



## Enhancing Physical Education teachers' job satisfaction through artificial intelligence: evidence from Indonesia

*Mejora de la satisfacción laboral de los profesores de Educación Física mediante la inteligencia artificial: evidencia de Indonesia*

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### Abstract

**Introduction:** This study investigates how Artificial Intelligence (AI) can improve job satisfaction among Indonesian high school physical education teachers. With the help of AI, administrators should be able to spend less time on paperwork and more time actually instructing students.

**Methodology:** A quantitative approach was employed through a survey of 273 high school physical education teachers in Indonesia. The questionnaire was adapted from established sources to measure job satisfaction, AI assimilation, organizational commitment, and organizational culture. Data were evaluated using basic linear regression with SPSS version 23.

**Results:** These findings demonstrate that the incorporation of AI has a substantial and beneficial effect on contentment in one's work life. Additionally, there are substantial beneficial benefits on corporate commitment and culture.

**Conclusions:** Enhancing physical education teachers' job satisfaction can be achieved through effective AI integration supported by strong organizational commitment and culture. These findings provide important insights for legislators and school administrators considering teacher retention methods.

### Keywords

Artificial intelligence assimilation, job satisfaction, organizational commitment, organizational culture, Physical Education teachers.

### Resumen

**Introducción:** Este estudio investiga cómo la Inteligencia Artificial (IA) puede mejorar la satisfacción laboral del profesorado de educación física de secundaria en Indonesia. Con la ayuda de la IA, los administradores deberían poder dedicar menos tiempo al papeleo y más tiempo a la instrucción de los estudiantes.

**Metodología:** Se empleó un enfoque cuantitativo mediante una encuesta a 273 profesores de educación física de secundaria en Indonesia. El cuestionario se adaptó a partir de fuentes reconocidas para medir la satisfacción laboral, la asimilación de IA, el compromiso organizacional y la cultura organizacional. Los datos se evaluaron mediante regresión lineal básica con el programa SPSS versión 23.

**Resultados:** Los hallazgos indican que la asimilación de la IA afecta significativa y positivamente la satisfacción laboral. El compromiso y la cultura organizacionales también muestran efectos positivos significativos.

**Conclusiones:** La mejora de la satisfacción laboral del profesorado de educación física se puede lograr mediante una integración eficaz de la IA, respaldada por un sólido compromiso y una cultura organizacionales. Estos hallazgos ofrecen información valiosa para los encargados de la formulación de políticas y los administradores escolares en las estrategias de retención docente.

### Palabras clave

Asimilación de inteligencia artificial, satisfacción laboral, compromiso organizacional, cultura organizacional, profesores de Educación Física.

## Introduction

The evaluation of organizational success considers job satisfaction as a key factor (Jameel & Ahmad, 2019). It is regarded as a vital component in any work environment, as a decline in perceived job satisfaction can result in reduced productivity, disciplinary issues, and other workplace challenges (Abelha et al., 2018). The concept of the term "job satisfaction" describes the degree to which workers are satisfied and fulfilled by their jobs and the company as a whole (Ahmad & Jameel, 2018a; De Nobile, 2017a). Student achievement is a common metric for success and advancement in the education sector, especially in the elementary and secondary school levels (Ramos-Álvarez et al., 2024). Boosting educators' contentment in the classroom is a key component to this goal. At this time, it is widely acknowledged that a major factor contributing to the deterioration of educational quality is teachers' job satisfaction. The performance and longevity of educational institutions are directly related to the work of teachers (Wiesner & Yuniarti, 2018; Byun & Kim, 2011; Lane & McAndrew, 2010; Hinojosa-Torres et al., 2025). It is the responsibility of school principals to ensure that teachers experience a high degree of contentment with one's work and show a firm dedication to their profession and the organization they serve. Numerous studies have shown that workers whose work makes them satisfied are more inclined to exhibit loyalty to their employer and improve their job performance as a result (Hoyt, 2012; Salehi & Gholtash, 2011; Lim, 2010; Gokce, 2013a). Therefore, teachers' job satisfaction is considered crucial for fostering educational success (Alkafaween et al., 2025).

Many factors have an impact on teachers' job satisfaction. Based on research by Gokce (2013b), the level of contentment that educators report in their work is intricately linked to the culture of the institution, commitment and various other factors such as Artificial Intelligence (AI) technology. With the entry of AI into teachers' work environments, there is potential for significant changes in various aspects of their jobs, which could ultimately affect their level of satisfaction. For physical education teachers, AI could facilitate real-time monitoring of student performance and physical fitness through wearable technology that feeds data into analytical systems, enabling teachers to provide personalized instruction tailored to individual student needs. By leveraging AI, physical education teachers can track metrics such as heart rate, caloric expenditure, and activity levels, allowing for immediate adjustments in teaching strategies based on student engagement and performance (Yang et al., 2020; Onesi-Ozigagun et al., 2024). Moreover, AI capabilities can be applied in the realm of sports to enhance training and performance analytics through advanced means such as injury prediction and prevention, data processing, and real-time feedback mechanisms. This integration of technology empowers analysts by significantly increasing the speed at which data is processed and analyzed, ultimately aiding in predictive analytics that can inform training strategies (Cossich et al., 2023; Mariana Lolowang et al., 2025).

However, while in contrast, the implementation of AI could also add complexity to their work and raise concerns about the technological skills required (Dwivedi et al., 2021). Moreover, the implementation of AI in secondary schools in Indonesia is still in its early stages, with some schools beginning to adopt this technology for various purposes, such as classroom management, student assessment, and tracking academic progress. Nevertheless, the adoption of AI in Indonesia is not uniform, and many schools, especially in remote areas, still struggle with technological infrastructure limitations (Mali et al., 2023). Although AI promises many benefits, its implementation in education often faces various challenges. One important issue that needs to be investigated is how the use of AI affects teachers' job satisfaction (Talwar, 2023). Teacher productivity and efficacy are significantly impacted by job satisfaction (Baluyos et al., 2019).

Prior research has shown also that organizational culture exerts an impact on physical education teachers' job satisfaction. Mouloud et al. discuss how feelings Physical education instructors' work satisfaction levels are intertwined with organizational commitment and overall job performance, indicating that a nurturing culture is crucial for teacher morale and productivity (Mouloud et al., 2016). This finding was similar with the study of Batugal & Tindowen (2019) and Widagdo & Roz (2020), who reported the case study demonstrates that organizational culture exerts a favorable impact on teachers' job satisfaction of Catholic Higher Education of Philippines. The results showed that Catholic Higher Education prioritizes a great need for having organization culture. Another research also said organization culture exerts a substantial impact on the level of work satisfaction. This study was conducted with 114 instructors from a private Indonesian institution participated in the survey (Dou et al., 2017).



