

The Role of Professional Identity in Mediating Self-Directed Learning's Influence on Teaching Creativity

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Abstract

The purpose of this research is to ascertain how Professional Identity (PI) in mediating the connection between Self-Directed Learning (SDL) and Teaching Creativity (KM). A quantitative method and path analysis were employed to gather data via an online survey from 170 students enrolled in the Teacher Professional Education Program (PPG) at Muhammadiyah University of Surakarta. SDL acted as the independent variable, PI functioned as the mediator, and KM was designated as the dependent variable. The findings indicate that SDL is a strong predictor of PI (0.611, $p < 0.001$), and PI is a strong predictor of KM (0.697, $p < 0.001$). Nonetheless, once PI is incorporated into the model, the direct influence of SDL on KM turns statistically insignificant (0.073, $p = 0.259$), suggesting complete mediation. This indicates that SDL affects KM solely by influencing PI students with strong SDL abilities often cultivate a stronger PI, which subsequently enhances teaching creativity. These results indicate that SDL by itself is inadequate for improving KM establishing a solid professional identity is crucial. Consequently, teacher education programs must not only foster independent learning abilities but also enhance PI to promote innovative and creative teaching methods.

Keywords: Self-Directed Learning, professional identity, teaching creativity, professionalism, innovation

Introduction

Education is a conscious and planned effort to create a learning atmosphere and learning process. Students can actively develop their potential to possess spiritual strength, self-control, personality, intelligence, noble character, and the skills required by themselves, society, the nation, and the state (Makkawaru, 2019). Learning can be enjoyable by discovering appropriate learning strategies or techniques, which can be found through teachers' creativity (Wajdi et al., 2021).

Creativity involves developing good old ideas and transforming them into better new ideas, making them a new and improved discovery (muhamad Iqomudin, 2022). According to (Firdausi, 2020), teaching creativity (KM) refers to a teacher's ability to create something new or develop existing ideas to provide knowledge to students in schools. KM is a complex, multifaceted process that requires strategies designed to maintain and increase student engagement (Lee, 2023). Several factors influence teachers' teaching creativity (KM), including teacher discipline, the completeness of facilities and infrastructure, teacher intelligence, educational level, and teaching skills (Ngongo, 2020). (Dewi, 2015) emphasizes that teacher professionalism is a critical determinant of teaching quality, as it involves both expertise and the motivation to apply that expertise effectively.

In an era characterized by rapid technological advancements, global connectivity, and complex challenges, fostering creativity is essential. (Desmet & Sternberg, 2024) argue that traditional approaches to creativity which focus mainly on generating new and useful ideas need further enhancement to address increasingly complex educational challenges.

One approach that supports KM is Self-Direction Learning (SDL). SDL refers to students' traits, attitudes, and abilities to engage in learning independently or with the help of others, motivated by their own goals to master specific competencies applicable in real-world problem-solving (Handayani, 2017). (Sidmewa et al., 2021) highlight that One effort to address learning model that aligns with students' characteristics and lesson content Self-Directed Learning (SDL) model. In line with this, (Herati, 2021) elaborates the implementation of the self-directed learning model includes identifying students' needs and abilities, creating learning plans, and selecting appropriate learning methods and resources; implementation utilizes varied strategies suitable for learners' circumstances, with tutors directly supervising WhatsApp, activity books, or face to face meetings; and evaluation is conducted to assess both the ongoing learning process and the final learning outcomes. (Rasyid, 2021) notes that successful Self-Directed Learning (SDL) can lead to behavioral changes and improved learning outcomes.

In the context of SDL, teachers play a critical role as facilitators who design, guide, and evaluate learning experiences according to students' needs. This role is closely tied to their Profesional Identity (PI) which reflect how they define themselves and their roles within the profession. (PUTRI, 2022) highlighted that PI can be seen as a process of interpreting and reinterpreting teaching experiences, encompassing four dimensions: teaching beliefs, professional skills, professional integration, and career progression. Thus, the professionalism of teachers is essential for attaining successful learning results and creating a knowledge-driven school atmosphere, necessitating expertise in teaching, curriculum, and human resource development, along with understanding learning styles. (Ummah, 2021) states that assessing a teacher's capability requires more than just examining their experience, title, or educational qualifications; it should also include their maturity, teaching abilities, expertise, and passion for the job. A robust PI not only boosts teacher confidence and dedication to professional values but also enhances their ability to translate learning into creative teaching methods that correspond with SDL principles.

