

Correlation analysis on the teacher's productivity and work environment: Inputs for innovative strategic plan

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Abstract

The work environment plays a critical role in shaping the productivity of Physical Education (PE) teachers, yet there remains a gap in understanding how different aspects of the environment, including physical, virtual, and social factors, influence their performance. This study aimed to explore the relationship between work environment and work productivity among PE teachers, addressing the need for improved strategies to enhance teacher performance. The research utilized a descriptive correlational design with a survey method, involving 385 PE teachers selected through stratified purposive sampling. Data were analyzed using descriptive statistics and inferential methods, including Spearman Rho Correlation. Key findings indicated a significant positive relationship between the work environment and productivity, with social environment ranking highest in satisfaction and quantity of work rated as the most productive aspect. However, the study revealed challenges in the virtual work environment, suggesting a need for improved digital resources and training for teachers. The research contributes new insights by highlighting the importance of the social dimension of the workplace in enhancing teacher performance, and it calls for attention to virtual tools in an increasingly digital educational landscape. The study recommends the implementation of targeted professional development programs that focus on both instructional quality and digital literacy to improve teachers' adaptability to modern teaching demands.

Keywords: work productivity, work environment, physical education teachers, professional development, virtual learning

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1. Introduction

The work environment plays a crucial role in shaping employees' productivity, motivation, and overall job satisfaction. In educational institutions, teachers' productivity is especially significant as it directly impacts students' learning outcomes and the overall quality of education. A positive work environment—characterized by adequate resources, supportive leadership, and conducive teaching conditions—can lead to increased productivity among educators. Conversely, a lack of these elements can hinder performance and negatively affect the school's effectiveness. Focusing on teachers' productivity and their work environment in Hubei Enshi University, this study seeks to explore the correlation between these two factors. Previous research highlights various elements influencing productivity, such as classroom management, workload, and access to professional development. However, the link between the broader work environment and its direct impact on teachers' output remains underexplored, particularly within the context of higher education institutions in China.

In recent years, concerns about teacher productivity have increased in higher education, especially as universities strive to maintain quality education in changing academic landscapes. In Hubei Enshi University, teachers face various challenges related to workload, resources, and institutional support. While there have been improvements in educational technology and professional development opportunities, teachers still report difficulties in managing responsibilities effectively. Moreover, the overall work environment remains a critical factor, affecting not only productivity but also teacher morale and job satisfaction. Despite these developments, there is limited research exploring the specific correlation between teachers' productivity and the work environment within Chinese higher education institutions. While studies have examined each variable separately, little attention has been given to how these two factors interact in shaping educational outcomes. This study aims to fill this gap by conducting a correlation analysis, with the results providing valuable inputs for developing an innovative strategic plan that enhances productivity through improvements in work conditions. This gap leaves a need for empirical research that clarifies how improvements in the work environment can directly influence productivity, providing insights that can guide policy and strategic planning in a university.

Conducting this research is significant for several reasons. By understanding the relationship between the work environment and teacher productivity, educational administrators and policymakers can implement targeted strategies to enhance teaching performance. The study will offer valuable inputs for developing an innovative strategic plan that addresses both individual teacher needs and institutional factors, ultimately improving the quality of education in Hubei Enshi University. Furthermore, the findings could serve as a model for other higher education institutions facing similar challenges, contributing to broader efforts to improve teaching conditions and productivity in the education sector.

This study examines two key variables: teacher productivity and the work environment. Teacher productivity refers to the effectiveness and efficiency with which educators fulfill their roles, including lesson planning, classroom management, and student assessment. Factors influencing productivity include motivation, workload, and access to professional development. The work environment encompasses the physical, social, and organizational conditions within which teachers operate, including resources, administrative support, and peer relationships. A conducive work environment can foster higher productivity by providing the necessary tools, support, and positive working conditions for educators.

2. Methods.

Research Design - This study utilized a descriptive correlational design with a survey method to investigate

the relationship between teachers' productivity and their work environment. Descriptive correlational research is designed to identify patterns and relationships between variables without establishing cause-and-effect conclusions. It is appropriate for this study as it enables the exploration of potential associations between teachers' productivity and their work environment, providing a foundation for strategic recommendations based on observed correlations. The survey method was chosen to gather first-hand information directly from teachers in a structured and efficient manner.

Study Site and Participants - The study was conducted at Hubei Enshi University, a higher education institution in China. The participants included teachers from various departments of the university, ensuring a diverse sample representative of different academic disciplines. The choice of this site was based on its relevance to the study's focus on higher education institutions and the current challenges reported by faculty members regarding their work environment and productivity.

Population, Sample Size, and Sampling Method - The target population consisted of all full-time teachers at Hubei Enshi University. Using the Raosoft sample size calculator with a 5% margin of error and a 95% confidence level, a sample size of 250 respondents was determined to be sufficient for the study. A stratified random sampling technique was employed to ensure that participants from different academic departments were proportionately represented. This method ensured that the sample reflected the diversity of the teaching staff while maintaining the study's overall reliability.