On the other hand, there is much research that supports the advantages of organizational commitment to the physical education teachers' job satisfaction. For instance, Şentuna indicates that strong commitment among teachers correlates with enhanced job performance, reduced absenteeism, and lower turnover rates, thereby positively impacting the effectiveness of the educational institution (Şentuna, 2015). What this proves is that dedicated educators foster a positive learning atmosphere since they are more likely to be actively involved and content with their work. Maiti et al., in their analysis of the current state of education, suggest that when educators have a deep sense of belonging to their school, it improves their outlook on their work and their ability to make a difference for their students (Maiti et al., 2020). Moreover, Mouloud et al. discuss how lower job satisfaction among educators often correlates with diminished organizational commitment, which ultimately adversely affects educational excellence provided (Mouloud et al., 2016). Their findings indicate that satisfied teachers showed greater dedication, creating a cycle where positive job mutually reinforce one another, employee satisfaction and loyalty to the company (Mouloud et al., 2016).

Furthermore, based on the previous studies, could AI technology, together with organizational culture and organizational commitment, truly enhance physical education teachers' job satisfaction? The main problem this study aims to address is understanding the impact from AI, group's values and dedication to the group on the satisfaction level of physical education teachers, a topic that has not received much attention in previous research. Studies on AI in education have mostly focused on its influence on the learning process of students outcomes and the effectiveness of the learning process (Anushri & Shubhangi, 2022). However, studies on the influence of AI on educators, particularly their job satisfaction, remains limited. More specifically, in Indonesia, research examining the correlation between AI and physical education teachers' job satisfaction is still very scarce.

This research aims to address the existing gap by providing new insights into how artificial intelligence affects the mental health and professional well-being of physical education teachers. Specifically, this study is the first to explore the impact of AI integration, organizational commitment, organizational culture, and job satisfaction among physical education teachers working in high schools in Indonesia. The goals of this study are threefold: (1) to examine how artificial intelligence impacts physical education teachers' job satisfaction; (2) to explore how organizational commitment influences job satisfaction levels among physical education teachers; and (3) to investigate the effect of organizational culture on physical education teachers' job satisfaction.

Based on the research problems and objectives of the study, the following hypotheses are formulated:

H1: Artificial Intelligence Assimilation has a positive and significant effect on physical education teachers' job satisfaction.

H2: Organizational Commitment has a positive and significant effect on physical education teachers' job satisfaction.

H3: Organizational Culture has a positive and significant effect on physical education teachers' job satisfaction.

The researcher developed a comprehensive research model, as illustrated in Figure 1, to guide the investigation and provide a structured approach to testing the proposed hypotheses.

## Literature Review

### *Job Satisfaction*

Job satisfaction refers to the distinction between the value that is seen by an individual and the value that is anticipated or predicted. However, job satisfaction is attained when it effectively offers employees a feeling of contentment or fulfillment, mentally, physiologically and financially (Aljarah et al., 2020; Siaputra et al., 2012; Walsh & Bartikowski, 2013). Employees' positive attitudes regarding their jobs and the organization as a whole are what make up their job satisfaction (Ahmad & Jameel, 2018a; De Nobile, 2017a; Yerezhpov et al., 2025) Meanwhile, according to Greenberg (2011) employees exhibit an attitude toward their work that is both positive and negative, which is characterized by job satisfaction. Alghamdi et al. (2018) stated that job satisfaction is impacted by two main categories



of elements: individual traits and socio-cultural influences. Organizations that have companies that have a high degree of employee satisfaction typically exhibit greater productivity and efficiency (Dappa et al., 2019). Job satisfaction is determined on behalf of level of perceived participation in decision-making processes that impact individuals. Increased individual engagement correlates with better levels of work satisfaction (Odoch & Nangoli, 2014a).

### ***Artificial Intelligence Assimilation***

Artificial Intelligence (AI) assimilation refers to the process by which organizations or individuals integrate and adapt AI technologies into their operations and practices (Hariguna & Ruangkanjanases, 2024). Regarding education, AI assimilation involves the implementation of AI tools and systems that can enhance teaching, learning, and administrative processes (Saaida, 2023). The literature suggests that successful AI assimilation is contingent upon various aspects, such as the presence of technical infrastructure, educators' openness to implementing new technology, along with the availability of sufficient training and assistance. The possible advantages of artificial intelligence (AI) integration in the classroom have been well-documented, and they include data-driven decision-making, automated administrative duties, and individualized instruction (Bhutoria, 2022). For example, AI can assist in grading assignments, tracking student progress, and providing tailored feedback, thereby reducing the workload of teachers. AI tools can offer insights into student performance trends, empowering educators to choose better methods of instruction based on better data. In addition, studies show that when AI is integrated effectively, in physical education can enhance learning effectiveness and improve the teaching experience (Yang et al., 2024). When physical education teachers utilize AI-driven tools that facilitate student engagement and individualized learning paths, they often report increased job satisfaction due to greater efficacy in their teaching methods. This enhancement aligns with findings that suggest job satisfaction directly influences teacher performance, where effective tools serve to bolster this satisfaction (Bahri et al., 2022). The assimilation of artificial intelligence (AI) in educational environments, particularly for physical education teachers, enhances their job satisfaction by automating routine tasks. This shift allows educators to focus more on core teaching activities, such as creating instructional plans and actively engaging students. Research indicates that the automation of mundane administrative duties not only streamlines workflow but also allows teachers to dedicate more time to meaningful interactions with their students (Hashem et al., 2023). On the other hand, there are obstacles to AI integration, most notably with regard to the technological proficiency that teachers will need to have. Uncertainty regarding AI's dependability and ethical ramifications, as well as a lack of training, are common barriers to its successful implementation. Research indicates that a lack of proper training in AI tools can lead to frustration and decreased job satisfaction among teachers who may feel incompetent to successfully incorporate these tools into their pedagogical methods (Widjajani et al., 2022).

### ***Organizational Commitment***

When a person develops an emotional connection to their employer, they are more likely to stay on as an employee because of this commitment, which is also known as organizational commitment (Ismail et al., 2020a). A person's emotional investment in their place of employment becomes known as "organizational commitment", leading them to constantly maintain their connection with the organization (Edison et al., 2017). An abundance of research has investigated the link between PE instructors' dedication to their organizations and the significance of these, as well as their degree of job satisfaction, constructs that influence educators' experiences and overall effectiveness in their roles. For instance, Mouloud et al. affirm that low job satisfaction can lead to apathy and diminished organizational commitment, adversely affecting students' academic performance and achievement (Mouloud et al., 2016). Moreover, the model posited by Meyer and Allen regarding measuring the components of commitment— affective, normative, and continuance—provides a theoretical foundation for understanding how job satisfaction interacts with these dimensions (Moyo, 2019). Similarly, other studies found that job satisfaction is greatly influenced by organizational commitment (Batugal & Tindowen, 2019; Odoch & Nangoli, 2014b; Jabbar et al., 2020; Paramita et al., 2020; Loan, 2020). Meanwhile, Vathi and Veraya (2020) discovered that the level of dedication to the organisation has a favorable the effect on teachers' satisfaction on the job.