While SDL and PI have been explored regarding KM, research on PI's mediating effect between SDL and KM is scarce, especially among pre-service teachers in Indonesia. This represents a notable void in research. Grasping this mediation may assist teacher education programs in more effectively incorporating SDL and the development of professional identity, which could enhance creativity in teaching.

Consequently, this research intends to explore the mediating function of PI in the connection between SDL and KM among learners in the Teacher Professional Education Program (PPG) at Muhammadiyah University of Surakarta. Determining if PI acts as a complete or partial mediator will aid in theoretical advancement and practical approaches to boost teacher creativity.

Method

Participants

The participants in this study were students of the Teacher Professional Education Program (PPG) at Muhammadiyah University of Surakarta. Data collection was conducted by distributing a questionnaire in the form of a Google Form. A total of 170 respondents provided information related to the variables in this study.

Research Design

This study employed a quantitative research method using the path analysis approach. This independent variable is Self-Directed Learning (SDL), the mediating variable professional identity (PI) and the dependent variable is teaching creativity (KM). The research process involved several stages: developing the model based on theory, designing the necessary

instruments, collecting data through questionnaires, analyzing the model, testing model fit, and examining the mediation effect.

Instrument

The data for this study were collected through a survey using a questionnaire with a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). The information for this research was gathered via a survey utilizing a questionnaire that featured a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Participants evaluated statements reflecting various aspects of each research variable: Teaching Creativity (KM) as the dependent variable, Professional Identity (PI) as the mediating variable, and Self-Directed Learning (SDL) as the independent variable.

SDL was assessed through 12 statement items encompassing three dimensions: learning independence, time management, and self-evaluation, adapted from (Handayani, 2017) with modifications for the PPG student context. PI was assessed with 12 items focusing on commitment to the professional role, professional values and ethics, and self-assurance as a professional, based on (PUTRI, 2022). KM was assessed through 9 items relating to teaching adaptability, student involvement, and innovative pedagogy, modified from (Firdausi, 2020) and (Lee, 2023).

Content validity was verified via expert evaluation by three educators specializing in educational psychology and professional development for teachers. Construct validity was assessed through Confirmatory Factor Analysis (CFA), with all factor loadings exceeding 0.50, signifying adequate convergent validity. Reliability assessment using Cronbach's Alpha produced results of 0.89 for SDL, 0.91 for PI, and 0.87 for KM, all surpassing the minimum criterion of 0.70 (Kerlinger, 2006).

To analyze the mediating function of PI, a three-step mediation analysis was performed: analyzing the impact of SDL on KM, evaluating the influence of SDL on PI, and determining the effect of PI on KM while accounting for SDL. The importance of the mediation effect was assessed by employing the bootstrapping technique to evaluate indirect effects. The results are anticipated to offer perspectives on how bolstering PI can improve KM via SDL, thus aiding in the advancement of teacher professionalism and innovative learning.

Data Analysis

Path analysis can be used to evaluate the relationship between self-directed learning (SDL) as the independent variable, professional identity (PI) as the mediating variable, and teaching creativity (TC) as the dependent variable. This method allows for the analysis of both direct and indirect effects of SDL on KM through PI. The analysis is conducted using statistical software such as AMOS or SPSS, starting with basic assumption tests.

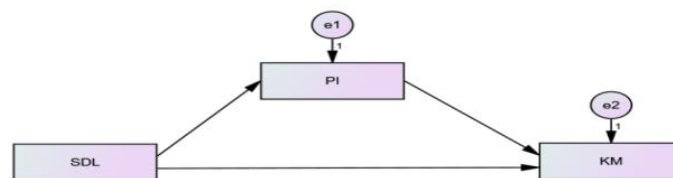


Figure 1. Figure 1. Path Analysis Model Showing the Mediating Role of Professional Identity Between Self-Directed Learning and Teaching Creativity

In the figure above, there are three variables:

Independent Variable (X): Self-Directed Learning (SDL)

Mediator Variable: Professional Identity (PI)

Dependent Variable (Y): Teaching Creativity (KM)

The analysis process begins with developing a theoretical model that illustrates the relationship between these three variables. Next, assumption tests such as multicollinearity and normality are conducted to collect data, along with a questionnaire using a Likert scale. After that, the significance of the relationships between variables is tested through significance testing. To ensure model fit, various fit indices are used. Finally, the results are interpreted to determine whether the model is appropriate.