Data Gathering Instrument - A structured questionnaire was used as the main data collection instrument. The questionnaire was divided into three sections: (1) Demographic profile of the respondents, (2) Assessment of teachers' productivity, and (3) Evaluation of their work environment. A four-point Likert scale was employed in sections two and three, allowing respondents to rate their level of agreement or satisfaction with various statements regarding their productivity and work environment. The instrument was developed based on existing validated scales and adjusted for relevance to the context of higher education.

Data Gathering Procedure - The data collection process began with obtaining the necessary approvals from the university administration. Afterward, an online survey link was distributed to the selected participants via email. Respondents were given two weeks to complete the survey to allow for thoughtful responses. The survey was designed to be anonymous to encourage honest feedback. Follow-up reminders were sent one week before the deadline to increase the response rate. All responses were collected, stored securely, and only accessed by the researchers.

Data Analysis - To analyze the collected data, Weighted mean and ranking were employed to assess the levels of teachers' productivity and their perceptions of the work environment. Additionally, inferential statistics, specifically spearman rho, were used to determine significant relationship between teachers' productivity and work environment. All data analyses were performed using SPSS version 26, ensuring accurate statistical computations and reliable results.

Ethical Considerations - This study adhered to ethical guidelines to ensure the protection of participants' rights and confidentiality. Before data collection, participants were informed about the purpose of the research, the voluntary nature of their participation, and their right to withdraw at any point without any repercussions. Informed consent was obtained through a consent form accompanying the survey link. The study also ensured anonymity by not collecting any identifiable information, and all data were stored securely and used solely for research purposes. Approval for conducting the research was obtained from the university's ethics committee, ensuring that the study complied with institutional ethical standards.

3. Results and discussion

Table 1 presents the assessment of work productivity and the work environment of Physical Education (PE) teachers, showing the mean ratings for different aspects of productivity and work environment. The three

dimensions of work productivity—quantity, quality, and punctuality—are all rated at a "Agree" level, with means ranging from 3.00 to 3.05 on a 4-point scale. Among these, quantity received the highest mean score of 3.05, indicating that PE teachers agree that they are able to meet the expected amount of work. This suggests that the majority of the teachers believe they are productive in terms of the volume of tasks they complete, possibly reflecting their ability to manage workload effectively.

Table 1

Assessment on Work Productivity and Work Environment of the Physical Education

	Mean	Interpretation	Rank
Work Productivity of the Physical Education Teachers			
Quantity	3.05	Agree	1
Quality	3.00	Agree	3
Punctuality	3.02	Agree	2
Work Environment of the Physical Education Teachers			
Physical Environment	3.01	Agree	2
Virtual Environment	3.00	Agree	3
Social Environment	3.04	Agree	1

Punctuality ranked second with a mean score of 3.02, showing that PE teachers generally feel they meet deadlines and adhere to schedules. This highlights their time management skills and their commitment to professional responsibilities, which are critical components of productivity in educational settings. However, quality of work, with a mean of 3.00, was rated slightly lower than the other productivity measures, suggesting room for improvement in the caliber of work being produced. This may reflect challenges related to resources, support, or professional development opportunities, which could be limiting teachers' ability to deliver high-quality outcomes. Recent studies, such as those by Wang and Fu (2023), emphasize that continuous professional development and the availability of adequate teaching resources are essential for maintaining high work quality among teachers.

In terms of the work environment, three dimensions—physical, virtual, and social environments—were assessed, all receiving "Agree" ratings with mean scores ranging from 3.00 to 3.04. The social environment received the highest mean score of 3.04, suggesting that PE teachers generally find their interpersonal relationships with colleagues and supervisors supportive. A positive social environment is known to enhance job satisfaction and productivity, as demonstrated by Xie et al. (2022), who found that strong collegial support improves job performance and teacher morale.

The physical environment was rated second with a mean of 3.01, indicating general satisfaction with the workspaces, facilities, and resources provided for teaching. However, the score suggests that there may still be minor concerns regarding the adequacy of physical resources, as reflected in other studies like Chen et al., (2022), who found that a well-maintained and equipped physical environment significantly contributes to teacher effectiveness, particularly in practical disciplines like physical education. The virtual environment received the lowest rating of 3.00, reflecting the teachers' views on the adequacy of digital tools and support available for online or hybrid teaching. The relatively lower score in this dimension might indicate that teachers are facing some challenges adapting to or utilizing virtual platforms effectively. This is consistent with findings by Yu, (2023) to digital tools due to insufficient training or inadequate technological infrastructure.

The overall ratings suggest that while PE teachers generally feel productive and satisfied with their work environment, there is room for improvement, especially in terms of the quality of their work and the virtual teaching environment. As the education sector continues to evolve with the integration of technology, providing adequate training and support in virtual environments will be essential for enhancing teacher productivity and performance. Additionally, efforts to improve physical resources and offer professional development opportunities can help address concerns related to work quality, ensuring that teachers are equipped to maintain both the quantity and quality of their teaching output.