## Organizational Culture

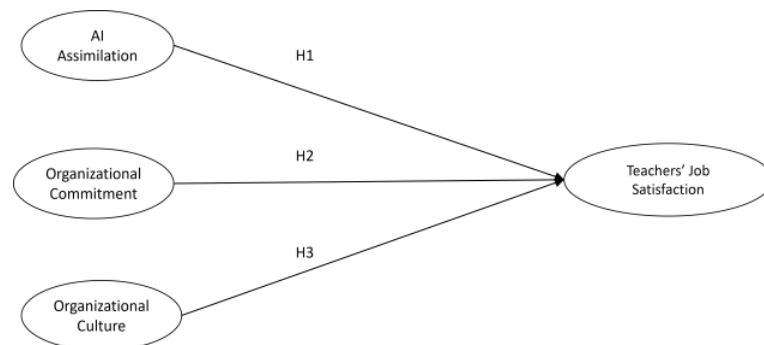
Organisational culture refers to the one reliable answer that can help a team deal with its internal and external challenges. What makes up an organization's culture is the shared set of basic assumptions and values held by its members (Williams et al., 2007). An important area of study in the social sciences is the complex interplay between company culture and employee satisfaction on the work, particularly concerning physical education teachers. Comprehensive studies indicate that a positive organizational culture enhances job satisfaction among teachers, as it creates an atmosphere that encourages professional development and the collaborative relationships among colleagues. For instance, Febriantina et al. highlight that increased school culture contributes significantly to job satisfaction, as it impacts teachers' psychological well-being and their perceptions of work stress (Febriantina et al., 2020). Similarly, Şahin et al. reinforce this understanding by demonstrating that teachers who can seek help from colleagues and share common values within a supportive school culture report higher job satisfaction levels (Şahin et al., 2023).

## Method

### Instrument Design

This study employed a quantitative research method, utilizing an online survey to collect data from the respondents. The instrument was designed based on previous studies to ensure the authenticity of the information presented. Figure 1 illustrates the proposed research model, consisting of three independent constructs such as Artificial intelligence (AI) assimilation, organizational commitment, and organizational culture, as well as one dependent construct: teachers' job satisfaction. The instrument includes a total of 40 items with each construct having five items. The job satisfaction items were adapted from Spector (1985a), AI assimilation items from Hariguna & Ruangkanjanases (2024), organizational culture items from Tsai (2011a) and organizational commitment originated items from Çelik et al. (2015b). The data collection was carried out during June to July 2025.

Figure 1. Proposed Research Model



### Data Collection and Analysis

Data were collected using a convenience sampling approach, with structured questionnaires distributed to 273 high school physical education teachers across various locations in Indonesia. This method was chosen primarily for its accessibility and practicality in data collection, as this study is still in its preliminary phase and is constrained by limited resources for gathering respondents. Thus, future research is needed to expand the study group and enhance the generalizability of the findings. The primary focus of this investigation was teachers' job satisfaction, aiming to analyze the relationship between AI integration, organizational commitment, and organizational culture. A five-point Likert scale was used to assess responses: (5) strongly agree, (4) agree, (3) neutral, (2) disagree, and (1) strongly disagree. Prior to the full-scale data collection, a smaller group of teachers participated in a pilot test to assess the readability, clarity, and comprehensibility of the instrument. This preliminary testing helped identify any ambiguities or confusing items, allowing for the refinement of the wording and structure to enhance

the instrument's validity and reliability. The final data analysis was conducted using inferential statistical techniques in SPSS version 23, with Table 1 presenting the research instruments corresponding to each variable.

### **Ethical Considerations**

In accordance with ethical research guidelines, the study ensured the voluntary participation of all respondents. Informed consent was obtained from each participant, clearly outlining the purpose of the study, the confidentiality of their responses, and their right to withdraw at any time without consequence. All data collected was anonymized to protect the privacy of the participants. The research adhered to ethical standards to maintain the integrity of the study and the well-being of the participants. After the pilot testing, the instrument was subjected to statistical analysis to evaluate its validity and reliability. Using SPSS version 23, the validity assessment showed that all items for each variable met the required criteria, with the *r*-calculated values exceeding the *r*-table value of 0.351. The corrected correlation coefficients for each item ranged from 0.724 to 0.895, as detailed in Table 1. Reliability testing, based on Cronbach's alpha, showed values between 0.859 and 0.901, surpassing the minimum acceptable threshold of 0.600. These results confirm that the measurement instrument exhibited satisfactory internal consistency and construct validity, making it appropriate for large-scale data collection.

Table 1. Research Instrument

Variable	Sources/Reference	Item	Validity	Reliability
Job Satisfaction	Measurement of Human Service Staff Satisfaction: Development of the Job Satisfaction Survey (Spector, 1985b)	I am paid a fair amount for the work I do	0.862	0.901
		The principal is competent in doing his job	0.763	
		When I do a good job, I get an award I like doing new things at work	0.850 0.895	
		I am proud of my work as a teacher	0.863	
		AI can help automate administrative tasks, allowing faculty to focus more on teaching	0.816	
AI Assimilation	Assessing the impact of artificial intelligence on customer performance: A quantitative study using partial least squares methodology (Hariguna & Ruangkanjanases, 2024)	AI technologies can be integrated into the curriculum to prepare students for the future workforce	0.828	0.886
		AI helps me reduce the time it takes to complete routine tasks.	0.833	
		The use of AI help me to improve student engagement and participation	0.869	
		AI helps me find information or answers to my questions.	0.796	
		The school has a comprehensive system and regulations for all school members	0.724	
Organizational Culture	Relationship between Organizational Culture, Leadership Behavior and Job Satisfaction (Tsai, 2011b)	Our school really maintains work discipline	0.796	0,859
		Schools have clear rules about rewards and punishments (sanctions)	0,823	
		The principal cares about the teacher's opinion or ideas	0,802	
		Schools set clear goals for teachers	0,848	
		I accept all kinds of assignments given by the principal for the betterment of the school	0.860	
Organizational Commitment	Relationship Between Ethical Leadership, Organizational Commitment and Job Satisfaction at Hotel Organizations (Çelik et al., 2015b)	I am proud to tell others that I am part of this school	0.837	0.860
		For me this school is the best place to work.	0.775	
		I always tell other friends that our school is a great school as a place to work	0.795	
		This school really gave me the best inspiration to improve my performance	0.731	

## Results

The demography of respondents describes the profile including age, work period and education level can be shown in Table 2 as follows as.

