 by his Social Cognitive Theory which emphasized the personal factors, behaviour and environment factors. Concept of self-efficacy is relevant especially when referring to digital competence, as people who have confidence in their efficacy a task are more likely to take up, persist with, and succeed in that task. For teachers in higher education, their confidence in digital technologies can impact the way they get to digital teaching. This theoretical analysis can provide inputs towards the analysis of digital competency in terms of teachers' psychological outcomes.

Bandura (1997) studied especially the topic of self-efficacy and its role in human functioning. Self-efficacy is one's confidence in one's ability to make plans and carry them out for specific action to produce specific outcomes. Having more technological SE might increase teachers' confidence to handle or resolve technological problems, to use unfamiliar digital tools, and to handle teaching using technologies. This is why it is important to provide theoretical relevance between the concept of teacher digital competence and psychological functioning due to the presence of self-efficacy concept. This is why it is important to provide theoretical relevance between self-efficacy concept and between the concept of teacher digital competence and psychological functioning. It indicates that competence and confidence in responses to digital demands might lead to teachers' perceptions of their working environment and their general psychological experiences.

A model that was extremely publicised and frequently used with regards to independent variables, dependent variables, mediator variables and moderator variables was given by Baron and Kenny (1986). Their methodological contribution provides clues to study complicated psychological/behavioural relationships. In this study, the focus is on the correlation between teacher digital competence and psychological welfare, but this framework might provide a way to conduct a research examination of the relationship between educational variables and psychological variables in an empirical way. The study also adds to the need for using suitable statistical tools for cross-correlating more than two constructs.

Beltman, Mansfield and Price (2011) reviewed some research on teacher resilience, noticing a distinction between 'surviving' stressful situations at the school, and 'thriving' in challenging contexts. They identified a number of factors which appeared to be correlated with the resilience of teachers, which included personal, relationship and professional-related factors and contextual support. The study's applicability in the context of psychological well-being is relevant because the educators' resistance to occupational challenges and dysfunctions may be fostered

by resilience. In today's world of mounting digital demand, the skill and confidence of educators, who may be the ones to help them respond to tech trends, can be important.

Ben Amotz et al. (2022) conducted a study on the effect of remote education on Israeli physical education teachers' professional efficacy, their personal self-resilience, stress level, and subjective health during the Covid-19. Teachers themselves have been identified as participants in the shift to distance learning, as they face new professionals and psychological challenges in the process. The relationship between resilience, stress, and teacher effectiveness and wellbeing provide useful data to better understand teachers' wellbeing in the context of technologically-mediated learning. The study has relevance to the present study because it provides valuable information on how digital teaching is not only a technical issue, but can also have psychological and professional effectiveness implications for teachers.

Brauer (2019) explored learning and competence-based development of vocational teachers and digital open badges taking a closer look. Structured professional development was emphasized as vital in teacher competency for changing the educational environment, highlighted in the study. Professional development can be provided online, and enable teachers to build up, apply, and fine-tune technology skills. This literature is applicable to the current study when considering the potential role of CPD in teacher effectiveness in dealing with digital requirements and navigating the changes in technology affecting higher education.

Brouskeli, Kaltsi and Loumakou (2018) explored the case of Greek teachers of secondary education and their level of resilience and their occupational wellbeing. Therefore, resilience was identified as important in that study to help sustain teachers' occupational well-being through their experiences of professional difficulties. So, these findings contribute to the existing knowledge about teacher well-being as indicators of teachers' functioning in their work, here, of the potential role of Psychological Resources. While the results of this study are specific to secondary school teachers, the conceptual basis gained may be used for discussion developing psychological health of higher education teachers who also are facing the problem of loads, institutional and interpersonal and technological requirements.

Byrne 2012 gave methodological advice on structural equation modelling, its concepts, use and programming in Mplus. We can analyse the relationships between the latent constructs using the structural equation modelling method, and can carry out testing of complex theories. The relevance of the work to studies involving constructs (such as Digital competence and Psychological well-being) which have multiple aspects/indicators that can be represented in research. It offers methodological advice to the researcher who wants to build relationships between psychological and educational constructs, through the application of more sophisticated multivariate statistical techniques.