Path analysis in this study is used to identify not only the direct effect of SDL on KM but also how professional identity (PI) functions as a mediating variable. A mediation relationship occurs when the mediator variable acts as a bridge between two other variables. The analysis results also determine the type of mediation: if the entire effect of SDL on KM is explained by PI, with no direct influence of SDL on TC, then it is considered full mediation. However, if SDL still has a significant direct effect on KM while PI also partially mediates the relationship, it is considered partial mediation.

Results

Data Description and Assumption Test

The majority of questionnaire respondents were female, with a total of 139 students (81.8%), while male respondents accounted for 31 students (18.2%). Based on the data collected from 170 students, the majority of responses were from female students. The data can be presented as follows:

Table 1 Respondents Gender

Deskriptive		Number Of Respondents	Persentase
Gender	Male	31	18,2%
	Female	139	81,8%
	Total	170	100%

Table 1 presents a breakdown of the number of respondents by gender, with a total of 170 participants—81.8% female and 18.2% male. In analyzing this data, the imbalance between female and male respondents does not affect the validity of this research. According to Kerlinger (2006), differences in the number of respondents between groups are not a major issue as long as the data remains representative of the studied population.

Table 2 Academic Background

No	Study Program	Respondents
1	Informatics engineering education	4 Participants
2	Biology education	4 Participants
3	Mathematics education	13 Participants
4	English Language Education	15 Participants
5	Indonesian language education	21 Participants
6	Citizenship education	30 Participants
7	Primary school teacher education	83 Participants

In addition, the differences in respondent numbers, stemming from the inclusion of participants from seven distinct academic programs, represent a critical factor that must be taken into account when analyzing the overall results of the study. Table 2 illustrates this

distribution, showing that the majority of responses came from the Primary School Teacher Education program, with 83 participants, making it a dominant factor in the analysis by study program. The lowest number of respondents came from the Informatics Engineering Education and Biology Education programs, with only four respondents each.

The fundamental assumptions in this analysis include a normality test on data distribution based on gender and study programs to ensure that the data can be analyzed using appropriate statistical techniques. Given the respondent imbalance, with female students and the Primary School Teacher Education program dominating the sample, Suparno (2012) suggests that: *"In the context of education in Indonesia, the teaching profession is particularly attractive to women due to its stability, flexible working hours, and the opportunity to balance professional and household responsibilities."*

Therefore, a homogeneity test is conducted to confirm that the respondent distribution does not significantly affect the research results. This assumption test provides a basis for evaluating whether the gender imbalance and study program distribution are acceptable within the context of this study.

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

Partial regression analysis was conducted to assess the direct relationships between variables before considering the mediating effect of Professional Identity (PI). The variables analyzed include the direct effect of Self-Directed Learning (SDL) on Teaching Creativity (KM) (without the PI mediator), the effect of Self-Directed Learning (SDL) on Professional Identity (PI), and the effect of Professional Identity (PI) on Teaching Creativity (KM). Effect of Self-Directed Learning on Teaching Creativity (Without PI Mediator) Before introducing the mediator variable (PI) into the model, SDL had a significant direct effect on KM. The regression weight was 0.499, with a p-value of 0.000, indicating that every one-unit increase in SDL leads to an increase of 0.499 in KM. Effect of Self-Directed Learning on Professional Identity The analysis results show that the regression weight between SDL and PI is 0.611, with a p-value of 0.000. This means that every one-unit increase in SDL results in a 0.611 increase in PI. Since the p-value is below 0.05, this relationship is statistically significant. These findings indicate that SDL has a positive and significant contribution to the development of professional identity. Effect of Professional Identity on Teaching Creativity The relationship between PI and KM shows a regression weight of 0.742, with a p-value of 0.000. This means that every one-unit increase in PI leads to an increase of 0.742 in KM. With such a low p-value, this relationship is also statistically significant. These results further reinforce the role of PI as an important factor influencing teaching creativity.