Table 2. Profile of Respondents

	Criteria	Total	Percentage (%)
Age	< 30 years	34	12.45
	30 – 40 years	112	41.03
	41 – 50 years	89	32.60
	> 50 years	38	13.92
Work Period	< 5 years	29	10.62
	5 – 10 years	96	35.16
	11 – 20 years	101	37.00
	> 20 years	47	17.22
Education Level	Bachelor	243	89.01
	Master	30	10.99

Based on the demographic data of 273 respondents, to begin with, most PE instructors are in the 30–40 age group (41.03%), followed by those aged 41–50 years (32.60%), while teachers under 30 years and over 50 years account for 12.45% and 13.92%, respectively. Looking at years of experience in the field, the majority of respondents have been educators for 11–20 years (37.00%) and 5–10 years (35.16%), while those with less than 5 years of experience represent 10.62% and those with more than 20 years account for 17.22%. Regarding educational attainment, the majority hold a bachelor's degree (89.01%), while the remaining 10.99% possess a master's degree. This distribution indicates that most teachers are in their productive age range, have substantial teaching experience, and possess adequate educational qualifications to support the quality of learning. Before conducting hypothesis testing, the survey data were first assessed for normality to determine whether each group or variable followed a normal distribution. The Kolmogorov-Smirnov test, conducted using SPSS version 23, yielded a significance value of 0.085. Since this value exceeds the 0.05 threshold, the data were deemed to meet the assumption of normality. Following this, to test Hypotheses 1, 2, and 3, we conducted basic linear regression analysis. As presented in Table 3, the results of this analysis revealed significant findings that support the proposed relationships.

Table 3. Hypotheses Test Result (Direct Effect)

Hypothesis	Variables	Beta	t <sub>test</sub>	Sig	Results
H1	Artificial Intelligence Assimilation → Teachers' Job Satisfaction	0.399	9.517	0,00	Hypothesis Accepted
H2	Organizational Commitment → Teachers' Job Satisfaction	0.287	5.598	0,00	Hypothesis Accepted
H3	Organizational Culture → Teachers' Job Satisfaction	0.289	4.984	0,00	Hypothesis Accepted

The results in Table 3 show that three independent variables AI assimilation, organizational commitment, and organizational culture significantly impact physical education teachers' job satisfaction. Among these, artificial intelligence assimilation exhibits the strongest influence ( $\beta = 0.399$ ), suggesting that incorporating artificial intelligence into classroom instruction practices plays a particularly important role in enhancing teachers' satisfaction with their work. Organizational culture and organizational commitment also contribute meaningfully, reinforcing the notion that both technological and organizational factors are essential in shaping a supportive and motivating work environment for physical education teachers.

## Discussion

### ***Hypothesis 1: AI Assimilation has a positive and significant effect on physical education teachers' job satisfaction***

The first hypothesis was confirmed, as the results show that physical education teachers' job satisfaction is significantly and positively impacted by the incorporation of AI. This indicates that the more widespread the use of AI technology becomes in people's day-to-day jobs, teachers, the higher their job satisfaction. This assertion is supported by empirical evidence indicating that technological advancements, particularly AI, can streamline educational processes, enhance teaching effectiveness, and subsequently boost job satisfaction. Research by Wen and Liu indicates that the adoption of innovative technologies, including AI applications, correlates positively with teachers' teaching abilities and overall job satisfaction, suggesting that when teachers feel equipped to meet educational challenges, their satisfaction levels rise accordingly (Wen & Liu, 2024). The substantial influence of AI assimilation on job satisfaction can be largely attributed to its ability to enhance the teaching experience, foster effective engagement, and improve overall work conditions for physical education teachers. AI provides tools that enhance both instructional and administrative efficiency, such as facilitating lesson planning, generating tailored learning materials, and automating grading and reporting (Ahmad et al., 2021; Owoc et al., 2021). AI assimilation occurs when teachers not only understand the technology but also confidently integrate it into their professional practice, enabling more time for student engagement, strategic lesson design, and skill development (Kim, 2024; Yugandhar & Rao, 2024). By offering timely feedback on student performance and reducing workload-related stress, AI can improve teachers' emotional well-being and job satisfaction. Consistent with prior studies, these findings suggest that effective AI adoption supported by adequate training and technical resources vitally contributes to raising teacher satisfaction while mitigating burnout (Ajuwon et al., 2024; Melweth et al., 2024).

### ***Hypothesis 2: Organizational commitment has a positive and significant effect on physical education teachers' job satisfaction***

The second hypothesis, which states that physical education instructors report high levels of job satisfaction and substantial organizational commitment, was likewise confirmed. The research supports this theory, showing that there is a strong relationship between organizational commitment and work satisfaction in academe. Research by Yi et al. (2022) illustrates that higher levels of organizational commitment among primary public health workers correspond with increased job satisfaction, suggesting similar dynamics may exist for physical education teachers (Yi et al., 2022). When teachers exhibit a strong attachment to their organization characterized by shared goals and values they tend to report higher satisfaction with their roles and responsibilities (Wiwin et al., 2020). Studies have revealed that the emotional and psychological commitment of teachers encompassed within organizational commitment directly influences their job engagement and satisfaction. Likewise, an important factor in determining work satisfaction, according to earlier studies, is organizational commitment (Batugal & Tindown, 2019; Odoch & Nangoli, 2014b; Jabbar et al., 2020; Paramita et al., 2020; Loan, 2020). In a similar vein, Vathi and Veraya (2020) reported that teachers' dedication to their organization positively influences the level of satisfaction they derive from their work. The evidence from previous research underscores the significance of nurturing organizational commitment as a strategic focus for educational institutions aiming to enhance job satisfaction among physical education teachers. By cultivating an environment where teachers feel meaningful relationships with their institution's goals, schools can improve both teacher satisfaction and, consequently, student outcomes. This suggests that fostering a strong culture of commitment in schools not only enhances academic outcomes but also enriches both personal satisfaction and contentment in one's work of physical education teachers (Xianqiang, 2023).

### ***Hypothesis 3: Organizational culture has a positive and significant effect on physical education teachers' job satisfaction***

According to the findings, organization culture significantly impacts physical education instructors' job satisfaction, lending credence to the third hypothesis. Evidence suggests that educational institutions with strong and good organizational cultures support this finding enhances the job satisfaction of teachers (Widjajani et al., 2022). To illustrate, Widjajani et al. propose that an effective organizational culture has the dual benefit of increasing teacher dedication and contentment in their work, leading to



better student outcomes enhancing overall performance in educational contexts (Widjajani et al., 2022). How these two organizational culture and job satisfaction can be on which different variables, including interpersonal support and recognition, which are prevalent in a nurturing organizational environment (Wang & Wang, 2023). Prior research underscores these findings, showing that teachers in supportive organizational cultures experience more contentment in their work lives (Hambali et al., 2020). Hambali et al. provide additional support, affirming that a high-quality organizational culture significantly correlates with increased job satisfaction, suggesting that a positive organizational culture enhances satisfaction and commitment among educators (Hambali et al., 2020). Consequently, schools that emphasize positive organizational cultures are likely to see improved job satisfaction among physical education teachers, potentially leading to better teaching and learning outcomes. The discovery signifies a meaningful involvement in understanding the mechanisms through which organizational culture impacts educators, especially in specialized domains such as physical education. When teachers perceive their working environment positively, when employees are content in their positions, they show greater dedication to their work, and do a better job overall school system.

