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Structural Equation Modelling Analysis of Improving Teachers' Teaching Creativity:The Role of Professional Identity and Emotional Intelligence

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Abstract: Structural Equation Modelling Analysis of Improving Teachers' Teaching Creativity:The Role of Professional Identity and Emotional Intelligence. Objective: The study aimed to examine a comprehensive structural model comprising three variables namely teaching creativity, emotional intelligence, and professional identity. **Methods:** The study involved 170 prospective teachers enrolled in teacher professional education programs in Indonesia by using a simple random sampling technique. Data were collected online using instruments adapted from previous research. The data were analysed by using covariance-based Structural Equation Modelling (CB-SEM) with the assistance of AMOS. **Findings:** The findings revealed that the model confirmed a strong relationship among the three variables. Partial regression analysis reveals that emotional intelligence influences professional identity and teaching creativity, while professional identity influences teaching creativity. Nevertheless, the full model analysis revealed a contrary result that emotional intelligence could not directly enhance teaching creativity. Emotional intelligence must be accompanied by a strong professional identity to boost creativity in teaching effectively. These results suggest that professional identity functions as a full mediator in the relationship between emotional intelligence and teaching creativity. **Conclusions:** Efforts to enhance teaching creativity should focus not only on developing emotional intelligence but also on strengthening professional identity. This identity comprises several components, including cultural knowledge, blending, interpersonal skills, and active engagement in the professional community. Neglecting professional identity may hinder improvements in teaching creativity, even if emotional intelligence is high. Stakeholders should prioritise both aspects to cultivate creative educators.

Keywords: teaching creativity, emotional intelligence, professional identity, SEM, teacher.

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INTRODUCTION

Teachers have a significant role in the process of students' learning. They are expected to possess strong pedagogical skills and to effectively utilize appropriate methods, media, models, and approaches in collaborative learning (Mubarok, Anif, & Prayitno, 2024; Suranto, Mafariha, & Fuadi, 2024). Zak-Doron & Perry-

Hazan, (2024) stated that teachers fulfil various essential roles. Beyond their responsibilities as educators, teachers must demonstrate high levels of creativity in teaching, including serving as regulators in the classroom who facilitate and bridge relationships among students.

Teacher creativity is a crucial factor in providing an engaging learning experience; however, many teachers who are expected to be creative do not yet fully understand the concept of creativity itself (Tran, Ho, Mackenzie, & Le, 2017). This may be influenced by the low self-efficacy of teachers, which impacts their creativity (Huang, Chi-Kin Lee, & Yang, 2019), social learning environment (Widyastuti, Hadi, Daryono, & Samad, 2023), and an understanding of the importance of creativity itself. Therefore, it is crucial for teachers to recognise teaching creativity as an integral aspect of their professional role identity (B. Chen & Huang, 2024). In fact, teacher candidates recognise that creativity plays a significant role in their daily lives (Tok, 2012). In other words, teacher creativity is a crucial factor that should be continually developed and maintained by teachers throughout their professional lives.

Teacher creativity significantly influences the learning process, including aspects such as teacher behavior within the school environment (Huang et al., 2019), physical and spiritual well-being (Levanon, 2021), good professional development (Anderson et al., 2022), the ability to implement project-based learning (Zieliñska, Lebuda, Gop, & Karwowski, 2024), among other factors. Some of these factors indicate that the creativity exhibited by teachers can create a distinctive learning atmosphere, which is influenced by personal improvements. It is well-established that internal factors within teachers can significantly impact the learning environment (Amirian, Amirian, & Kouhsari, 2022). Therefore, to improve teacher creativity, it is necessary to hold workshops for teachers (Liu, Wang, Chen, & Chao, 2020). The significance of creative teachers can be a critical factor in the effectiveness of curriculum changes aimed at enhancing the quality of education in Indonesia. Panjaitan (2024) asserts that creative teachers are essential to the educational process in Indonesia.

The Componential Hypothesis of Inventiveness sets that imagination could be a comprehensive show enveloping the social and mental components vital for an person to deliver inventive work (Amabile, 2013). The basis of this theory indicates that creativity is influenced by both external factors, such as various social environmental factors, and internal factors originating from within the individual. These two components can be further broken down into various operational factors that affect an individual's creativity, including teacher creativity in the context of teaching.

