



# The Effect of Technology on Burnout Among Primary and Secondary School Teachers and Their Subsequent Attitudes towards The Use of Technology

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## Abstract

**Background and Aim:** With the continuous deepening of education reform and the rapid development of technology, the working environment and methods of teachers have undergone significant changes, and the problem of occupational burnout has also shown new characteristics and trends. This study aims to investigate the impact of the widespread application of technology in education on job burnout among primary and secondary school teachers and how this burnout subsequently influences their attitudes toward technology usage.

**Materials and Methods:** This study conducted a quantitative research method using a questionnaire survey to investigate 550 primary and secondary school teachers from an education group in Zhejiang Province who have been using the Seewo whiteboard for more than one year. Data from 500 teachers were analyzed using SPSS and AMOS software.

**Results:** The research results indicate that there is a significant correlation between social support, job satisfaction, workload, work family conflict, and technical stress and teacher burnout. In addition, occupational burnout has a significant negative impact on teachers' attitudes toward technology use, meaning that teachers who experience occupational burnout may hold a more negative attitude toward technology.

**Conclusion:** This study investigated the technical burnout of primary and secondary school teachers in an education group in Zhejiang Province and its effect on their attitudes towards technology. It found that the use of Seewo whiteboards significantly affected burnout and subsequent technology acceptance, providing insights into the adoption of technology tools in education.

**Keywords:** Technology; Burnout; Primary and Secondary School Teachers; Attitude

## Introduction

With the rapid development of information technology, the widespread application of technology in the field of education has undoubtedly brought revolutionary changes to education and teaching (Thieman et al., 2014). Burnout is a gradual process that commences with persistent job-related stress, progressing to emotional exhaustion, hopelessness, and dissatisfaction with one's occupation. It culminates in a state where employees detach themselves from their work environment, ultimately having subsequent effects on their psychological and physical well-being (Camargo, 2008). The application of Zhejiang technology in education presents comprehensive, in-depth, and innovative characteristics. Through the implementation of a digital education strategy, the construction of educational technology system capacity, the development and sharing of digital education resources, the construction and application of smart education platforms, the construction and promotion of core application scenarios, the construction of smart campuses and bookish campuses, and innovative practices of technology and education integration, Zhejiang Province is gradually building a digital, intelligent, and personalized education system. Technology has had a complex impact on the burnout of teachers in Zhejiang province. However, these changes have also brought new challenges and pressures to primary and secondary school teachers (Farhi & Rubinsten, 2024). As an important component of modern education, technological factors have permeated into all aspects of teacher work. The convenience of technology has improved teaching efficiency, but it may also increase teachers' workload due to excessive dependence; Technological innovation has stimulated students' interest in learning, but it may also increase teachers' psychological pressure due to improper application (Mcilroy, 2003). This article further explores the impact of technological factors on occupational burnout among primary and secondary school teachers, and subsequently conducts an in-depth analysis of attitudes towards



technology use and internal mechanisms, to propose new ideas and methods to alleviate teacher occupational burnout.

## Objectives

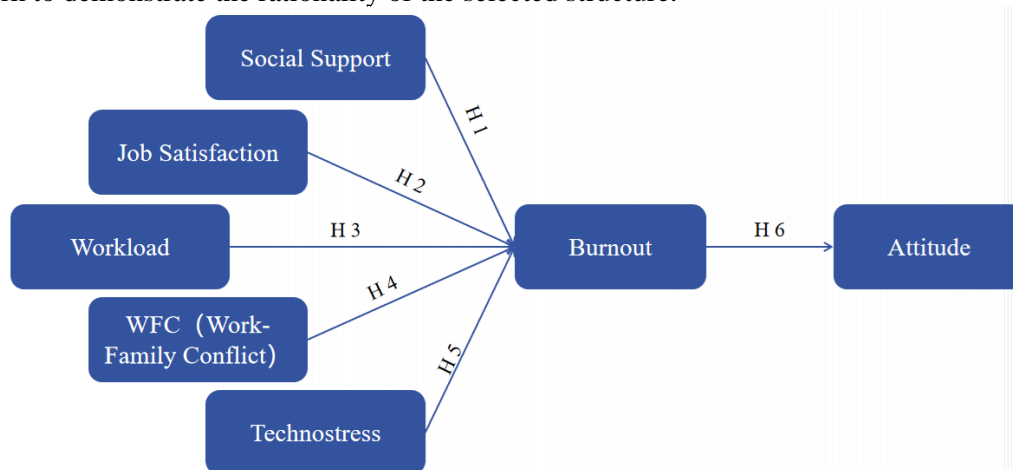
The purpose and task of this study are to verify the effect of technology on occupational burnout among primary and secondary school teachers, as well as to investigate the attitudes and intentions of occupational burnout towards technology use. Starting from the effect of social support, job satisfaction, workload, work-family conflict, and technostress on occupational burnout, as well as the intention to generate fatigue towards attitudes towards technology use.

