



Strategy for Increasing the Creative Performance of Civil Servants in Public Services: Effectiveness of Education and Training through Teamwork

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ABSTRACT

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This research investigates the influence of education and training as well as teamwork on the creative performance of civil servants in Indonesia, with a focus on understanding that education and training simultaneously contribute to increasing innovation in public services. The findings show that education and training play a significant role in improving creative performance directly as well as indirectly through increased teamwork. This research brings a new perspective to the literature on human resource management and public sector innovation by emphasizing the synergistic role of individual skill development and team dynamics in creating a work environment conducive to creativity. Based on the findings, it is recommended to develop integrated education and training programs, increase focus on teamwork, evaluate the impact of education and training on teamwork, and facilitate a work environment that supports collaboration. This initiative is expected to optimize the innovative potential of civil servants in providing creative solutions to public service challenges.

KEYWORDS:

Creative Performance, Public Services, Education and Training.

1. INTRODUCTION

Efficient and effective public services are an important indicator of good governance. In recent years, the Indonesian government has identified the importance of increasing creative performance among civil servants as one way to improve the quality of public services. According to Meyer (2020), the challenges in realizing this are often related to traditional methods in education and training which do not emphasize aspects of creativity and team collaboration. This research aims to explore how education and training strategies carried out through teamwork can improve the creative performance of civil servants in public services in Indonesia.

This research examines the phenomenon where the creative performance of civil servants in public services in Indonesia is not optimal, caused by education and training that is still oriented towards traditional methods and a lack of effective team collaboration. Despite efforts to improve, challenges

such as conventional education and training policies, division of labor, barriers to implementing innovation, and growing societal expectations, show a gap between the competencies acquired by civil servants and the real needs of public services that are dynamic and require creative solutions (Foxon & Pearson, 2008). This phenomenon highlights the urgent need for more innovative education and training strategies and strong teamwork integration to improve the creative performance of civil servants, responding to current public service challenges (Vyas, 2019).

The uniqueness of this research lies in its focus on the effectiveness of education and training integrated with the teamwork concept in improving the creative performance of civil servants. In contrast to previous studies which emphasized more on the effectiveness of education and training in a general context, this research explores more deeply how the synergy between education, training and team collaboration can create innovation and improve performance in public services.

An important benefit of this research is that it provides insight to the government and related agencies regarding the importance of designing and implementing education and training strategies that not only focus on increasing technical competence, but also developing creativity and collaboration abilities between employees (Allina, 2018). In this way, it is hoped that public services that are more innovative and

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responsive to community needs can be created. Smith (2016) focuses on a teamwork-oriented education and training approach. This research is expected to make a significant contribution to the literature on human resource development in the public sector. Furthermore, it is hoped that the results of this research can become a reference for policy makers in formulating more effective and efficient education and training strategies for civil servants in the future.

This research offers a new perspective in efforts to improve the creative performance of civil servants through a teamwork-based education and training approach. In this way, it is hoped that it can pave the way for more innovative and quality public service practices in Indonesia.

II. LITERATURE REVIEW

Creative performance in the context of government organizations refers to the ability of individuals or groups to produce new ideas and innovative solutions that can increase effectiveness and efficiency in public services. Bissola et al., (2014) define creative performance as the production of work that is not only new (novelty) but also useful and appropriate to the context. In research related to civil servants, creative performance is often associated with the ability to adapt to policy changes, improve services to the community, and develop more efficient work methods. Yesuf et al., (2023) emphasize that creative performance is influenced by intrinsic factors of work motivation and a supportive work environment, such as the availability of resources and management support.

Education and training for civil servants has a strategic role in improving competence, skills and work attitudes to achieve organizational goals. According to Liebenberg (2012), effective education and training is designed based on job analysis needs and integrated with organizational strategy. Education and training are expected to improve individual and organizational performance by providing new knowledge, skills and better work attitudes. Cheng et al., (2012) show that participation in Education and Training has a positive impact on improving individual performance, especially when Education and Training is followed by organizational support and opportunities to apply what is learned.

Teamwork in government organizations is considered the key to achieving complex and multifaceted goals. According to Salas et al., (2008) teamwork involves coordination, communication, cooperation, and shared commitment to clear team goals. In the context of civil servants, teamwork can improve creative performance by facilitating the exchange of ideas, increasing learning between members, and integrating various skills to create innovative solutions. Bogilović et al., (2021) found that an organizational climate that supports teamwork contributes to higher levels of innovation and creativity in teams.