Internal factors originating from within an individual can significantly influence creativity. Notably, self-beliefs are among these key factors (Holinger & Kaufman, 2024), positive psychological capital and sense of self-respect (Xu, 2024), self-efficacy (Suherman, 2024), spiritual leadership (Xu, 2024), professional identity (Su, Zhang, Li, Pu, & Shang, 2024; Wang & Dai, 2024), motivation (Zhang, Wang, & Su, 2024), and emotional intelligence (Alsharari & Alshurideh, 2020; Altinay, Kinali Madanoglu, Kromidha, Nurmagambetova, & Madanoglu, 2021; Salavera et al., 2017). Additionally, creative teachers are those who demonstrate high levels of innovation in their teaching methods and are capable of enhancing creativity within the learning process (Desmet & Sternberg, 2024). Conversely, there are various external factors that influence teachers' creativity in teaching. Greenier, Fathi, & Behzadpoor (2023) assert that creativity is influenced by factors such as school climate, enthusiasm in teaching, and knowledge sharing (Arif, Qaisar, & Kanwal, 2022) & metacognition.

Creativity is influenced by a variety of internal and external factors, which interact to either foster or inhibit the creative process. Internally, cognitive traits such as divergent thinking, intrinsic motivation, and openness to experience play crucial roles. Divergent thinking enables individuals to generate multiple solutions to a problem, while intrinsic motivation drives creative endeavors through passion and interest, rather than external rewards (Amin & Wang, 2024). Emotional intelligence also serves as an internal factor by helping individuals manage their emotions effectively, enabling clearer thought processes and reducing anxiety during creative tasks (Xu, Liu, & Pang, 2019). Furthermore, personality traits like openness to new experiences have been consistently linked with creative output, as such individuals are more likely to engage with novel ideas and challenge conventional norms (Xu et al., 2019).

Externally, the environment in which an individual operates can either stimulate or stifle creativity. A supportive organizational culture, access to diverse perspectives, and collaborative platforms are some of the external factors that encourage creativity (Amin & Wang, 2024). For instance, work environments that promote autonomy, provide constructive feedback, and minimize excessive external pressures, such as rigid deadlines or criticism, can enhance an individual's creative capacity . Additionally, social and cultural factors, such as exposure to diverse viewpoints or engaging in interdisciplinary collaboration, contribute to creativity by expanding one's cognitive framework and encouraging the exploration of new ideas . These internal and external factors together create a dynamic context in which creativity can flourish or be constrained.

Emotional intelligence is a key internal factor in enhancing teacher creativity in teaching. Emotions themselves are generally categorized into two types: negative and positive emotions (Johnston, McEvoy, Gross, Becerra, & Preece, 2024) each of which can have distinct impacts on the actions taken. Moreover, teachers with high emotional intelligence are likely to enhance their creativity, passion for pedagogy, and success across various areas of teaching, including academic achievement (Zhi & Wang, 2023). Nevertheless, the role of emotional intelligence, when considered individually, does not exert a sufficiently significant influence on enhancing teachers' teaching creativity. Other contextual factors can diminish or hinder the improvement of teaching creativity, even if a teacher possesses strong emotional intelligence.

As previously mentioned, professional identity is a crucial component in the development of creativity. It refers to an individual's perception of themselves as a professional and addresses the question, "Who am I?"(Schwartz, Luyckx, & Vignoles, 2011). Meanwhile, White & Groves (2023) emphasized that existential questions, which permeate everyone's lives, affect both self-perception and how others perceive us. Research has demonstrated that identity influences various factors, including an individual's performance in a particular job (Bennett & Chong, 2018; Tao et al., 2023; Zhu & Qi, 2018).

However, these factors do not always have a direct effect on enhancing teacher creativity. Changes in one factor typically influence other factors first before ultimately increasing creativity. Positive psychological capital and self-esteem serve as mediators in the relationship between spiritual leadership and student creativity (Xu, 2024). Meanwhile, mental strength acts as a mediator that facilitates the enhancement of creativity through collective thriving factors (Zhao, Wang, Han, & Huang, 2024).

Unlike previous studies, this research emphasizes the importance of professional identity as a construct that bridges the relationship between variables, thereby enhancing teachers' creativity in teaching. Professional identity is a

significant element that is increasingly recognized as a mediating variable in various contexts. Professional identity mediates the relationship between several factors, particularly in conjunction with technological advancements (Lai & Jin, 2021), success (Wang & Dai, 2024), and learning engagement (Liao, Xie, Ou, Yang, & Zou, 2024). Moreover, professional identity serves as a mediating factor between emotional intelligence and creativity (Su et al., 2024). This observation suggests that enhancing teacher creativity through internal factors is not achieved by increasing a single factor in isolation, but rather through a combination of various interconnected elements within individuals. Improving one aspect can lead to the enhancement of other related aspects, which subsequently fosters further improvement. Therefore, it is crucial to evaluate a model that examines how emotional intelligence, mediated by professional identity, contributes to increasing teacher creativity among prospective teachers.