## Conclusions

This study provides empirical evidence on the positive associations between artificial intelligence (AI) assimilation, organizational commitment, and organizational culture dealing with the contentment of high school graduates in their jobs physical education instructor for Indonesia. The findings indicate that the integration of AI into educational practices, when accompanied by strong organizational commitment and a supportive culture, can enhance teachers' overall satisfaction with their professional roles. Among the examined factors, AI assimilation emerged as the most influential predictor, suggesting that technological adoption particularly AI-based tools significantly influences educators' perceptions of their work environment, potentially by reducing administrative burdens and improving instructional processes. These results provide something new to the expanding canon of literature on technology adoption in education by highlighting the interplay between technological, organizational, and cultural dimensions in fostering physical education teachers' well-being. This multidimensional perspective suggests that successful AI integration in schools cannot be achieved solely through technological investment but must be supported by institutional frameworks and cultural environments that encourage innovation, collaboration, and professional growth. For practitioners and policymakers, It is crucial to invest in AI, as the findings show infrastructure but also cultivating organizational values and commitments that empower educators to leverage such technologies effectively, thereby enhancing both teaching quality and long-term job satisfaction. Nevertheless, this study has several limitations. Its dependence on self-reported measurements raises the possibility of common method bias and social desirability effects, and its cross-sectional nature precludes causal inference. Results may not be applied to a broader population when convenience sampling is used, and the exclusive focus on the Indonesian context characterized by specific infrastructural, policy, and cultural factors may restrict applicability to other settings. Future research should consider using experimental or longitudinal approaches, employ probability-based sampling, and incorporate objective or multi-source data to enhance both the validity and generalizability of the findings. Additionally, examining contextual moderators such as infrastructure quality, AI-related training, leadership support, and policy frameworks, as well as conducting comparative studies across educational levels and countries, would provide deeper insights into optimizing AI integration to sustain teacher satisfaction and improve educational outcomes.

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## References

- Abelha, D. M., Carneiro, P. C. da C., & Cavazotte, F. de S. C. N. (2018). Transformational leadership and job satisfaction: Assessing the influence of organizational contextual factors and individual characteristics. *Revista Brasileira de Gestão de Negócios*, 20(04), 516–532.
- Ahmad, M. A.-A., & Jameel, A. S. (2018a). *Factors affecting on job satisfaction among academic staff*. SSRN.
- Ahmad, S. F., Rahmat, M. K., Mubarik, M. S., Alam, M. M., & Hyder, S. I. (2021). Artificial intelligence and its role in education. *Sustainability (Switzerland)*, 13(22), 12902. <https://doi.org/10.3390/su132212902>
- Ajuwon, O. A., Animashaun, E. S., & Chiekezie, N. R. (2024). *Advancing human resources management practices in educational institutions : Enhancing teacher retention and student outcomes using AI*. 6(8), 2488–2506. <https://doi.org/10.51594/ijmer.v6i8.1367>
- Alghamdi, M. G., Topp, R., & AlYami, M. S. (2018). The effect of gender on transformational leadership and job satisfaction among Saudi nurses. *Journal of Advanced Nursing*, 74(1), 119–127. <https://doi.org/10.1111/jan.13385>
- Aljarah, A., Emeagwali, L., Ibrahim, B., & Ababneh, B. (2020). Does corporate social responsibility really increase customer relationship quality? A meta-analytic review. *Social Responsibility Journal*, 16(1), 28–49. <https://doi.org/10.1108/SRJ-08-2018-0205>
- Alkafaween, S. A. R., Yüksel, O., Çakto, P., Çimen Binkuyu, G., Demir, O., & Yaprakçı, A. (2025). Investigación de los niveles de satisfacción laboral de los profesores de Educación Física y deportes . *Retos*, 70, 688-695. <https://doi.org/10.47197/retos.v70.116130>
- Al-Sada, M., Al-Esmael, B., & Faisal, Mohd. N. (2017a). Influence of organizational culture and leadership style on employee satisfaction, commitment and motivation in the educational sector in Qatar. *EuroMed Journal of Business*, 12(2), 163–188. <https://doi.org/10.1108/EMJB-02-2016-0003>
- Al-Sada, M., Al-Esmael, B., & Faisal, Mohd. N. (2017b). Influence of organizational culture and leadership style on employee satisfaction, commitment and motivation in the educational sector in Qatar. *EuroMed Journal of Business*, 12(2), 163–188. <https://doi.org/10.1108/EMJB-02-2016-0003>
- Al-Zahrani, A. M., & Alasmari, T. M. (2024). Exploring the impact of artificial intelligence on higher education: The dynamics of ethical, social, and educational implications. *Humanities and Social Sciences Communications*, 11(1), 1–12. <https://doi.org/10.1057/s41599-024-03432-4>
- Anushri patil, & Shubhangi patil. (2022). Artificial Intelligence in Stroke – A Review. *Journal of Pharmaceutical Negative Results*, 8, 3062–3065. <https://doi.org/10.47750/pnr.2022.13.s06.414>
- Bahri, S., Situmorang, B., & Darwin, D. (2022). The impact of interpersonal communication, a creative mindset, work ethics, and job satisfaction on the performance of junior high school teachers in lhokseumawe. *Jurnal as-Salam*, 6(2), 202-213. <https://doi.org/10.37249/assalam.v6i2.448>
- Baluyos, G. R., Rivera, H. L., & Baluyos, E. L. (2019). Teachers' Job Satisfaction and Work Performance. *Open Journal of Social Sciences*, 07(08), 206–221. <https://doi.org/10.4236/jss.2019.78015>
- Batugal, M. L. C., & Tindowen, D. J. C. (2019). Influence of organizational culture on teachers' organizational commitment and job satisfaction: The case of catholic higher education institutions in the Philippines. *Universal Journal of Educational Research*, 7(11), 2432–2443.
- Belias, D., Koustelios, A., Vairaktarakis, G., & Sdrolas, L. (2015). Organizational Culture and Job Satisfaction of Greek Banking Institutions. *Procedia - Social and Behavioral Sciences*, 175, 314–323. <https://doi.org/10.1016/j.sbspro.2015.01.1206>
- Bhutoria, A. (2022). Personalized education and artificial intelligence in the United States, China, and India: A systematic review using a human-in-the-loop model. *Computers and Education: Artificial Intelligence*, 3, 100068.
- Byun, K., & Kim, M. (2011). Shifting patterns of the government's policies for the internationalization of Korean higher education. *Journal of Studies in International Education*, 15(5), 467–486.
- Çelik, S., Dedeoğlu, B. B., & İnanır, A. (2015b). Relationship between ethical leadership, organizational commitment and job satisfaction at hotel organizations. In *Ege Academic Review* (Vol. 15, Issue 1, pp. 53–64). Ege University WT - DergiPark.
- Choudhary, V., & Saini, G. (2021a). Effect of job satisfaction on moonlighting intentions: mediating effect of organizational commitment. *European Research on Management and Business Economics*, 27(1), 100137.