Self-Determination Theory by Van den Broeck et al., (2021) offers an important framework for understanding how intrinsic and extrinsic motivation influences creative performance. This theory emphasizes that to achieve high levels of creativity, individuals need to feel competent, related, and autonomous. In the context of education and training as well as teamwork, the application of this theory shows that when civil servants feel that they have the ability (competence), get support from colleagues (connectedness), and have the freedom to take the initiative (autonomy), then their intrinsic motivation to perform creativity will increase. Conflict and coordination theory provides insight into how group dynamics can influence creative performance. Derdowski et al., (2018) identified that task conflict (i.e., differences of opinion regarding the work itself) can contribute positively to team creativity, provided the conflict is managed well. Furthermore, Somech et al., (2013) showed that effective coordination within teams allows for broader information exchange, which can increase creativity and innovation (Didiharyono & Qur'ani, 2019). In the context of the civil service, this emphasizes the importance of developing conflict management and coordination skills in education and training to maximize the creative potential of teams.

Intellectual capital theory discusses the importance of the knowledge, skills, and experience possessed by individuals and how these assets can be used to improve organizational performance. Kianto (2017) identified three main components of intellectual capital: human capital (individual skills and knowledge), structural capital (processes, policies and organizational culture), and relational capital (relationships with external parties). In the context of improving the creative performance of civil servants, focusing on developing human capital through education and training and strengthening structural capital and relational capital through teamwork is key (Abdullah et al, 2017).

Open Innovation Theory by Gabrielsson et al., (2018) offers the perspective that innovation can be accelerated through the exchange of knowledge and new ideas between an organization and its environment. In the context of public services, this means that civil servants not only gain knowledge and skills through internal education and training, but also through collaboration with external parties, such as universities, the private sector and the community. Teamwork that involves cross-sector collaboration can be a powerful tool for integrating new perspectives and driving creative performance.

Education and training have an important role in improving the creative performance of civil servants in Indonesia, especially through strengthening teamwork in public services. Through this research, we examine the effectiveness of education and training as a competency development tool that not only expands individual knowledge and skills but also facilitates synergy between employees, which is the key

to innovation and creative solutions in public services. The proposed hypothesis shows that Education and Training contribute positively to improving teamwork, with the assumption that well-designed programs can strengthen relationships between employees, improve communication, and enrich collaboration (Lee et al., 2022). Through an in-depth literature review and structured research methodology, this study aims to prove that investment in Education and Training not only increases individual capacity but also strengthens teamwork, which in turn, advances creative performance in public services in Indonesia.

H1: Education and training on teamwork is thought to have positive and significant effect.

Education and training play a crucial role in forming the basis for creative performance in the work environment, especially for civil servants in Indonesia who work in the public service sector. Through systematic and continuous competency development, Education and Training not only improves technical knowledge and skills, but also stimulates creative and innovative thinking among employees. This creates a work environment where new ideas can blossom and be implemented in providing more effective and efficient solutions to public service challenges. Thus, education and training functions as a catalyst that accelerates the transformation of employee performance from conventional to creative, paving the way for improving the quality of public services that can adapt to the dynamic and changing needs of society (Pappas et al., 2018).

H2: Education and training on creative performance is thought to have positive and significant effect

Teamwork is the main key in activating the potential for creative performance in organizations, including in the public service environment. Through effective collaboration and open communication between team members, diverse perspectives and expertise can come together, creating an environment conducive to innovation and creative problem solving (Tang et al., 2020). When individuals in a team feel valued and trusted, they are more likely to contribute with innovative ideas and creative solutions that not only increase efficiency and effectiveness in the delivery of public services but also increase job satisfaction and work motivation among employees. Therefore, teamwork not only acts as a foundation for creative performance but also as the main driver in creating added value and improving the quality of services to society, emphasizing the importance of building and maintaining strong team dynamics in achieving organizational goals.

H3: Teamwork on creative performance is thought to have positive and significant effect.

Education and Training Education and Training play an important role in developing creative performance through strengthening teamwork, especially in the work environment of civil servants in the public service sector in Indonesia. By providing a platform for joint learning and knowledge

exchange, Education and Training not only improves individual competence but also facilitates synergy and collaboration between team members (Yeh et al., 2012). This process allows teams to integrate multiple perspectives, enhance creative problem solving, and encourage innovation in service delivery. Through interactions and collaborative exercises in Education and Training, team members learn to appreciate the power of diversity, effective communication, and collaboration, all of which are key components in creating an environment that supports creative performance (Zhang & Guo, 2019). Thus, education and training become a catalyst that not only strengthens individual skills but also optimizes teamwork potential in encouraging creative performance, showing synergistic relationship between learning and collaboration in achieving organizational goals that are more innovative and responsive to community needs.