This research aims to test four hypotheses. The first alternative hypothesis (1) posits that emotional intelligence significantly influences professional identity. The second alternative hypothesis (2) suggests that emotional intelligence significantly affects teaching creativity. The third alternative hypothesis (3) asserts that professional identity impacts teaching creativity. The fourth alternative hypothesis (4) proposes that professional identity serves as either a full or partial significant mediator between emotional intelligence and teaching creativity.

METHOD

Participants

The study included 170 prospective teachers from various fields of study who were participating in the teacher professional education (PPG) program selected by using simple random sampling. The sample consisted of 18.12% male and 81.8% female respondents. The sample size was determined based on the minimum sample size guidelines proposed by Hair (2020), which suggest a range of 100 to 200 respondents.

Research design and Procedures

This research is a quantitative study using a structural equation modeling (SEM) correlation design. The model, which is built based on theory and previous research findings, is tested using covariance-based SEM with the help of AMOS software. The study begins by developing a model based on theory, constructing/adopting existing instruments, collecting data through an online survey, performing model analysis, revising the model (if necessary), conducting model fit analysis, and performing a mediation test. The research concludes with an interpretation of the findings in a practical context.

Instruments

All instruments employed a Likert scale. For measuring Emotional Intelligence (EI), the research incorporated the instrument developed by (Sterrett, 2000). The instrument consists of several indicators namely self-awareness, self-management, social awareness, relationship management. Sample questions included, 'I readily admit mistakes and apologize' and 'I am adept at managing my moods and refrain from bringing negative emotions to work.' The number of questions is 20 items.

The measurement of Professional Identity (PI) was conducted using the instrument developed by (Syah et al., 2022). This instrument includes five components; however, only four components were utilized in this study as one component is specifically designed for accounting teachers. The four factors used are Cultural Knowledge, Blending, Inter-Personal Skills, and being Active in Professional Communities. Sample questions include: "I can adapt quickly," "I always consider local cultural wisdom and school culture in learning," among others.

The Teaching Creativity (TC) construct was measured using thirteen questions from the

instrument developed by (Apak, Taat, & Suki, 2021). The instrument includes several indicators namely appropriates, management support, change efficacy, personality beneficial, perceived usefulness, perceived ease of use, facilitating conditions, and attitude toward technology. Some of the questions included are: "I do not give my view immediately on students' ideas, whether I agree or disagree with them" and "I help students who experience failure to cope with it so that they regain their confidence".

The instruments were tested by measuring factor loadings with a minimum value of 0.40. Recommended cutoff values for factor loadings can vary, ranging from 0.40 to 0.70. Although there is consensus among statisticians, these criteria can differ among references due to their subjective nature (Hair et al., 2020; Schumacker & Lomax, 2015). The results of the CFA analysis indicated that all manifest items were eligible for use in the analysis. The Cronbach's alpha values for the Emotional Intelligence instrument were 0.802, for Professional Identity 0.846, and for Teaching Creativity 0.918. Therefore, all instruments are considered acceptable with a minimum value of 0.70.

Data Analysis

This study is associative research with a CB-SEM approach. The research procedure consists of five SEM stages: 1) model development based on theory, 2) constructing the path diagram, 3) selecting the type of input matrix and estimating the proposed model (maximum likelihood), 4) identifying the structural model (with a minimum factor loading of 0.40), and 5) evaluating model fit based on goodness-of-fit criteria. Data analysis was conducted using maximum likelihood estimation with the following goodness-of-fit criteria:

Table 1. Goodness of fit criteria

Model-Fit Criterion	Cut-Off
Chi-square	Compares obtained $\chi 2$ value with tabled value for given df (can be obtained from AMOS)
GFI	Close to .90 or .95
AGFI	Close to .90 or .95
RMR	Indicates the closeness of Σ to S matrices
SRMR	less than .05
RMSEA	.05 to .08
TLI	Close to .90 or .95
NFI	Close to .90 or .95
PNFI	Compares values in alternative models

The research follows the mediation concept by Hair, et al (2020). The intervening relationship is made when a third variable/construct mediates between two other related builds. There are two classifications of intercession specifically total intervention and fractional intercession. When the mediating constructs completely explains the relationship between the two original construct, this condition is complete mediation. Conversely, if there is still some relationship between the two original constructs, the mediation is partial.

