

Strategy to Increase the Effectiveness of Differentiated Learning

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Implementing differentiated learning is a challenge for schools that are not yet “Sekolah Penggerak”. This research aims to formulate a strategy to increase the effectiveness of differentiated learning, especially in private junior high schools that implement the “Independent Curriculum” independently. The strategy is formulated based on a structural model between the effectiveness of differentiated learning variables with academic supervision and exogenous organizational culture variables and achievement motivation as an intervening variable. This cross-sectional research was conducted on 182 private junior high school teachers in Cibinong District, Bogor, who were randomly selected proportionally. SmarPLS 3 software was used to help analyze the data. The results of this research conclude that academic supervision, organizational culture, and achievement motivation are important factors in increasing the effectiveness of differentiated learning. Achievement motivation mediates the influence of academic supervision and organizational culture on the effectiveness of differentiated learning. The effectiveness of differentiated learning can be increased by implementing academic supervision strategies and organizational culture that can increase teacher achievement motivation.

Keywords: achievement-motivation, academic supervision, differentiated learning effectiveness, organizational culture

INTRODUCTION

Education is a process that each student must undergo individually. Each student is a unique and distinctive individual who is different from one another (Ruhimat & Darmawan, 2020). They have other characteristics and learn differently (Ghaith & Awada, 2022; Palieraki & Koutrouba, 2021). Schools and teachers are responsible for designing educational processes tailored to different students’ needs and developmental levels (Suprayogi et al., 2017). But in the process, a teacher must recognize students’ individuality while acknowledging their relationships in the broader educational ecosystem (Markauskaite et al., 2023). The educational ecosystem includes teachers, peers, families, and the community environment as interconnected complex elements (Constantinides, 2022). Implementing the “Kurikulum Merdeka” in Indonesia is one manifestation of the recognition of individuality in the broader education ecosystem. The

Organisation for Economic Co-operation and Development (OECD) introduced the concept of future education. It underpins a “shared agent” learning framework with interactive and mutually reinforcing relationships to support students’ progress toward their valuable goals. Dalam konteks ini, guru, manajer sekolah, orang tua dan masyarakat harus dianggap sebagai pembelajar, tidak hanya siswa (OECD, 2018).

Two important factors can help make it possible for a student to establish their educational agency appropriately. First, a personalized learning environment (Palieraki & Koutrouba, 2021; Suprayogi et al., 2017) facilitating each student to maintain their enthusiasm for learning (Aikaterini & Makrina, 2022; Ismail et al., 2021) linking learning experiences with opportunities in different situations, and planning independent learning projects and activities, as well as collaborating with other students (Hasanah et al., 2022; Hover & Wise, 2022; Tahiri et al., 2017). Second, literacy and numeracy are the foundations of life skills that are very important today (Adipat & Chotikapanich, 2022; OECD, 2018). In today’s digital era, strengthening students’ digital literacy is very important, so it must be a significant concern.

Implementing the “Kurikulum Merdeka” begins with schools selected as “Sekolah Penggerak.” According to government policy, education units that have not yet become “Sekolah Penggerak” can choose three alternatives in implementing a “Kurikulum Merdeka” adjusted to the readiness of education units: independent learning, independent change, and independent sharing (Kemendikbudristek, 2022). The policy allows education units that have not yet become driving schools to implement an independent curriculum independently according to the readiness of the school’s resources. It has been implemented in almost all educational units in driving schools and schools that have not yet become driving schools.

One of the peculiarities of the “Kurikulum Merdeka” currently used in Indonesia is the obligation of teachers to implement differentiated learning. In this context, implementing the “Kurikulum Merdeka” responds to the need to implement differentiated learning in learning practices in schools throughout Indonesia. Students can develop through differentiated learning according to their choices, interests, talents, and potential (Hasanah et al., 2022; Khasawneh, 2023). Differentiated learning can provide a personalized learning environment that fits the characteristics and needs of individual students within the broader educational ecosystem (Tomlinson et al., 2003; Ziernwald et al., 2022). However, in practice, especially for private schools implementing a “Kurikulum Merdeka” independently, differentiated learning is challenging for teachers whose schools have not yet become driving schools. They must learn to understand and implement differentiated learning independently without getting technical guidance.