H4: education and training on creative performance through teamwork is thought to have positive and significant effect.

III. METHODOLOGY

In this research, data collection techniques were carried out through a structured survey designed to measure civil servants' perceptions of the effectiveness of Education and Training programs and their impact on teamwork and creative performance in the Indonesian public service sector. This survey includes a questionnaire consisting of closed questions using a Likert scale to assess various aspects of Education and Training, teamwork dynamics, and creative performance indicators. The population was taken from 134,023 civil servants working in various public service institutions, using stratified random sampling techniques to ensure broad and diverse representation of the target population. Data collection will be carried out from October to December 2023 online (with google form) to maximize reach and efficiency, allowing respondents to participate from their respective work locations. The sampling technique involved in this research is simple random sampling by taking a list of all employees who work in the Indonesian public service sector and determining a sample of employees using a random table. Using the Slovin formula model, the sample of employees working in the public service sector who took part in this survey was 134 employees.

Analysis and data processing for this research uses descriptive statistical methods to evaluate the influence of education and training programs on creative performance through teamwork among civil servants in the public service sector in Indonesia. SEM PLS was used in this research because of the development of a new model, namely including intervening variables in the structural model to analyze the influence between variables (Sarstedt et al., 2021), so the authors estimated the structural model to calculate the final model and test hypotheses. This analysis allows researchers to understand the extent to which

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education and training can predict changes in creative performance, by considering teamwork as mediator variable. Before conducting analysis, the data collected through a structured survey is first tested for validity and reliability to ensure the quality and reliability of the research instrument. Next, descriptive analysis was applied to provide an overview of the sample characteristics and score distribution for the main variables. Structural equation model (SEM) analysis with Partial Least Squares (SEM-PLS) was carried out by including the independent variable Hair Education and Training (Hair et al., 2019), the dependent variable and the mediator variable to identify the relationship causal and measuring the magnitude of the influence of education and training on creative performance through increasing teamwork. The results of this analysis are interpreted to provide empirical evidence about the effectiveness of education and training in improving the creative performance of civil servants, through teamwork mechanisms, providing strategic insight for the development of policies and practices in the public service sector.

III. RESULTS AND DISCUSSION

Respondents Description

Table 1 describes the respondents characteristics of involved in research regarding the influence of education and training on creative performance through teamwork among civil servants. Most of the respondents, namely 58.2% in the 31–40 year age group, indicating that this research mainly relies on data from individuals who may have sufficient work experience but are still young enough to be considered adaptive to new Education and Training methods. With 76.1% male respondents, there is gender predominance in the sample that needs to be considered in data analysis and interpretation of results. The level of education shows that most respondents have bachelor's degree (47.8%) and master's degree (33.6%), which could indicate higher level of understanding of the concepts of Education and Training and teamwork, as well as the possibility of a more mature response to innovation. In terms of length of service, the distribution is quite even between those with 5-10 years of experience (38.8%) and 10-15 years (35.1%), indicating that the majority of respondents have substantial experience in public service. This provides strong foundation to examine the influence of education and training that has been experienced over significant career duration and how this

contributes to their creative performance in a teamwork context.

TABLE 1. Respondent Description

Description	Quantity	%
Age (years)		
18-30	19	14.2
31-40	78	58.2
41-50	23	17.2
>50	14	10.4
Gender		
Male	102	76.1
Female	32	32
Education		
High School	12	9.0
Diploma	13	9.7
Bachelor's degree	64	47.8
Master's degree	45	33.6
Length of employments (years)		
1-5	22	16.4
5-10	52	38.8
10-15	47	35.1
>15	13	9.7

Measurement model

The measurement model in this research consists of a reflective measurement model where the variables education and training, teamwork and creative performance are measured reflectively. According to Hair et al (2021), evaluation of the reflective measurement model consists of loading factor ≥ 0.70 , composite reliability ≥ 0.70 and Average Variance Extracted (AVE) ≥ 0.50 as well as evaluation of discriminant validity, namely the Fornell & Lacker criteria and HTMT (Heterotrait Monotrait Ratio) below ≤ 0.90 .