There are two steps in the mediation test (Hair et al, 2020). Firstly, Establish the individual relationship, it means testing the direct relationship test between EI on TC, EI on PI, and PI on TC. Secondly, estimate an initial model with only the direct relationship then estimate the second model adding in the mediation variable. There are three

rules in this measure: (a) If the relationship between EI on TC remains significant and largely unchanged once PI is included, the mediation is not supported, (b) If the relationship EI on TC is reduced but remains significant when PI is included as an additional predictor, then partial mediation is supported, (c) If the relationship EI on TC is reduced to a point where is not statistically significant after PI is included as a mediating construct, then the full mediation is supported. Based on the analysis of model estimation and goodness-of-fit, results can be determined by examining the regression weights, factor loadings, and values appearing on the three fit model criteria: absolute, incremental, and parsimonious fit indices).

■ RESULT AND DISCUSSION

Data Description and Assumption Test

Data collected through the online form revealed the following diversification of respondent genders.

Table 2. Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	31	18.2	18.2	18.2
	Female	139	81.8	81.8	100.0
	Total	170	100.0	100.0	

Table 2.1. Academic background

No	Academic Background	Percent
1	Elementary School Education	48.9%
2	Moral Education	17.7%
3	Bahasa Indonesia Education	12.4%
4	English Education	8.6%
5	Mathematic Education	8.1%
6	Biology Education	2.2%
7	Information Technology Education	2.2%

Table 2 shows that 81.8% of respondents are female. Statistically in Indonesia, the majority of prospective teachers are female. While table 2.1 reveals almost half respondents are from elementary school education. The univariate normality test results indicate that the skewness and kurtosis values for each manifest variable are within the normal range, i.e., less than 2 (Hair et al., 2020). However, the multivariate normality value was 24.049, necessitating the removal of some respondents with high outliers. The structural equation modelling request the multivariate normality to ensure that the data analysis will provide the valid result of the model. Therefore, once the multivariate normality is not reached, the mahalanobis distance test is needed to eliminate some outlier respondents. The outliers might impact on biased in the final result so that the removal is essential. The Mahalanobis distance results revealed that 11 respondents needed to be excluded from the analysis due to having a p-value of 0.005 or less.

Table 3 indicates that respondents with observation numbers listed above need to be eliminated from the full structural model analysis. A p-value of 0.005 or less signifies that the data are outliers. The next assumption analysis, linearity assessment, demonstrates a linear relationship between variables with a linearity value of 0.000. Multicollinearity is not a concern as there is only

Table 3. Mahalanobis distance

Observation number	Mahalanobis d-squared	p1	p2
100	73.647	.000	.010
72	72.307	.000	.000
32	71.342	.000	.000
20	68.660	.000	.000
155	67.131	.000	.000
16	62.188	.002	.000
43	60.996	.002	.000
38	59.833	.003	.000
34	59.789	.003	.000
108	59.298	.003	.000
55	58.922	.004	.000
47	57.338	.005	.000

one exogenous variable, while the heteroscedasticity test results conclude that there is no heteroscedasticity, as the points are perfectly dispersed throughout the graph.

Partial Regression Analysis (Hypothesis 1,2, and 3)

The partial analysis examines the individual effects between constructs. This analysis is necessary to assess the influence between constructs before introducing the mediator variable into the model. The partial regression analysis separately tests the impact of emotional intelligence (EI) on teaching creativity (TC), emotional intelligence (EI) on professional identity (PI), and professional identity (PI) on teaching creativity (TC).

The regression weight value between EI and TC is 0.63, with a significance of 0.018. This indicates that any change in EI will increase TC by 0.63. Similarly, for EI and PI, any change in EI will increase PI by 0.72, with a significance of 0.000. Meanwhile, a change in PI will increase TC by 0.86, with a p-value of 0.010 (less than 0.005). This demonstrates that all the proposed alternative hypotheses are accepted, and the null hypotheses are rejected.