Campbell-Sills and Stein (2007) developed and psychometrically validated a 10-item version of the Connor-Davidson Resilience Scale (CD-RISC) that is considered to be an index of resilience. Their work provides evidence of an important psychological resource that has been proven to be important for adaptation to adversity and stress: Resilience is not linked to mental health, but is linked to positive mental functioning and the ability to deal with difficulties. The study can thus contribute to the comprehension of the psychological assets that could be useful to enhance teachers' adaptation to the needs of teaching and technology, which are undergoing changes.

Cattaneo, Gurtner and Felder (2021) discuss the potential of digital tools as boundary objects in the context of dual vocational education relating to a connection between education and work. They consider digital tools to be useful for disseminating and relaying knowledge and information, communicating and collaborating, relating in different learning and working contexts. The study indicates digital competence is not only "how to operate the digital tools" but also "how to use the digital technologies like technology in the world of work and society". This view is applicable to the higher education teacher as digital competence entails "integration of technology with pedagogical, professional and organizational practices.

To be able to shed some lights on the relationship between digital competence, empathy and online teacher autonomy support, the authors of this study, Chen, Li, and Fu, conducted their investigation in 2024. In this study,

they converge these, demonstrating the potential of the digital competence intertwined with interpersonal and pedagogical dimensions of technology mediated teaching. The emphasis on "empathy" and "autonomy when using AI in application extends the definition of digital competence beyond just possessing technical skills, providing insight beyond just digital skills and draws a connection between digital competence and teachers' instructional behavior and interaction in an online setting. It is this study that could be useful for the current research due to recent evidence that the teachers' digital competence could relate to work experience and interaction in digital learning environment.

Overall Research Perspective

The results revealed by the literature search indicate that the construct "digital competency" of teachers is becoming increasingly an important component of an effective teacher in the technology-based learning environment. Most literatures surrounding digital competence have been limited to digital technology acceptance, teacher professional development, online teaching, teacher autonomy and teaching practices. The other strand of literature has highlighted the psychological issues of well-being, resilience, occupational well-being, stress and professional efficacy of teachers. Application of Bandura theory has its benefits when discussing the factors that influence teachers adaptation technological change, including Self-efficacy, Behavior and environment. The reviewed studies, however, show the scope for further research on the direct linkage between teacher digital competence and psychological well-being, in the context of higher education teacher in the Indian scenario and in particular in Tripura context. The goal of this research is to fill this gap and to explore the relationship between digital competence and psychological state in teachers based on differences in digital competence.

Objectives of the Study

1. To assess the level of digital competence among higher education teachers in Tripura.
2. To examine the level of psychological well-being among higher education teachers in Tripura.
3. To determine the relationship between teacher digital competence and psychological well-being among higher education teachers in Tripura.

Hypothesis

H₀₁ (Null Hypothesis): There is no significant difference in the level of psychological well-being among higher education teachers in Tripura.

H₀₁ (Alternative Hypothesis): There is a significant difference in the level of psychological well-being among higher education teachers in Tripura.

Research Methodology

The type of research carried out in this study involves descriptive research and correlational research. The descriptive research is used for assessing the teacher digital competency and the correlational research is used for determining the relationship between the teacher digital competency and teacher's psychological wellbeing in higher education teachers of Tripura. The study has been conducted in the Tripura state from the Teachers from universities/colleges of Tripura and other recognized University. The selected respondents for the study are Learning System professionals (Higher education teachers) belonging to a diversity of disciplines, designations, teaching experiences, and Institution background. The sampling process used is suitable, stratified random sampling for example, to ensure that teachers are sampled that are different and at least heterogeneous in terms of categories of teachers and categories of HEIs. Primary data include structured data that is gathered from a questionnaire containing demographic data as well as standardized scales for the two major variables (TDC and PsychWb). Teachers' digital competency measured includes teacher's skill involving digital technology, knowledge about digital technologies, confidence to use digital technologies, and their effective use in teaching, communicating, assessment and professional activities. Psychological wellbeing is measured using scales that are oriented towards positive psychological functioning and wellbeing. Before collecting main data, questionnaire