Table 2 shows that the variables education and training, teamwork and creative performance are measured by 5 (five) valid measurement items above 0.70, which indicates that these measurement items are strongly correlated. The level of reliability is acceptable with composite reliability values above 0.70 and Cronbach's alpha above 0.70 and convergent validity as indicated by AVE > 0.50 , (Sarstedt et al., 2021).

TABLE 2. Validity and reliability

Construct/Indikator		Item reliability	Convergent Validity		
		Loading Factor	CA	CR	AVE
ET	X1	0.839	0.873	0.881	0.665
	X2	0.785			
	X3	0.896			
	X4	0.733			
	X5	0.814			

TW	Z1	0.819	0.924	0.926	0.769
	Z2	0.902			
	Z3	0.889			
	Z4	0.865			
	Z5	0.906			
CP	Y1	0.821	0.908	0.911	0.734
	Y2	0.917			
	Y3	0.781			
	Y4	0.840			
	Y5	0.917			

TABLE 3. Discriminant validity of fornell & lacker results criteria and HTMT (Heterotrait Monotrait Ratio).

Fornell & Lacker	CP	ET	TW
CP	0.857	-	-
ET	0.814	0.815	-
TW	0.826	0.799	0.877
HTMT	CP	ET	TW
CP	-	-	-
ET	0.900	-	-
TW	0.900	0.877	-

Note. AVE: Average Variance Extracted; CR: composite reliability; CA: Cronbach's alpha; ET: Education and Training; TW: Teamwork; CP: Creative Performance.

According table 3, evaluation of discriminant validity needs to be carried out by looking at the Fornell and Lacker criteria (Sarstedt et al., 2021). Discriminant validity is a form of evaluation to ensure that variables are theoretically different and proven empirically/ statistically tested. Fornell and Lacker's criterion is that the root AVE of the variable is greater than the correlation between the variables. The Creative Performance variable has an AVE root (0.857), a greater correlation with the Education and Training variable (0.815) and a greater correlation with the Teamwork variable (0.877). Hair et al (2019) recommend HTMT because this validity measure is considered more sensitive or accurate in detecting discriminant validity. The recommended value is

below 0.90. The test results show that the HTMT value is below 0.90 for the variable pair, so discriminant validity is achieved. Variables divide the variation of measurement items into the items that measure them more strongly than dividing the variance into other variable items.

Structural model

Structural Measurement Model Evaluation is an evaluation of research hypothesis testing. The structural model following the procedure of Hair (2019) produces a research hypothesis which shows that the education and training, teamwork and creative performance hypotheses are obtained by analyzing the influence between the variables depicted in the path coefficient (see Figure 1).

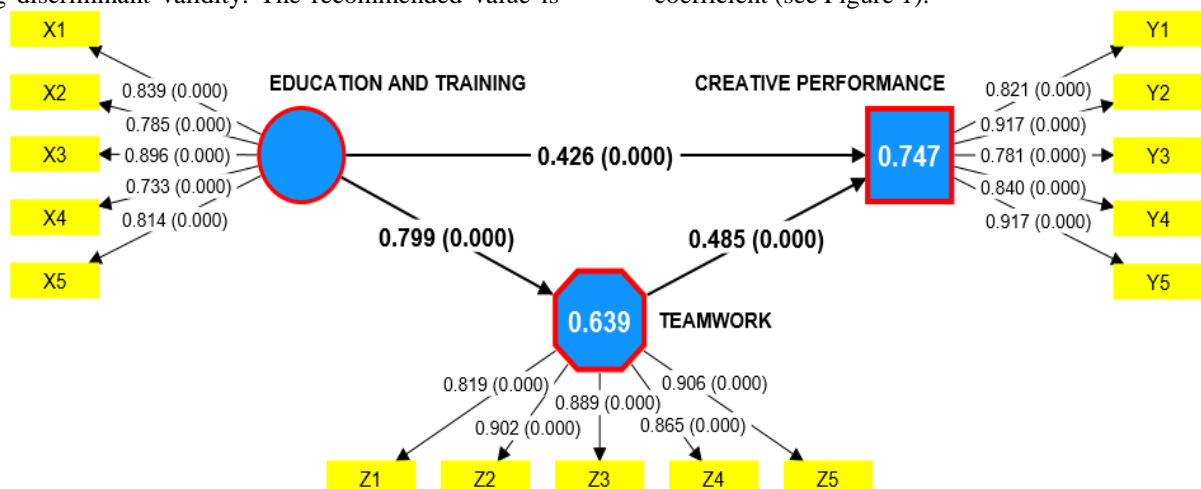


FIGURE 1. PLS-structural equation modelling results.