Full Model analysis (Hypothesis 4)

The full structural model analysis was based on a theory-driven model, using data from 170 respondents after removing outliers, resulting in an analysis dataset of 159 respondents. There are three constructs in this research namely Emotional Intelligence (EI), Professional Identity (PI), and Teaching Creativity (TC). These constructs are unobserved variables, each with their its own manifest variables. The EI construct has 8 manifest variables, while PI and TC have 12 and 13 manifest variables, respectively. The EI construct is an exogenous variable, whereas PI and TC are endogenous variables, with PI serving as a mediating variable. Using maximum likelihood estimation, the results of the model analysis are as follows:

Figure 1 presents the full model analysis based on theory and previous research findings. The standardized regression weight from Emotional Intelligence (EI) to Professional Identity (PI) is 0.737, while from PI to Teaching Creativity (TC) it is 0.94. This indicates that a change in Emotional Intelligence will lead to a 74% increase in PI, and TC will change by 94% when there is a change in PI. The analysis (see table 4.) also demonstrates that the relationship

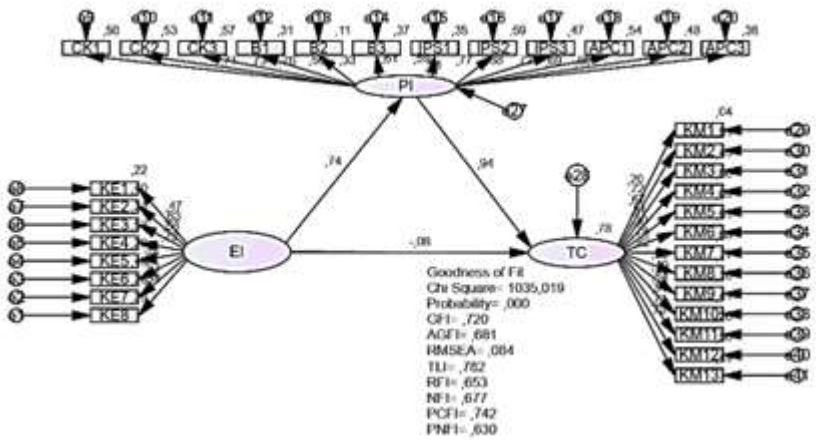

Figure 1. Full model analysis

between EI on TC become insignificant with the regression weight -0.80 after mediation variable (PI) is included.

The model demonstrates a significant relationship among the three variables. This is confirmed by the p-values, which are 0.000 (****) for EI to PI and 0.020 for PI to TC, both of which are smaller than the 0.05 threshold (see Table 4.1).

However, the results of the model also show that Emotional Intelligence (EI) does not have a direct effect on Teaching Creativity (TC). This is evidenced by a standardized regression weight of -0.08 and a p-value of 0.420, which is greater than 0.05. This indicates that even if an individual has high Emotional Intelligence, they may not necessarily exhibit good teaching creativity without also having a strong Professional Identity. Therefore, the model needs to be revised by removing the direct relationship between Emotional Intelligence (EI) and Teaching Creativity (TC).

Table 4. Standardized regression weights

			Estimate
PI	<---	EI	.737
TC	<---	EI	-.080
TC	<---	PI	.942

Table 4.1. P Value unobserved construct

			Estimate	S.E.	C.R.	P	Label
PI	<---	EI	.850	.155	5.485	***	par_32
TC	<---	EI	-.037	.045	-.806	.420	par_19
TC	<---	PI	.375	.161	2.325	.020	par_33

Figure 2 shows the results of the analysis after revising the model by removing the direct relationship between Emotional Intelligence (EI) and Teaching Creativity (TC). The standardized regression weight from EI to Professional Identity (PI) is now 0.728, while the regression weight from PI to TC is 0.88 (see table 5.). The regression weight in this model is lower than in the original model; however, the p-value remains significant.

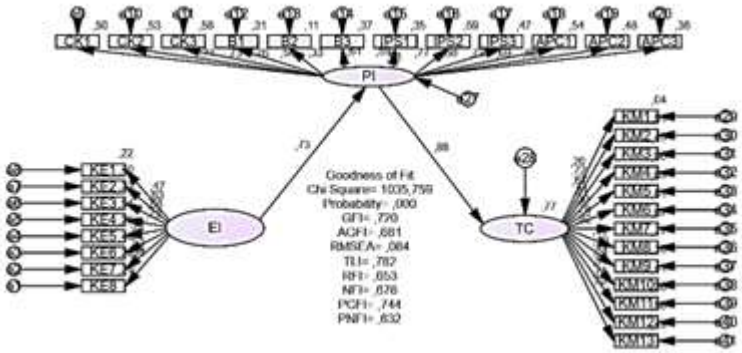

Figure 2. Revised full model analysis

Table 5. Standardized regression weights revised model

			Estimate
PI	<---	EI	.728
TC	<---	PI	.880

Table 5.1. P Value unobserved construct revised model

			Estimate	S.E.	C.R.	P	Label
PI	<---	EI	.842	.154	5.452	***	par_31
TC	<---	PI	.351	.148	2.364	.018	par_32

The results of the P Value analysis in Table 5.1 also show that the P Value of emotional intelligence and professional identity in teaching creativity are 0.000 and 0.018 respectively. Although the regression weights have decreased compared to the previous model, the goodness-of-fit of the revised model has improved, though the change is not substantial. Therefore, the regression weight of the relationships between variables in this revised model indicates a strong and significant relationship.