Based on the preliminary survey results, three factors or variables were identified as the cause of the low effectiveness of differentiated learning in private junior high schools that implement the “Kurikulum Merdeka” independently. **First**, the Principal carries out academic supervision as part of human resource management in schools that are not optimal. **Second**, organizational culture transformation has not made differentiated learning a new learning paradigm in schools. **Third**, the achievement motivation of teachers is relatively low, so they are less intrigued to try to understand and implement differentiated learning in their duties. Thus, research that examines strategies to increase the effectiveness of differentiated learning in private schools that implement the “Kurikulum Merdeka” independently is critical and urgent to be carried out. This study aims to formulate a strategy to increase the effectiveness of differentiated learning in private junior high schools that independently implement an independent curriculum. Strategy formulation is based on the study of the constellation model of causality relationships between the effectiveness of differentiated learning through the optimization of the role of the main variables that support it, namely academic supervision carried out by the Principal, organizational culture in the education unit, and achievement motivation of teacher. Implementing the resulting strategy is suspected to reduce the gap between the effectiveness of differentiated learning in facilitating learning to accommodate differences among students so that the achievement of learning outcomes is optimal with reality in learning practices in schools.

Differentiated learning is a widely accepted teaching philosophy that accommodates students’ learning needs and addresses differences in their characteristics that can aid their learning and learning outcomes (Ghaith & Awada, 2022; Smets et al., 2022). In this study, differentiated learning refers to the learning framework developed by Tomlinson (2001), which accommodates student differences. Differentiated learning is a teaching philosophy that directs teachers to differentiate content, processes, and products to

adapt to student needs (Tomlinson, 2017). Differentiated learning suggests curriculum adaptations that address student diversity (Ortega et al., 2018). Differentiated learning recommends modifying curriculum, methods of learning processes, and assessments according to student diversity to maximize their learning effectiveness (Darra & Kanellopoulou, 2019; Tomlinson, 1999). It is based on the principle that learning approaches should be aligned with the individuality and diversity of students. This teaching approach creates a safe learning environment and provides fair opportunities for all students to participate according to their learning (Tomlinson, 2017). Students will also learn better when the curriculum relates to their interests and life experiences, thus maximizing each student's abilities (Darra & Kanellopoulou, 2019).

The effectiveness of differentiated learning is determined by the preparation of lesson plans, classroom organization and management, professional competence, pedagogic competence, and interpersonal competence of teachers (Swargiary & Baglari, 2018). Differentiated learning is said to be effective if the following indicators appear in the process and outcomes of student learning, namely mastery of knowledge of the subject matter, careful preparation and organization, paying attention to student learning styles, good classroom management, varied strategies in motivating students, using effective communication techniques, varying student-teacher interaction, giving formative assessments and feedback, providing informal academic support, and the teacher's fascinating personal attributes (Dash & Barman, 2016). Increasing the effectiveness of differentiated learning requires practical leadership actions from principals and teachers (Chandra Handa, 2019). The teacher's understanding of progressive educational philosophy can assist him in realizing differentiated learning that positions students as empowered learners effectively (Hasanah et al., 2022).

Academic supervision is a process designed and implemented by the Principal to help improve the quality of implementing teacher duties in schools. Academic supervision allows them to improve the quality of service to students and school stakeholders (Farida & Kenedi, 2021; Istiningsih et al., 2020; Noor et al., 2020; Suyatno et al., 2023). Academic supervision is an effort made by the Principal to ensure the achievement of the school's vision, mission, goals, and management (Al-Saree et al., 2020). Academic supervision aims to improve teachers' ability to create, organize, and manage conducive classrooms (Farida & Kenedi, 2021; Istiningsih et al., 2020). Academic supervision improves teachers' ability to plan and implement learning (Noor et al., 2020). Self-monitoring solid skills are the key to the Principal's success as a supervisor in academic supervision (Kemer et al., 2019).