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The results of the R-square collinearity analysis (R^2) are 0.743 and 0.636, according to Chin (1998) the qualitative interpretation value of R square is high influence and the results of the Q-square collinearity analysis are 0.539 and 0.478, according to Hair et al (2019) The Q square value above is above 0 states that the model has predictive

relevance. The estimation results show that the inner VIF value ranges from 1,000 – 2,767, so the measurement used to check collinearity is the inner VIF (variance inflated factor) which in Sarstedt (2021) is recommended below < 5.00 (no collinearity).

TABLE 4. Hypothesis testing results.

Hypothesis	Path Coefficients	t-statistics	p value	Result	97.5 % CI	VIF	R square	Q Square
ET → TW	0.799	22.590	0.000	H1 Accepted	0.864	1.000	0.743	0.539
ET → CP	0.426	4.791	0.000	H2 Accepted	0.585	2.767		
TW → CP	0.485	5.386	0.000	H3 Accepted	0.670	2.767	0.636	0.478
ET → TW → CP	0.387	5.386	0.000	H4 Accepted	0.547			

Note: → shows a relationship; CI: confidence intervals; VIF: variance inflated factor.

Hypothesis testing results

In table 4, the results of the first hypothesis analysis show that the calculated t value for the Education and Training variable on Teamwork was 22,590 with a significance p-value of 0.000. This shows that the calculated t value is greater than the bootstrapping process, the t statistic value is above 1,960 and the significance value is smaller than 0.050, and the path coefficient value shows a positive sign, namely 0.799. In the 95% confidence interval, the influence of Education and Training in improving Teamwork is 0.864. So it can be concluded that Education and Training has a positive and significant effect on Teamwork. Based on the results of the data analysis above, hypothesis 1 (**H1**) is accepted.

Furthermore, the results of the analysis in hypothesis two show that the calculated t value for the Education and Training variable on Creative Performance was 4,791 with a significance p-value of 0.000. This shows that the calculated t value is greater than the bootstrapping process, the t statistical value is above 1.960 and the significance value is smaller than 0.050, and the path coefficient value shows a positive sign, namely 0.426. In the 95% confidence interval, the influence of Education and Training in increasing Creative Performance is 0.585. So it can be concluded that Education and Training has a positive and significant effect on Creative Performance. Based on the results of the data analysis above, hypothesis 2 (**H2**) is accepted.

Next, the results of the analysis in hypothesis three show that the calculated t value for the teamwork variable on Creative Performance was 5,386 with a significance p-value of 0.000. This shows that the calculated t value is greater than the bootstrapping process, the t statistical value is above 1.960 and the significance value is smaller than 0.050, and the path coefficient value shows a positive sign, namely 0.426. In the 95% confidence interval, the influence of teamwork in

increasing Creative Performance is 0.670. So it can be concluded that teamwork has a positive and significant effect on Creative Performance. Based on the results of the data analysis above, hypothesis 3 (**H3**) is accepted.

And finally, the results of the analysis in hypothesis four show that the calculated t value for the Education and Training variable for Teamwork through Creative Performance was obtained at 0.854 with a significance p-value of 0.000. This shows that the calculated t value is greater than the bootstrapping process, the t statistic value is above 1.960 and the significance value is smaller than 0.050, and the path coefficient value shows a positive sign, namely 0.387. In the 95% confidence interval, the influence of Education and Training in increasing Creative Performance through Teamwork is 0.547. So it can be concluded that Education and Training has a positive and significant effect on Creative Performance through Teamwork. Based on the results of the data analysis above, hypothesis 4 (**H4**) is accepted.

IV. CONCLUSION AND RECOMMENDATION

Research results on hypothesis one found that well-designed education and training programs can improve the creative performance of civil servants through increasing the effectiveness of teamwork. This indicates that investment in education and training not only improves individual skills, but also facilitates collaboration, communication and synergy between team members. This finding is important because it shows that a holistic approach that integrates individual skills development with teamwork dynamics can produce significant performance improvements in public services. This research brings novelty in understanding the relationship between education and training and teamwork in the context of public services in Indonesia. The uniqueness of this

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research lies in its specific focus on civil servants and the application of teamwork theory in the context of education and training. This differentiates this research from previous studies that may have focused more on the private sector or different contexts.