The analysis of the revised model fit is shown in Table 6, indicating that all criteria are met except for the chi-square statistic. The high chi-square value of 1035.759 with a probability level of 0.000 suggests a poor fit. However, Hair et al. (2020) note that the chi-square statistic is highly influenced by the sample size, with larger

Table 6. Fit Model analysis of revised model

Model-Fit Criterion	Results	Interpretations
Chi-Square	1035.759	Not Fit
GFI	0.720	Acceptable Fit
AGFI	0.681	Acceptable Fit
SRMR	0.0712	Acceptable Fit
RMSEA	0.084	Acceptable Fit
TLI	0.782	Acceptable Fit
NFI	0.676	Acceptable Fit
PNFI	0.632	Acceptable Fit

samples making it more difficult to achieve a good fit. Therefore, it is important to consider other fit criteria. Based on this, the revised model demonstrates an acceptable fit overall.

The results indicating the influence of Emotional Intelligence, Professional Identity, and Teaching Creativity reflect a model aimed at enhancing teacher creativity. The model, which positions Professional Identity as a mediator between Emotional Intelligence and Teaching Creativity, reveals intriguing insights. The role of Professional Identity as a mediator between these two variables is shown to be crucial. The insignificant regression weight of Emotional Intelligence in Teaching Creativity suggests that Emotional Intelligence alone is not sufficient.

Mediation Test

The results of the full model analysis indicate that the relationship between emotional intelligence (EI) and teaching creativity (TC) is not significant. Consequently, the model was revised by removing the direct relationship between these variables. A mediation test analysis is necessary to determine whether professional identity acts as a partial mediator or a full mediator.

Table 7. The summary of direct relationship (initial and final model)

No	Relationship	Initial Model (Without mediation in (the) model)		Structural Model (after mediation added in (the) model)		Final Model (EI on TC is reduced)	
		Estimate	P Value	Estimate	P Value	Estimate	P Value
1.	EI on TC	0.632	0.018	-0.037	0.420	-	-
2.	EI on PI	0.718	0.000	0.850	0.000	0.842	0.000
3.	PI on TC	0.864	0.010	0.375	0.020	0.351	0.018

Table 7 shows the individual effects between the constructs tested, namely EI on TC, EI on PI, and PI on TC. In the initial model, each relationship examined demonstrated a significant effect, with all alternative hypotheses accepted. However, after introducing PI as a mediator variable in the full model, the influence of emotional intelligence (EI) on teaching creativity (TC) became insignificant. Therefore, the construct of professional identity (PI) plays a central role in this structural model. A mediation test was subsequently conducted following the guidelines established by Hair (2020).

The results of the mediation test analysis in Table 8 confirm that professional identity (PI) acts as a full mediator between emotional intelligence

Table 8. Comparison between the rules and the result

No	Rules	Result	Interpretation
1.	If the relationship between EI on TC remains significant and largely unchanged once PI is included, the mediation is not supported	The relationship between EI and TC changed and became insignificant after PI was added as a mediator.	Mediation supported
2.	If the relationship EI on TC is reduced but remains significant when PI is included as an additional predictor, then partial mediation is supported	The relationship between EI and TC changed and became insignificant after PI was added as a mediator	Mediation supported

3.	If the relationship EI on TC is reduced to a point where is not statistically significant~~ly~~ after PI is included as (a) mediating construct, then the full mediation is supported.	After the correlation between EI and TC was removed, EI remained significant with respect to PI, and PI remained significant with respect to TC.	Full Mediation

(EI) and teaching creativity (TC). Although individually, all three constructs have significant effects, the results differ when they are incorporated into a comprehensive structural model. Emotional intelligence (EI) no longer significantly affects teaching creativity (TC) in this model. Conversely, the role of professional identity remains quite significant. Therefore, professional identity is demonstrated to be a full mediator.