Full Model Analysis (Hypothesis 4)

This study analyzed data from 170 students who participated as respondents. It involved three main variables: Self-Directed Learning (SDL) as the independent variable (X), Professional Identity (PI) as the mediating variable, and Teaching Creativity (KM) as the dependent variable (Y).

This hypothesis examines both the direct effect of SDL on KM and the indirect effect through PI as a mediator. The analysis was conducted to determine the extent to which SDL, which reflects students' ability to learn independently, influences KM as an indicator of creative teaching abilities, with PI playing a role in strengthening or bridging this relationship.

The results of the analysis will provide insights into the importance of developing SDL and PI in supporting students' teaching creativity.

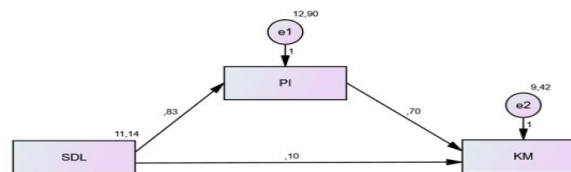


Figure 2. Figure 2. Structural Equation Model Indicating the Mediating Role of Professional Identity Between Self-Directed Learning and Teaching Creativity

According to the complete model illustrated in Figure 2, the connection from Self-Directed Learning (SDL) to Professional Identity (PI) was notable ($\beta = 0.831$, $p < 0.001$), as was the connection from PI to Teaching Creativity (KM) ($\beta = 0.705$, $p < 0.001$). At the same time, the direct impact of SDL on KM was minimal and not statistically significant ($\beta = 0.101$, $p = 0.259$), suggesting that the connection is mostly mediated by PI.

The numeric figures shown above the circles denoting the error terms in Figure 2 (for instance, 11.14 for SDL, 12.90 for PI, and 9.42 for KM) reflect the error variance associated with each construct. These figures indicate the extent of variance in each variable that remains unexplained by its predictors, aiding in preventing misinterpretation as path coefficients, averages, or unrelated metrics. These results highlight the vital function of PI in connecting SDL's influence on teaching creativity, stressing its significance in promoting more innovative and efficient teaching methods.

Table 3. Standardized Regression Weights

				Estimate
PI	<---	SDL		,611
KM	<---	PI		,697
KM	<---	SDL		,073

The results in Table 3 illustrate the relationships between variables in the model using standardized regression coefficients. Self-Directed Learning (SDL) has a significant effect on Professional Identity (PI) with a coefficient of 0.611, indicating that the stronger a student's self-directed learning ability, the more developed their professional identity becomes. In turn, PI strongly influences Teaching Creativity (KM) with a coefficient of 0.697, demonstrating that a well-established professional identity significantly enhances teaching creativity. However, the direct effect of SDL on KM is relatively small, with a coefficient of 0.073, suggesting that the impact of SDL on KM occurs mainly through PI as a mediator.

Table 4 Regression Weights

			Estimate	S.E.	C.R.	P	Label
PI	<---	SDL	,831	,083	10,043	***	par_1
KM	<---	PI	,705	,066	10,727	***	par_2
KM	<---	SDL	,101	,089	1,129	,259	par_3

Further details presented in Table 4 include unstandardized coefficients, standard errors (S.E.), critical ratios (C.R.), and significance levels (P-values). SDL significantly influences PI with an estimate of 0.831, a C.R. of 10.043, and a p-value < 0.001. Similarly, PI significantly affects KM with an estimate of 0.705, a C.R. of 10.727, and a p-value < 0.001. However, the direct effect of SDL on KM is not statistically significant, with an estimate of 0.101, a p-value of 0.259, and a C.R. of 1.129. These findings indicate that SDL contributes to TC indirectly through PI, reinforcing the crucial role of PI as a significant mediator in this model.