## Literature review

This document outlines theoretical frameworks and previous literature related to a study on technology-induced burnout among teachers. Key theories include the Job Demands-Resources (JD-R) model, which explores employee burnout and life satisfaction, and the Technology Acceptance Model (TAM), which focuses on user acceptance of technology systems. Variables such as social support, job satisfaction, workload, work-family conflict, technostress, burnout, and attitude are discussed with relevant literature cited. For example, social support is shown to protect against burnout and correlate with job satisfaction (Kinman et al., 2011), while workload is a dynamic measure influenced by task demands and individual capabilities (Gopher & Donchin, 1986). Techno-stress is a subset of stress literature, specifically addressing stress caused by technology (Ragu-Nathan et al., 2008), and burnout is a state of emotional exhaustion and decreased motivation in demanding work environments (Freudenberger, 1993). Attitude is defined as a comprehensive evaluation of individuals' responses to objects or situations, which can influence technology adoption in education (Harmandaoğlu Baz, 2016).

## Conceptual Framework

As Bezuidenhout (2021) asserts, a conceptual framework validating didactical/instructional material must encompass curriculum and instruction, utilizing a blended approach in Science. A conceptual framework bridging these diverse groups also facilitates discussing and formulating traditional perspectives on inclusivity within resettlement settings, as highlighted by Ager and Strang (2008). On the basis of in-depth study and extensive examination of relevant theoretical frameworks, establish a strong conceptual framework to demonstrate the rationality of the selected structure.



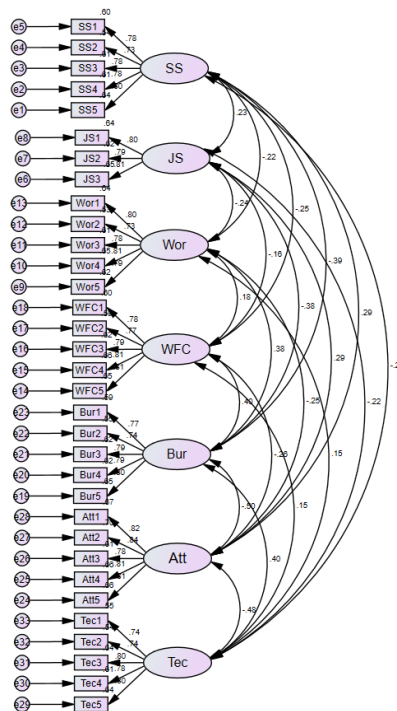
- Ha1 Teachers' social support has an effect on teachers' burnout in the use of technology.
- Ha2 Teachers' job satisfaction has an effect on teachers' burnout in the use of technology.
- Ha3 Teachers' workload has an effect on teachers' burnout in the use of technology.
- Ha4 Teachers' Work-Family Conflict has an effect on teachers' burnout in the use of technology.
- Ha5 Teachers' technostress has an effect on teachers' burnout in the use of technology.
- Ha6 Teachers' burnout affects teachers' attitudes toward the use of technology.

## Methodology

The research took the primary and secondary school teachers in an education group in Zhejiang Province who have been using Seewo whiteboards for one year or more as the object. The main method is quantitative research through questionnaire surveys. The study targets 1123 teachers from an educational group in Zhejiang Province. Based on 7 latent variables and 33 observable variables, the Daniel Soper calculator determined that the minimum sample size required is 425. However, considering the potential invalidity of the questionnaires, the researcher adjusted the sample size to 550 to ensure the accuracy and scientific rigor of the study. Edit the survey questions on the Wenjuanxing platform, the electronic questionnaire link was directly sent to 550 teachers to ease their selection and response process. Upon completion of the questionnaire by all teachers, the data was immediately downloaded from the backend and processed, and thorough statistical analysis was carried out utilizing SPSS and AMOS software.