Additionally, this research provides insight into how creative performance improvement strategies can be implemented in government, an area that is relatively underexplored compared to the creative industries or private sector. This research emphasizes the importance of continuous development of education and training programs for civil servants with a focus on collaborative and teamwork skills, as well as the integration of these strategies into public service policies to improve creative performance. The findings of this research are supported by Halawi (2018); Rodriguez, J (2017); Dewett (2001) and Miranda (2021) state that building an organizational culture that supports continuous learning, collaboration and innovation, as well as the importance of continuous evaluation and adaptation of programs and teamwork dynamics to ensure effective performance improvement and responsiveness to emerging needs and challenges.

The main findings of the research on hypothesis two show that effective education and training programs can significantly improve the creative performance of civil servants. This indicates that investment in education and training not only has an impact on improving technical and administrative competence, but also strengthens the creative abilities that are essential in devising and implementing innovative solutions to public service problems. Creative performance here includes the ability to produce new ideas, innovative approaches, and effective solutions that can improve the quality and efficiency of public services. This research brings a new perspective to the literature on human resource development in the public sector with a focus on creative performance. The uniqueness of this research lies in its exploration of the relationship between education and training and creative performance, an area that is relatively underexplored, especially in the context of government in Indonesia. This research fills a knowledge gap by showing that education and training can be an important catalyst for increasing innovation and creativity in public services.

This research recommends the importance of creativity-based development by government education and training institutions, integration of creativity in organizational culture to promote innovation, facilitation of interdisciplinary collaboration to strengthen creative problem solving, and evaluation and adjustment of education and training programs on an ongoing basis. Research findings are supported by Rakšnys (2020); De Montigny (2019) and Williamson (2014) that to strengthen the creative and innovative skills of civil servants, support a culture that values innovation, facilitate cross-sectoral collaboration, and ensure learning approaches

that are adaptive and responsive to the changing needs of the public sector.

The results of the third hypothesis research prove that the dynamics of effective teamwork significantly improve creative performance among civil servants. These findings confirm that teams that work with high synergy, good communication and effective collaboration are able to produce innovative and creative solutions to challenges in public services. Creative performance, in this context, is understood as the ability to uniquely identify problems, formulate original solutions, and implement new approaches that improve the quality of services to society. This research presents a new perspective in the literature on human resource management and innovation in the public sector by highlighting the importance of teamwork on creative performance. Uniquely, this research focuses on the Indonesian public sector, where research on the relationship between teamwork and creative performance is still limited. This provides new insight into HR management strategies in increasing innovation in the public sector, especially in the context of Indonesian work culture.

This research is supported by Paulus (2012); Ruuska (2009) and Gil-Garcia (2014) that to improve creative performance in the public sector, government agencies need to focus on strengthening a culture of teamwork through team-building activities and collaborative training, forming multidisciplinary teams that enrich perspectives and innovation potential, developing mechanisms rewards that provide incentives for team innovation, and strengthening infrastructure and technology that supports effective communication and collaboration. This recommendation aims to create a work environment that is conducive to the exchange of ideas, cross-sectoral collaboration, and the development of creative solutions to public service challenges.

Finally, the results of this fourth research hypothesis prove that education and training not only directly improve the creative performance of civil servants, but also do so indirectly through increasing teamwork. These findings indicate that effective education and training programs in improving teamwork skills can significantly strengthen employees' creative capacity in producing innovative and effective solutions to public service challenges. This highlights the importance of an integrated approach that combines individual skills development with effective team dynamics to achieve optimal creative performance. This research offers a new perspective by highlighting the mediating role of teamwork in the relationship between education and training and creative performance. The uniqueness of this research lies in its focus on the Indonesian public sector, where similar studies exploring the synergistic role of education, training, and teamwork in the context of creative performance are still rare. This research fills a gap in the literature by identifying and testing pathways through

which teamwork is an important mechanism mediating the influence of education and training on creative performance. This research recommends the development of integrated education and training programs, which not only improve individual skills but also strengthen teamwork and collaboration. This research is supported by Montes et al., (2005); Sung (2014) and Nancarrow (2013) that involves adding special modules to improve teamwork in training, regular evaluation of the contribution of education and training in improving teamwork and creative performance, as well as creating work environment that supports inter-team collaboration by providing adequate resources. This initiative aims to optimize the creative performance of civil servants through synergy between individual development and effective team collaboration.

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VI. DISCLOSURE

The author reports no conflicts of interest in this work. All authors contributed and were actively involved in the research.

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