Table 2*Significant Relationship between Work Productivity and Work Environment of the Physical Education*

	R-value	p-value	Decision	Interpretation
Work Productivity and Work Environment of the PE Teachers	0.548	0.000	Reject Ho	Highly Significant

Table 2 presents the correlation analysis between work productivity and the work environment of Physical Education (PE) teachers. The results indicate an R-value of 0.548 with a p-value of 0.000, leading to the rejection of the null hypothesis (Ho) that there is no significant relationship between these two variables. The correlation coefficient (R-value) suggests a moderately strong positive relationship, meaning that improvements in the work environment are associated with increases in teachers' work productivity. This relationship is statistically highly significant, as indicated by the p-value being well below the 0.05 threshold. This finding aligns with recent studies that emphasize the critical role of a supportive and conducive work environment in enhancing teacher productivity. According to Baidi, et al., (2020), factors such as adequate resources, supportive leadership, and professional growth opportunities can significantly boost teachers' motivation and job performance. Similarly, Du et al., (2022) found that a positive work environment in educational institutions leads to higher levels of teacher engagement and productivity, particularly when teachers feel valued and supported by their administration and peers.

The moderately strong correlation observed in this study suggests that while the work environment is a key factor influencing productivity, it is not the sole determinant. Other factors, such as individual motivation, intrinsic job satisfaction, and personal teaching efficacy, likely play a role as well. This is supported by the findings of Navidinia, and Heiran (2017), who pointed out that teacher productivity is also influenced by personal factors such as self-efficacy and emotional well-being. Thus, while improving the work environment is crucial, strategies aimed at enhancing productivity should also consider personal and professional development initiatives. The high significance of the relationship between the work environment and productivity underscores the need for educational administrators to prioritize creating a positive work environment. This includes ensuring that PE teachers have access to adequate resources, professional development opportunities, and a supportive organizational culture. Implementing policies that promote teacher well-being and reducing stressors associated with their work environment can further enhance productivity. As evidenced in recent literature, the development of such supportive conditions not only increases teacher performance but also contributes to better student outcomes (Zhou et al., 2021). Therefore, the study's results offer practical insights for improving productivity through targeted improvements in the work environment.

Table 3*Innovative Strategic Plan to improve Work productivity and Work environment*

Key Result Area Objective	Strategies	Persons Involved	Success Indicator
Work Productivity To enhance work productivity among Physical Education Teachers	<ol style="list-style-type: none"> 1. Implement time management workshops to help teachers prioritize tasks and set realistic goals. 2. Provide access to modern teaching tools and technologies to streamline lesson planning and delivery. 3. Establish a collaborative platform for teachers to share best practices and resources. 4. Encourage regular self-assessment and reflection to identify areas for improvement. 	Technology Coordinators Work Productivity Coaches Collaboration Facilitators	Increased completion of tasks within established deadlines. Positive feedback on the effectiveness of collaborative tools and practices.
Work Environment To create a positive and conducive work environment for Physical Education	<ol style="list-style-type: none"> 1. Conduct a survey to gather feedback on the current work environment. 2. Implement physical and virtual changes based on feedback, such as ergonomic improvements and virtual communication 	Workplace Environment Coordinators Employee Engagement Officers Communication	Increased satisfaction scores in the follow-up survey on work environment.

Teachers.	tools. 3. Establish a recognition program to acknowledge and celebrate teacher achievements. 4. Foster a culture of open communication and mutual support among teachers.	Facilitators	Recognition of positive changes in teacher morale and collaboration.
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4. Conclusions and recommendation

Based on the findings of this study, the highest productivity was observed in terms of the quantity of work, while the quality of work received slightly lower ratings, indicating areas for potential improvement. Similarly, the social environment was rated most favorably by teachers, suggesting that supportive relationships with colleagues and supervisors are a key factor in their overall job satisfaction and productivity. Despite these generally positive findings, the virtual work environment received the lowest ratings, indicating that teachers may face challenges in adapting to digital platforms or lack sufficient resources and training to effectively manage online teaching. Additionally, while the overall perception of productivity is positive, the relatively lower score on the quality of work highlights the need for further professional development and resource allocation to help teachers enhance their teaching outcomes. Furthermore, it can be concluded that there is a significant positive relationship between the work environment and work productivity of Physical Education (PE) teachers. Specifically, improvements in the physical, social, and virtual environments where PE teachers work are moderately correlated with higher levels of productivity.

It is recommended that school administrators and policymakers provide targeted training to help PE teachers effectively use digital tools for teaching, especially as blended and online learning environments continue to evolve. Additionally, enhancing the technological infrastructure (e.g., access to faster internet, better software) can help improve teachers' experiences in the virtual teaching space. Offering professional development workshops that focus on both instructional strategies and subject-specific skills can help PE teachers improve the quality of their work. Training should include modern teaching techniques, curriculum updates, and assessment strategies to foster both the personal and professional growth of teachers. School administrators should conduct an audit of physical teaching spaces and equipment to identify areas where upgrades are needed. Ensuring that PE teachers have access to modern, well-maintained equipment and teaching spaces is crucial for maintaining their productivity, particularly for the practical nature of physical education. The high ratings for the social work environment indicate the importance of maintaining a collaborative and supportive culture among faculty members. Institutions should continue to encourage team-building activities and provide mentorship programs to help foster strong collegial relationships and peer support.

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