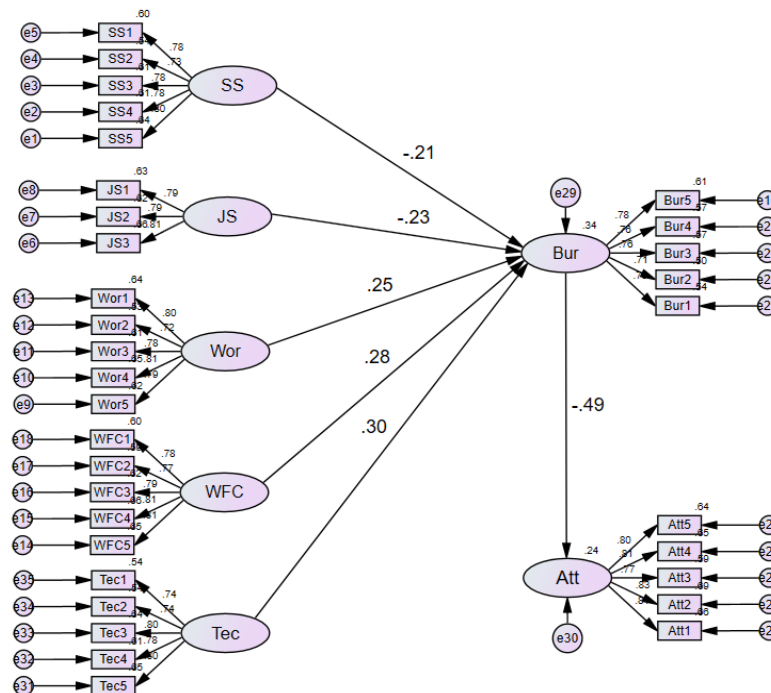
## Results

The research results indicate that there is a significant correlation between social support, job satisfaction, workload, work-family conflict, technical stress, and teacher burnout. In addition, occupational burnout has a significant negative impact on teachers' attitudes toward technology use, meaning that teachers who experience occupational burnout may hold a more negative attitude toward technology.



Fit Index	Fit Index	Fit Index
CMIN/DF	< 5.00	552.243/474 or 1.165
GFI	≥ 0.85	0.940
AGFI	≥ 0.80	0.929
NFI	≥ 0.80	0.942
CFI	≥ 0.80	0.991
TLI	≥ 0.80	0.990
RMSEA	< 0.08	0.018
<b>Model Summary</b>		<b>Acceptable Model Fit</b>

Each fit index in the table has a corresponding threshold value or criterion for evaluating the goodness of fit. These indices are: CMIN/DF: The value of 1.165 falls below the commonly accepted threshold of 5.00, indicating a good fit. GFI: With a score of 0.940, it exceeds the recommended threshold of 0.85, suggesting an excellent fit. AGFI: The value of 0.929 also meets the criterion of 0.80 or higher, further confirming the good fit of the model. NFI: Scoring 0.942, it exceeds the threshold of 0.80, indicating a close fit. CFI: At 0.991, this index significantly surpasses the criterion of 0.80, signifying an excellent fit. TLI: With a value of 0.990, it fulfills the threshold of 0.80 or above, indicating a robust fit. RMSEA: The RMSEA value of 0.018 is well below the recommended upper limit of 0.08, demonstrating a close fit and indicating that the model has a good overall fit. It can be seen that CMIN/DF, GFI, AGFI, NFI, CFI, TLI, and RMSEA all meet the fitting labels, indicating that the Social Support, Job Satisfaction, Workload, Technostress, Work-Family Conflict, Burnout, and Attitude scales have good structural validity.