The model analysis demonstrates that Emotional Intelligence significantly affects Professional Identity, and Professional Identity significantly affects Teaching Creativity in the full model. In this context, Professional Identity acts as a full mediator between Emotional Intelligence and Teaching Creativity. This means that individuals with high Emotional Intelligence will not necessarily exhibit teaching creativity unless they also possess a strong Professional Identity. Therefore, neglecting the development of Professional Identity in teachers is a critical error if the goal is to cultivate creative teachers.

Discussion

A pleasant learning environment is a crucial factor in education. Creating engaging learning experiences requires teachers to be creative—able to respond to classroom situations with novel and appropriate actions tailored to the issues at hand. This aligns with the Component Theory of Creativity proposed by (Amabile, 2013), which asserts that merely introducing novel actions does not constitute creativity. Instead, these actions must be appropriate, correct, and contextually relevant.

Enhancing teachers' creativity in teaching is a systematic process involving various factors, both internal to the teacher and external, such as the social environment. However, Amabile (2013) emphasizes that the most significant influence on creativity comes from internal factors. Her theory identifies four components of creativity, three of which are internal factors: domain-relevant skills, creativity-relevant processes, and intrinsic task motivation. These components have various sub-factors, meaning that multiple internal factors affect teachers' creativity, including Emotional Intelligence and Professional Identity.

The structural model analysis results indicate that Emotional Intelligence can enhance Professional Identity, and Professional Identity can, in turn, improve Teaching Creativity. However, Emotional Intelligence does not directly increase teaching creativity. These findings confirm the Component Theory of Creativity, which asserts that internal factors influence teaching creativity. However, the theory does not specify how the model or pathways among these internal factors contribute to an individual's creativity.

Research examining the relationship between emotional intelligence (EI) and creativity has yielded varied findings. Some studies indicate that EI does not consistently show a significant positive correlation with creativity. For example, a meta-analysis of 96 studies, which reported a moderate correlation between EI and creativity ($r = 0.32$), found that the strength of this relationship depended on how EI and creativity were measured. In cases where EI was evaluated using ability-based tests and creativity through

objective assessments, such as divergent thinking tests, the association was weaker or non-significant compared to when subjective self-reports were used (Tong et al., 2022).

Other research suggests that in specific contexts, such as domain-specific creativity, the influence of EI may be mediated or moderated by other factors like resilience and gratitude. Thus, while some studies identify a link between EI and creativity, certain conditions—especially when creativity is assessed with specific methods—show that EI may not significantly impact creativity (Xu, Liu, & Pang, 2019; Xu et al., 2019). Therefore, it is confirmed that professional identity is one of the variable mediator between emotional intelligence toward creative teaching.

In the practical implication of this results, the emotional intelligence is still important to be enhanced because the partial regression analyis confirms that this factor signficantly impact creative teaching. However, it is also proven that professional identity has a prominent role in the model. Therefore, the profesioan teacher educational programs should test the emotional intelligence of the students as a given capital for preparing teacher. However, training emotional intelligence is somewhat difficult because it is a combination between pscycological, emotional, intelegency, and also previous experiments of the student that may be vary. Enhancing professional identity after maping the emotional intelligence will drive the creativity more effectively. The four components of PI will support the emotional intelligence to enhance creativity. The model confirms that emotional intelligence have strong positive impanct on professional identity, and porfessional identity will escalate the creative teaching in teacher. In additon, it is important to include professional identity in the curriclum of the professional teacher education program.

The structural model estimation indicates that the enhancement of teaching creativity through Emotional Intelligence and Professional Identity represents an interconnected pathway that cannot be separated. The insignificant effect of emotional intelligence on teaching creativity suggests that this factor alone does not guarantee that high emotional intelligence will result in high teaching creativity. This may be related to respondents classified as adolescents. The study results show that, at the adolescent maturity level, creativity is categorized as low, moderate, and high (Sawada, Cheung, & Takahashi, 2024). The high likelihood of low creativity among adolescents supports the finding that Emotional Intelligence alone is not a determinant of teaching creativity. However, poor Emotional Intelligence can increase burnout (Tingyu, Ruohan, & Ping, 2024) and if burnout reaches medium to high levels, it is likely to reduce an individual's creativity (Kashirskaya, Belova, & Kharkhurin, 2024). This demonstrates that emotional intelligence cannot independently influence creativity but rather interacts withfactors.