Mediation

The mediation analysis results indicate that the direct influence of Self-Directed Learning (SDL) on Teaching Creativity (KM), which was significant at first, turns non-significant (p-value = 0.259) once Professional Identity (PI) is included in the model. Conversely, the association between SDL and PI ($p < 0.001$) and the link between PI and KM ($p < 0.001$) continues to be significant. This indicates that PI completely mediates the connection between SDL and KM, meaning SDL impacts KM entirely via PI.

This discovery indicates that possessing strong self-directed learning abilities by themselves is insufficient to enhance creativity in teaching. These skills must be supported by a robust professional identity, which includes a solid grasp of the teacher's role, self-assurance in teaching skills, and dedication to professional principles. When students cultivate both SDL and PI, they are more inclined to utilize innovative and creative teaching approaches in the classroom.

In summary, to enhance teaching creativity, teacher education programs should focus on training students for independent learning while also supporting the development of a strong professional identity. This can be achieved by engaging in reflective practice, participating in professional communities, and seeking advice from seasoned mentors.

Discussion

This study highlights the importance of Professional Identity (PI) as a mediator in the relationship between Self-Directed Learning (SDL) and Teaching Creativity (KM). This aligns with the findings of (Lestari & Rosmayasari, 2023), who stated that the development of professional identity in prospective teachers is strongly linked to their learning experiences, professional communities, and teaching skills training. This process also impacts the improvement of student learning quality. Based on Law No. 14 of 2005 concerning Teachers and Lecturers, Article 10 (Paragraph 1), "Teacher competencies include pedagogical competence, personality competence, social competence, and professional competence, which are acquired through professional education." According to (Adib Bisri Mustofa & Rofiatul Hosna, 2023). Self-directed learning is a learning approach that considers students' unique learning styles and grants them autonomy in planning their learning, determining learning activities, monitoring progress, and independently evaluating their learning outcomes. Furthermore, SDL method enables students to enhance their motivation, self-confidence, and lifelong learning skills (Ummiati Rahmah et al., 2023).

This study demonstrates that SDL has a complete impact on teaching creativity through Professional Identity (PI), which serves as both an amplifier and a bridge. While (Huang et al., 2024) shown that SDL and self-efficacy regulate the relationship between reflective ability and PI, (Ye et al., 2025) discovered that learning engagement enhances PI through adaptability and self-concept. These results imply that while poor PI may restrict this potential, strong PI allows teachers to apply their SDL abilities to creative teaching methods. To guarantee innovative and successful instruction, teacher education programs should incorporate both SDL development

and organized PI-building exercises including mentorship, reflective practice, and professional community involvement.

This conclusion is consistent with (Sugiarti et al., 2023) who found that higher professional competence is linked to greater teacher creativity. and with (Naibaho & Butarbutar, 2023) who demonstrated that strong professional competence increases student learning interest. (Verniati et al., 2023) also found positive and significant effects of professional competence and teacher creativity on learning innovation. Therefore, teacher education programs should not only develop SDL skills but also create structured opportunities—such as reflective practice, mentorship, and participation in professional communities—to strengthen PI and ensure that learning autonomy leads to creative teaching practices.

Conclusion

This study highlights the significance of Professional Identity (PI) as a complete mediator in the interaction between Teaching Creativity (KM) and Self-Directed Learning (SDL). SDL has a beneficial impact on PI, which is crucial for increasing KM. The direct effect of SDL on KM is negligible when PI is included in the model, suggesting complete mediation. There are significant ramifications for teacher education from these findings. The development of both SDL and PI should be the main goal of teacher training programs. Comprehensive techniques such project-based learning, professional development, mentoring, and internships should be used. Furthermore, by establishing PI as a crucial component of creativity theory and providing a greater understanding of how internal factors foster creative performance in instruction, this work advances theoretical understanding. In addition to fostering creativity, strengthening SDL and PI can better equip pre-service teachers to handle the challenging realities of the teaching profession. Thus, SDL and PI development ought to be given top priority in teacher education programs and curricula by governments and educational establishments.

This study does, however, have a number of shortcomings. The fact that only one university's students provided the data may have limited how far the results can be applied. Furthermore, because participants' responses may be impacted by subjective interpretation or social desirability, the use of self-report questionnaires may create response biases. To provide a more thorough knowledge of the SDL–PI–KM link, future research may incorporate objective performance metrics, use mixed-methods approaches, or involve several institutions.

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