NO.	hypotheses	Standardized path coefficients ( $\beta$ )	t-value	Testing result
H1	SS->Bur	-0.214	-4.718***	Supported
H2	JS->Bur	-0.226	-4.852***	Supported
H3	Wor->Bur	0.254	5.548***	Supported
H4	WFC->Bur	0.285	6.204***	Supported
H5	Tec->Bur	0.305	6.559***	Supported
H6	Bur->Att	-0.492	-9.566***	Supported

From the table, it can be seen that SS has a significant negative effect on Bur ( $\beta=-0.214$ ,  $p<0.001$ ), and the higher the SS, the lower the Bur. Therefore, hypothesis H1 can be accepted;

JS has a significant negative effect on Bur ( $\beta=-0.226$ ,  $p<0.001$ ), and the higher JS, the lower Bur. Therefore, hypothesis H2 can be accepted;

Wor has a significant positive effect on Bur ( $\beta=0.254$ ,  $p<0.001$ ), and the higher the Wor, the higher the Bur. Therefore, hypothesis H3 can be accepted;

WFC has a significant positive effect on Bur ( $\beta=0.285$ ,  $p<0.001$ ), and the higher the WFC, the higher the Bur. Therefore, hypothesis H4 can be accepted;

Tec has a significant positive effect on Bur ( $\beta=0.305$ ,  $p<0.001$ ), and the higher the Tec, the higher the Bur. Therefore, hypothesis H5 can be accepted;

Bur has a significant negative effect on Att ( $\beta=-0.492$ ,  $p<0.001$ ), and as and as Bur increases, Att decreases. Therefore, hypothesis H6 can be accepted.

The validation results of these hypotheses indicate that multiple factors, including social support, job satisfaction, workload, work-family conflict, and technostress, all have significant impacts on burnout. Notably, technological stress exerts the greatest influence on burnout, which may reflect the pervasiveness and importance of technology usage in modern work environments. Burnout is not only a psychological state caused by various factors, but it also has a significant negative impact on attitudes or outcomes.

## Discussion

The research has revealed that the use of the Seewo whiteboard, despite offering benefits, has also contributed to teacher burnout, illustrating the dual nature of technology in teaching. Furthermore, this burnout has notably affected teachers' acceptance and adoption of future tech tools, reflecting both the psychological stressors and the barriers that technology encounters within educational contexts.

In addition, this study emphasizes gender differences, particularly women who are more prone to burnout due to work-family conflicts. Furthermore, it reveals that compared to primary school teachers, secondary school teachers exhibit a more negative attitude towards the use of technology under heavy workloads. Importantly, there is a significant negative correlation between burnout and attitudes towards technology use ( $\beta=-0.492$ ,  $p<0.001$ ), indicating that as burnout intensifies, teachers' perceptions of technology undergo negative changes, which may hinder their willingness and ability to accept and effectively utilize new technologies.

In summary, exploring the effect of technology on the burnout experienced by primary and secondary school teachers and their subsequent attitudes toward technology usage has had profound practical significance. This investigation has not only been related to the personal physical and mental health, as well as professional development of teachers, but has also contributed to the enhancement of teaching quality, optimization of educational management, the comprehensive development of students, and the advancement towards educational equity and sustainability.

## Conclusion

This study, while offering valuable insights, is limited by its focus on teachers from a specific educational group in Zhejiang Province, which may hinder the generalizability of its conclusions due to variations in educational environments and teacher characteristics across schools. Additionally, the study's research framework covers only seven key variables, potentially overlooking other influencing factors or mediating variables, and time constraints may have impacted the depth of quantitative analysis, thereby affecting the precision of the results.

In summary, future research on the effect of technology on teacher burnout and attitudes should strive for comprehensiveness, generality, and depth by addressing the limitations of current studies and integrating diverse methodologies, variables, and contexts.

## Recommendation

This study distinctively examines the impact of technology on occupational burnout and subsequent attitudes toward technology use among primary and secondary school teachers. It diverges from traditional burnout research by focusing on the role of technology, which is an original perspective. The study's novelty is further highlighted by its thorough analysis and interpretation of results, providing practical insights for teachers and educational administrators. The research underscores the importance of understanding the mechanisms behind technology-induced burnout to enhance teaching quality and job satisfaction. It also emphasizes the significance of this exploration for refining educational management and teacher training practices.

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