- Choudhary, V., & Saini, G. (2021b). Effect of job satisfaction on moonlighting intentions: mediating effect of organizational commitment. *European Research on Management and Business Economics*, 27(1), 100137.
- Cossich, V. R. A., Carlgren, D., Holash, R. J., & Katz, L. (2023). Technological breakthroughs in sport: current practice and future potential of artificial intelligence, virtual reality, augmented reality, and modern data visualization in performance analysis. *Applied Sciences*, 13(23), 12965. <https://doi.org/10.3390/app132312965>
- Dappa, K., Bhatti, F., & Aljarah, A. (2019). A study on the effect of transformational leadership on job satisfaction: The role of gender, perceived organizational politics and perceived organizational commitment. *Management Science Letters*, 9(6), 823–834. <https://doi.org/10.5267/j.msl.2019.3.006>
- De Nobile, J. (2017a). Organisational communication and its relationships with job satisfaction and organisational commitment of primary school staff in Western Australia. *Educational Psychology*, 37(3), 380–398.
- Dou, D., Devos, G., & Valcke, M. (2017). The relationships between school autonomy gap, principal leadership, teachers' job satisfaction and organizational commitment. *Educational Management Administration & Leadership*, 45(6), 959–977.
- Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., Duan, Y., Dwivedi, R., Edwards, J., & Eirug, A. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 57, 101994.
- Edison, E., Anwar, Y., & Komariyah, I. (2017). *Manajemen Sumber Daya Manusia: Strategi dan perubahan dalam rangka meningkatkan kinerja pegawai dan organisasi*.
- Febriantina, S., Suparno, S., Marsofiyati, M., & Aliyyah, R. R. (2020). How school culture and teacher's work stress impact on teacher's job satisfaction. *International Journal of Learning, Teaching and Educational Research*, 19(8), 409-423. <https://doi.org/10.26803/ijlter.19.8.22>
- Fidyah, D. N., & Setiawati, T. (2020). Influence of Organizational Culture and Employee Engagement on Employee Performance: Job Satisfaction as Intervening Variable. *Review of Integrative Business and Economics Research*, 9(4), 64–81.
- García-Rodríguez, F. J., Dorta-Afonso, D., & González-de-la-Rosa, M. (2020a). Hospitality diversity management and job satisfaction: The mediating role of organizational commitment across individual differences. *International Journal of Hospitality Management*, 91, 102698. <https://doi.org/https://doi.org/10.1016/j.ijhm.2020.102698>
- García-Rodríguez, F. J., Dorta-Afonso, D., & González-de-la-Rosa, M. (2020b). Hospitality diversity management and job satisfaction: The mediating role of organizational commitment across individual differences. *International Journal of Hospitality Management*, 91, 102698. <https://doi.org/https://doi.org/10.1016/j.ijhm.2020.102698>
- Gokce, A. T. (2013a). Relationship between whistle-blowing and job satisfaction and organizational loyalty at schools in Turkey. *Educational Research and Reviews*, 8(14), 1186.
- Gokce, A. T. (2013b). Relationship between whistle-blowing and job satisfaction and organizational loyalty at schools in Turkey. *Educational Research and Reviews*, 8(14), 1186.
- Greenberg, J. (2011). *Behavior in Organizations*. Pearson.
- Hambali, H., Zainuddin, Z., & Darwin, D. (2020). The influence of self-determination, organizational culture, work motivation, and job satisfaction on the performance of principals of state primary school in aceh besar district, aceh. *International Journal for Educational and Vocational Studies*, 2(12). <https://doi.org/10.29103/ijevs.v2i12.3044>
- Hamonangan Ismail, D., Asmawi, Moch., & Widodo, S. E. (2020a). The Effect of Organizational Culture, Leadership Style, and Trust to Organizational Commitments of LP3I Polytechnic Jakarta Lectures. *IJHCM (International Journal of Human Capital Management)*, 4(1), 16–25. <https://doi.org/10.21009/ijhcm.04.01.02>
- Hariguna, T., & Ruangkanjanases, A. (2024). Assessing the impact of artificial intelligence on customer performance: A quantitative study using partial least squares methodology. *Data Science and Management*, 7(3), 155–163. <https://doi.org/10.1016/j.dsm.2024.01.001>