Several other studies indicate that emotional intelligence cannot have a direct impact but needs to influence other variables to enhance a specific outcome. Although the conceptual framework suggests that emotional intelligence can improve innovation, it often does so through intermediary variables rather than directly (Chin, Raman, Yeow, & Eze, 2012). Hansenne and Legrand (2012) demonstrated that creativity can enhance performance, but emotional intelligence does not have a significant direct effect on performance. However, emotional intelligence can act as a partial mediator between various variables and the transfer of learning (Oluwafemi & Ametepe, 2023). However, it is possible that this could yield different findings with a more mature respondent group, such as those aged 30 to 40 years, assuming that Emotional Intelligence is more stable at this stage.

The role of Professional Identity as a full mediator in this research underscores its importance for ongoing development to foster

creative teachers. Syah et al. (2022) highlight that the development of Professional Identity encompasses the evolution of the identity concept itself, the formulation of theories and influencing factors (A. M. H. Chen et al., 2024; Yemane et al., 2024), and the development of measurement instruments and models in a structural framework (Hu, Kong, Chen, & Luo, 2024). Various studies indicate that Professional Identity is a crucial component in the development of professionalism. Therefore, Professional Identity is frequently associated with other factors in discussions about teacher professional development.

However, this research focus on the teacher candidate in the particular major. The result may vary when future research is implemented in the different respondents in settings. It is essential to know that professional identity is one of the key factors to be considered in the developing creative teacher.

Previous research has indeed explored various factors that can enhance teaching creativity or creativity in general. However, the importance of professional identity as an intervening variable has not been sufficiently considered. Enhancing teacher creativity through the improvement of emotional intelligence, followed by the strengthening of professional identity, represents a new model that can be applied to foster creative teachers (Rahimi, Hejazi, Lou, & Heidarzadeh, 2024), while improving work quality requires both emotional intelligence (Gao, Zhao, Du, Hao, & Wang, 2024) and professional identity (Phillips & Priddy, 2023). Being a teacher often involves facing situations that demand a high degree of emotional maturity, such as managing difficult-to-control students, dealing with overly active students, and so on. This indicates that without strong emotional intelligence, teachers may experience burnout (J. Chen, Lin, & Lin, 2024) which could lead to scepticism, neglect, or even resignation. Therefore, the development of teacher professionalism, particularly in terms of teaching creativity, must comprehensively consider these two key factors: emotional intelligence and professional identity.

Based on the findings of the research, which identifies professional identity as a mediating variable between emotional intelligence and teachers' creativity, future theoretical developments should consider expanding Amabile's Componential Theory of Creativity by incorporating professional identity as a core component. This extension would provide a deeper understanding of how intrinsic factors, such as a teacher's sense of identity and commitment to their profession, interact with emotional intelligence to influence creative outcomes. Given that professional identity shapes how educators view their roles and responsibilities, it likely strengthens the internal motivation and contextual adaptability critical for creative problem-solving. Incorporating this mediating role of professional identity could enhance the theory's applicability in educational settings and other professions where identity formation plays a pivotal role in creative output. This revision could also open new avenues for interventions aimed at fostering creativity through the development of both emotional intelligence and professional identity in individuals.

In the practical context, the government should assist the development of the professional identity among teacher candidate. Besides nurturing the emotional intelligence of the pre-service teacher, the components of the professional identity must be highlighted such as Cultural Knowledge, Blending, Inter-Personal Skills, and being Active in Professional Communities. All these factors must be included in the curriculum of prospective teacher by doing some project or internship with the special objectives.

CONCLUSION

Education is constantly confronted with various recurring challenges, one of which is the persistent issue of low teacher creativity in teaching. This problem contributes to a high level of student boredom in the classroom. Enhancing teacher creativity in teaching must be approached comprehensively, involving various factors, including those identified in this study: teacher emotional intelligence and professional identity. The first and foremost step is to assess emotional intelligence, followed by the enhancement of professional identity, ultimately leading to an increase in teacher creativity in teaching. Possessing strong emotional intelligence alone does not significantly contribute to the improvement of teacher creativity. The findings of this study, which show no direct impact of emotional intelligence on teaching creativity in the comprehensive model, serve as evidence that this factor must first be accompanied by the development of another factor namely professional identity. The combination of these two factors can significantly enhance teacher creativity in teaching, which will eventually have a positive effect on the overall learning environment. Therefore, teachers must indeed be professional, and one aspect of professionalism is being creative in teaching. Creative teachers can be cultivated by possessing strong emotional intelligence and a well-developed professional identity.

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