might be pre-tested by carrying out pilot testing to test the items' clarity, reliability and appropriateness. The scales for the instruments are tested for instrument reliability with Cronbach's alpha. Datasets gathered are coded, tabulated and analyzed by appropriate methods of statistical analysis. The respondents' description and analysis of the levels of digital competence and psychological well-being are provided through descriptive statistics (frequency, percentage, mean and standard deviation). Incorporating the results of the correlation analysis, with the purposes of the research, the differences and relevant prediction relationships between the teacher's digital competence and psychological well-being can be analyzed using appropriate inferential statistics which includes the t-test, analysis of variance, regression analysis, etc. The findings are interpreted in the context of the purpose and research question(s) of a study. The study complies with ethical standards such as participants willingness to participate, obtained informed consent, privacy of subjects, and the correct usage of the information acquired.

Table: Descriptive Statistics of Psychological Well-Being

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Psychological Well-Being	400	45	95	72.64	10.58

Interpretation:

The descriptive statistics of teachers in higher education experience a psychological well-being score of 72.64 on a 10.58 SD; only at this point does psychological well-being seem to be reflected in the descriptive statistics. A range of psychological well being scores can be obtained, varying from 45 to 95, representing the distribution of psychological well being among the respondents. The average score shows that the whole respondents were in a moderate to relatively psychological well being level. But descriptive statistics cannot determine if what was observed is a significant difference. Therefore, if the hypothesis is operationalized with either a T-Test or ANOVA, the appropriate test would be used to test H_{11} .

Table: One-Sample Z-Test for Psychological Well-Being

Variable	N	Sample Mean	Hypothesized Mean	Std. Deviation	Z-value	Sig. (2-tailed)	Decision
Psychological Well-Being	400	72.64	70.00	10.58	4.99	< 0.001	Reject H_0

Analysis and Interpretation

For analysing the data on psychological well-being of Teachers of the higher education teachers in Tripura, One-Sample Z-Test was used for testing if the obtained mean psychological well-being score diverges significantly from the expected mean psychological well-being score for the population. The illustratively presented above results indicated that 400 HE teachers with a mean score of 72.64 in the psychological dimensions with a standard deviation of 10.58 were taken as being a sample of a population with a hypothesized mean score of 70.00. The Z value calculated was 4.99 and the significance value (2 tailed) was 0.001. The obtained value of the significance is less than the set value of significance (0.05), hence the null hypothesis is rejected. This means that teachers of higher education have different psychological well-being scores than those hypothesized. Under the alternative hypothesis H_{11} , the difference significantly exists in the level of psychological well being of teachers in HEIs in Tripura is accepted. The results suggest that psychological well-being is one more dimension of the work of higher education teachers and should be taken into account in institutional policies, teacher-support programmes and professional development programmes.

Conclusion

The present research work with the title: "Teacher Digital Competence in relation to Psychological Well-Being among Higher Education Teachers (HETs) in Tripura", used two salient issues of the study namely, Teacher digital competence and Psychological well-being of higher education teachers. The growing integration of digital technologies in higher education has led to digital competence being implicit in the teaching professional responsibilities and this is captured in the study. In addition, psychological health is important for teachers, because their psychological health positively affects the efficiency of the learning process, interpersonal relationships, self-development and adaptation to changing requirements for education system. The outcome revealed that psychological health of higher education teachers is a problem to be properly attended and there is the need to give attention to the coping capacity of higher education teachers to the demands of the age and technology. The results also provide a basis to agriate the relationship between digital competence and psychological well-being, materials in which the technological preparedness must be considered in addition to teachers' psychological and professional preparedness. Higher Education Institutions can make a contribution to teachers by providing them regular training on digital competency, providing technical support, providing opportunities to collaborate with teachers, providing environments conducive to effective teacher work practices. These might be helpful for teachers to get used to teaching with technology and to be "psychologically healthy." To sum up, the study highlights the importance of taking a teacher centred lens on the process of digital transformation with teachers' professional development as one of the most important enabling factors for digital development, not forgetting the importance of the wellbeing of teachers. The study helps in understanding the issues and opportunities surfacing in the field of digitalization in the higher education sector in Tripura and can be used as a reference point for any empirical study involving increased student sample, region, category of educational institutions, and other variables related to the impact on the digital competence of teachers and the psychological well-being of the educators in the region.

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