- Hashem, R., Ali, N., Zein, F. E., Fidalgo, P., & Khurma, O. A. (2023). Ai to the rescue: exploring the potential of chatgpt as a teacher ally for workload relief and burnout prevention. *Research and Practice in Technology Enhanced Learning*, 19, 023. <https://doi.org/10.58459/rptel.2024.19023>
- Hinojosa-Torres, C., Barahona-Fuentes, G., Zavala-Crichton, J. P., Fuentealba-Urra, S., Hurtado-Guerrero, M., Gajardo-Vergara, X., Valdivia-Moral, P., & Yáñez-Sepúlveda, R. (2025). Supervisión de prácticas en la formación inicial de profesores Educación Física: hallazgos, tensiones y propuestas de mejora. *Revisión sistemática. Retos*, 70, 742-758. <https://doi.org/10.47197/retos.v70.115797>
- Hoyt, J. E. (2012). Predicting the satisfaction and loyalty of adjunct faculty. *The Journal of Continuing Higher Education*, 60(3), 132-142.
- Ibidunni, A. S., Falola, H. O., Ibidunni, O. M., Salau, O. P., Olokundun, M. A., Borishade, T. T., Amaihian, A. B., & Peter, F. (2018a). Workforce diversity among public healthcare workers in Nigeria: Implications on job satisfaction and organisational commitment. *Data in Brief*, 18, 1047-1053. <https://doi.org/https://doi.org/10.1016/j.dib.2018.03.127>
- Ibidunni, A. S., Falola, H. O., Ibidunni, O. M., Salau, O. P., Olokundun, M. A., Borishade, T. T., Amaihian, A. B., & Peter, F. (2018b). Workforce diversity among public healthcare workers in Nigeria: Implications on job satisfaction and organisational commitment. *Data in Brief*, 18, 1047-1053. <https://doi.org/https://doi.org/10.1016/j.dib.2018.03.127>
- Jabbar, M. N., Mahmood, W., & Qambar, G. (2020). Mediating Role of Organizational Commitment and Work Environment on the Relationship between Transformational Leadership and Job Satisfaction. *Talent Development & Excellence*, 12(2s), 3974-3988.
- Jameel, A. S., & Ahmad, A. R. (2019). The effect of transformational leadership on job satisfaction among academic staff. *The 34th International Business Information Management Association (IBIMA) Conference*, 13-14.
- Kim, H. L., Rhou, Y., Uysal, M., & Kwon, N. (2017a). An examination of the links between corporate social responsibility (CSR) and its internal consequences. *International Journal of Hospitality Management*, 61, 26-34. <https://doi.org/https://doi.org/10.1016/j.ijhm.2016.10.011>
- Kim, H. L., Rhou, Y., Uysal, M., & Kwon, N. (2017b). An examination of the links between corporate social responsibility (CSR) and its internal consequences. *International Journal of Hospitality Management*, 61, 26-34. <https://doi.org/https://doi.org/10.1016/j.ijhm.2016.10.011>
- Kim, J. (2024). Leading teachers' perspective on teacher-AI collaboration in education. *Education and Information Technologies*, 29(7), 8693-8724.
- Lane, A., & McAndrew, P. (2010). Are open educational resources systematic or systemic change agents for teaching practice? *British Journal of Educational Technology*, 41(6), 952-962.
- Lim, T. (2010). Relationships among organizational commitment, job satisfaction, and learning organization culture in one Korean private organization. *Asia Pacific Education Review*, 11(3), 311-320.
- Loan, L. (2020). The influence of organizational commitment on employees' job performance: The mediating role of job satisfaction. *Management Science Letters*, 10(14), 3307-3312.
- Maiti, R. B., Sanyal, S. N., & Mazumder, R. (2020). Antecedents and consequences of organizational commitment in school education sector. *International Journal of Organizational Analysis*, 29(3), 716-735. <https://doi.org/10.1108/ijoa-02-2020-2041>
- Mali, Y. C. G., Kurniawan, D., Januardi, J. I., Swara, S. J., Lokollo, N. C. E., Picauly, I. A., Paramitha, N. G., Tanore, J. A., Dewani, M. S., & Pakiding, R. W. (2023). Issues and challenges of technology use in Indonesian schools: Implications for teaching and learning. *IJJET (International Journal of Indonesian Education and Teaching)*, 7(2), 221-233.
- Marcos, A., García-Ael, C., & Topa, G. (2020). The influence of work resources, demands, and organizational culture on job satisfaction, organizational commitment, and citizenship behaviors of spanish police officers. *International Journal of Environmental Research and Public Health*, 17(20), 1-22. <https://doi.org/10.3390/ijerph17207607>
- Mariana Lolowang, D., Ihsan, F., Piri, N., Emor Kumenap, E., & Alfrets Makadada, F. (2025). Innovative teaching methods in physical fitness education: integrating technology and gamification to improve student engagement-a systematic review. *Retos*, 68, 1148-1163. <https://doi.org/10.47197/retos.v68.116064>
- Melweth, H. M. A. L., Alkahtani, A. S., & Al Mdawi, A. M. M. (2024). The Impact of Artificial Intelligence on Improving the Quality of Education and Reducing Future Anxiety Among a Sample of

- Teachers in Saudi Arabia. *Kurdish Studies*, 12(2), 5741–5758. <https://doi.org/10.58262/ks.v12i2.426>
- Mouloud, K., Bachir, B., & Bacha, F. S. (2016). Job satisfaction for physical education teachers and its relationship to job performance and organizational commitment. *Pedagogics, Psychology, Medical-Biological Problems of Physical Training and Sports*, 20(3), 47–51. <https://doi.org/10.15561/18189172.2016.0307>
- Moyo, N. (2019). Testing the effect of employee engagement, transformational leadership and organisational communication on organisational commitment. *GATR Journal of Management and Marketing Review*, 4(4), 270–287. [https://doi.org/10.35609/jmmr.2019.4.4\(6\)](https://doi.org/10.35609/jmmr.2019.4.4(6))
- Odoch, H., & Nangoli, S. (2014a). The effect of organizational commitment on job satisfaction in Uganda Colleges of Commerce. *Issues in Business Management and Economics*, 2(10), 165–171.
- Odoch, H., & Nangoli, S. (2014b). The effect of organizational commitment on job satisfaction in Uganda Colleges of Commerce. *Issues in Business Management and Economics*, 2(10), 165–171.
- Önder, M. E., Akçıl, U., & Cemaloğlu, N. (2019). The relationship between teachers' organizational commitment, job satisfaction and whistleblowing. *Sustainability*, 11(21), 5995.
- Onesi-Ozigagun, O., Ololade, Y. J., Eyo-Udo, N. L., & Ogundipe, D. O. (2024). Revolutionizing education through ai: a comprehensive review of enhancing learning experiences. *International Journal of Applied Research in Social Sciences*, 6(4), 589–607. <https://doi.org/10.51594/ijarss.v6i4.1011>
- Owoc, M. L., Sawicka, A., & Weichbroth, P. (2021). Artificial Intelligence Technologies in Education: Benefits, Challenges and Strategies of Implementation. *IFIP Advances in Information and Communication Technology*, 599, 37–58. [https://doi.org/10.1007/978-3-030-85001-2\\_4](https://doi.org/10.1007/978-3-030-85001-2_4)
- Paramita, E., Lumbanraja, P., & Absah, Y. (2020). The Influence of Organizational Culture and Organizational Commitment on Employee Performance and Job Satisfaction as a Moderating Variable at PT. Bank Mandiri (Persero), Tbk. *International Journal of Research and Review (Ijrrjournal.Com)*, 7(March), 3.
- Purnomo, B. R., Eliyana, A., & Pramesti, E. D. (2020). The Effect of Leadership Style, Organizational Culture and Job Satisfaction on Employee Performance with Organizational Commitment as the Intervening Variable. *Systematic Reviews in Pharmacy*, 11(10).
- Rajabi, R., Boles, J., Alejandro, T. G. B., & Sarin, S. (2021). Revisiting and replicating the dominant logic on salesperson job satisfaction, organizational commitment, and turnover. *Journal of Business Research*, 126, 524–532.
- Ramos-Álvarez, O., García-Romero, C., & Arufe-Giraldez, V. (2024). 20 años de investigación científica de la revista Retos, nuevas tendencias en Educación Física, Deportes y Recreación: análisis bibliométrico (20 years of scientific research by the journal Retos, new trends in Physical Education, Sports and Recreation: a bibliometric analysis). *Retos*, 54, 355–361. <https://doi.org/10.47197/retos.v54.102798>
- Rizwan, M., Zeeshan, C., & Mahmood, S. (2017a). The impact of perceived ethical leadership and organizational culture on job satisfaction with the mediating role of organizational commitment in private educational sector of Islamabad, Pakistan. *Journal of Intercultural Management*, 9(1), 75–100.
- Rizwan, M., Zeeshan, C., & Mahmood, S. (2017b). The impact of perceived ethical leadership and organizational culture on job satisfaction with the mediating role of organizational commitment in private educational sector of Islamabad, Pakistan. *International Journal of Education and Learning Systems*, 2.
- Rizwan, M., Zeeshan, C., & Mahmood, S. (2017c). The impact of perceived ethical leadership and organizational culture on job satisfaction with the mediating role of organizational commitment in private educational sector of Islamabad, Pakistan. *Journal of Intercultural Management*, 9(1), 75–100.
- Saaida, M. B. E. (2023). AI-Driven transformations in higher education: Opportunities and challenges. *International Journal of Educational Research and Studies*, 5(1), 29–36.
- Şahin, F., Sönmez, E., Er, E., & Erdoğan, O. (2023). The relationship between supportive school culture and teacher job satisfaction: mediating role of professional network intentions. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi*, 43(2), 1191–1217. <https://doi.org/10.17152/gefad.1295265>
- Salehi, M., & Gholtash, A. (2011). The relationship between job satisfaction, job burnout and organizational commitment with the organizational citizenship behavior among members of faculty in

- the Islamic Azad University–first district branches, in order to provide the appropriate model. *Procedia-Social and Behavioral Sciences*, 15, 306–310.
- Sayadi, Y. (2016). The effect of dimensions of transformational, transactional, and non-leadership on the job satisfaction and organizational commitment of teachers in Iran. *Management in Education*, 30(2), 57–65.
- Sena, A. (2020). the Influence of Organizational Culture, Job Satisfaction, and Professional Commitment on Innovative Behavior of Flight Instructors At the Civil Flight School in Indonesia. *Warta Ardha*, 46(1), 1–17. <https://doi.org/10.25104/wa.v46i1.374.1-17>
- Şentuna, M. (2015). Investigation of job satisfaction, organizational commitment and self-esteem of physical education teachers according to the gender. *International Online Journal of Educational Sciences*. <https://doi.org/10.15345/iojes.2015.02.005>
- Siaputra, H., Nugroho, A., Kartika, E. W., & Kaihatu, T. S. (2012). KOMITMEN AFEKTIF DALAM ORGANISASI YANG DIPENGARUHI PERCIEVED ORGANIZATIONAL SUPPORT DAN KEPUASAN KERJA. *J. Manaj. KEWIRAUSAHAAN*, 14(2), 91–172.
- Spector, P. E. (1985a). Measurement of human service staff satisfaction: Development of the Job Satisfaction Survey. *American Journal of Community Psychology*, 13(6), 693.
- Spector, P. E. (1985b). Measurement of human service staff satisfaction: Development of the Job Satisfaction Survey. *American Journal of Community Psychology*, 13(6), 693.
- Talwar, P. (2023). *The Strategic Use of Virtual Teacher Assistants to Increase Faculty Engagement and Job Satisfaction*. Trident University International.
- Tsai, Y. (2011a). Relationship between organizational culture, leadership behavior and job satisfaction. *BMC Health Services Research*, 11, 1–9.
- Tsai, Y. (2011b). Relationship between organizational culture, leadership behavior and job satisfaction. *BMC Health Services Research*, 11, 1–9.
- Vathi, S., & Veraya, V. (2020). Headmasters' Transformational Leadership Style, Teachers' Organizational Commitment and Job Satisfaction. *Technology, and Social Sciences (IJITSS)*, 1(1), 39–47
- Walsh, G., & Bartikowski, B. (2013). Exploring corporate ability and social responsibility associations as antecedents of customer satisfaction cross-culturally. *Journal of Business Research*, 66(8), 989–995. <https://doi.org/https://doi.org/10.1016/j.jbusres.2011.12.022>
- Wang, F. and Wang, Z. (2023). A mediation moderation model between work–family conflict and turnover intention among public and private kindergarten school teachers in china. *Journal of Organizational Change Management*, 37(1), 116-132. <https://doi.org/10.1108/jocm-04-2023-0137>
- Wen, K. and Liu, Q. (2024). Examining the relationship between teaching ability and smart education adoption in k-12 schools: a moderated mediation analysis. *Journal of Pedagogical Research*. <https://doi.org/10.33902/jpr.202428110>
- Widagdo, B., & Roz, K. (2020). The Effect of Transformational Leadership Style, Motivation, and Organizational Culture on Organizational Commitments Mediated by Work Satisfaction At Muhammadiyah Malang University. *European Journal of Business and Management*, 12(12), 99–107.
- Widjajani, S., Khotimah, K., Suyitno, S., & Jatmoko, D. (2022). Organizational culture, commitment and teacher performance: the role of job satisfaction. *JPBM (Jurnal Pendidikan Bisnis Dan Manajemen)*, 8(3), 155. <https://doi.org/10.17977/um003v8i32022p155>
- Wiesner, G., & Yuniarti, N. (2018). Systematic Quality Management in Vocational Educational Institutes: Role of Teachers in Development of Organizational Quality. *Jurnal Pendidikan Teknologi Dan Kejuruan*, 24(1), 162–170.
- Williams, E. S., Rondeau, K. V., & Francescutti, L. H. (2007). Impact of culture on commitment, satisfaction, and extra-role behaviors among Canadian ER physicians. *Leadership in Health Services*, 20(3), 147–158. <https://doi.org/10.1108/17511870710764005>
- Wiwin, W., Mubarok, S., & Aryanda, S. (2020). The effect of internal communication on employee performance in informal education institutions: the role of organizational commitment as a mediation variable. *European Journal of Business and Management*. <https://doi.org/10.7176/ejbm/12-32-05>
- Xianqiang, F. (2023). Exploring the interplay of organizational culture, job satisfaction, and organizational commitment: a conceptual examination of smes in beijing, china. *Journal of Digitainability, Realism & Mastery (DREAM)*, 2(05), 66-71. <https://doi.org/10.56982/dream.v2i05.125>

- Yang, D., Oh, E., & Wang, Y. (2020). Hybrid physical education teaching and curriculum design based on a voice interactive artificial intelligence educational robot. *Sustainability*, 12(19), 8000. <https://doi.org/10.3390/su12198000>
- Yang, J., Shuijin, Y., & Du, Y. (2024). Intelligent physical education: utilizing artificial intelligence to improve learning effectiveness. *Advances in Educational Technology and Psychology*, 8(3). <https://doi.org/10.23977/aetp.2024.080323>
- Yerezhopov, T., Kazakhbayeva, G., Mektepbergenov, N., Orynbayeva, L., Shadibekov, T., & Nurgaliyeva, S. (2025). Exploring Professional Burnout and Resilience in Physical Education Teachers: A Case Study of Kazakhstan. *Retos*, 68, 66–81. <https://doi.org/10.47197/retos.v68.113620>
- Yi, M., Jiang, D., Wang, J., Zhang, Z., Jia, Y., Zhao, B., & Chen, O. (2022). Relationships among thriving at work, organisational commitment and job satisfaction among chinese front-line primary public health workers during covid-19 pandemic: a structural equation model analysis. *BMJ Open*, 12(6), e059032. <https://doi.org/10.1136/bmjopen-2021-059032>
- Yugandhar, K., & Rao, Y. R. (2024). Artificial Intelligence in Classroom Management: Improving Instructional Quality of English Class with AI Tools. *Educational Administration: Theory and Practice*, 30(4), 2666–2672

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