Numerous studies have shown that academic supervision contributes to teacher productivity (Shen & Jiang, 2023). Academic supervision affects the improvement of teacher teaching competence (Effendi & Sahertian, 2023), teacher learning process skills (Farida & Kenedi, 2021), teacher job satisfaction (Suripah et al., 2021), teacher readiness to utilize technology to improve the effectiveness of learning in the classroom (Istiningsih et al., 2020), and teacher performance (Munawaroh et al., 2020). Academic supervision in Indonesia has not been implemented effectively due to the Principal's workload and busy attending invitations to various meetings and activities from stakeholders (Noor et al., 2020).

Organizational culture is the social order of an organization that, in the long run, shapes the character of its members (Zanon et al., 2021). Culture is a unifying member at the social level that connects members of the organization (Jimenez, 2017). Internalization of organizational culture affects the performance of organizational members (Zanon et al., 2021). The Principal's transformational leadership significantly influences organizational culture (Rizki et al., 2019). Organizational culture can improve employees' perceptions of the organization's attractiveness and innovative behavior (Gorzelay et al., 2021; Mutonyi et al., 2022). Teachers' perceptions of organizational culture strongly predict job satisfaction and work-related emotions (Otrębski, 2022). Organizational culture and innovative employee work behavior positively and significantly affect their performance. Innovative employee work behavior mediates the influence of organizational culture on performance (Astrama et al., 2020).

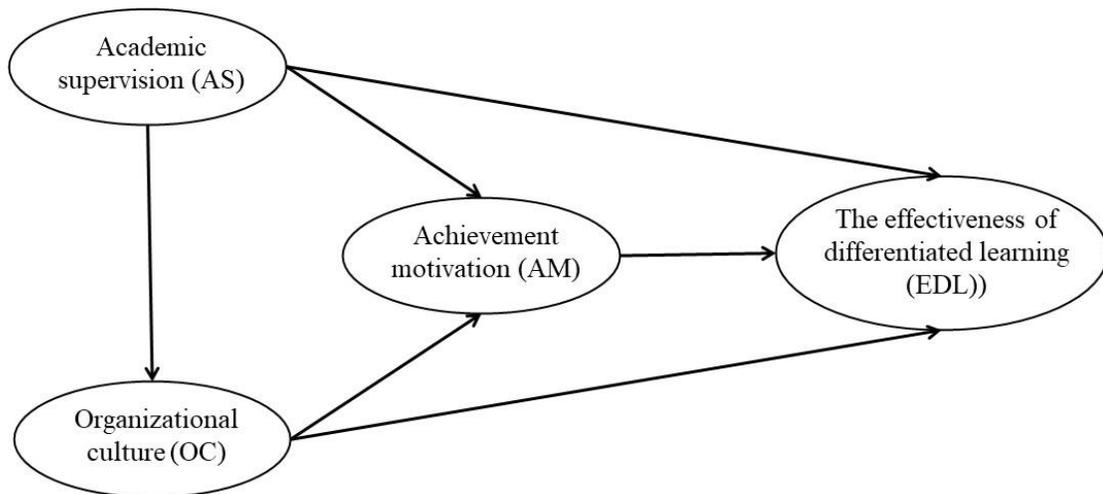
Achievement motivation is the driving force of individuals to achieve success, as well as effort and perseverance in facing various challenges that come their way (Richter et al., 2021). Achievement motivation is a drive in a person to achieve success while avoiding failure (Cadenas-Sanchez et al., 2021). If the drive in the individual is dominated by the effort to achieve success, then its manifestation is active

effort as a struggle for progress. Conversely, if the drive is dominated by attempts to avoid failure, the expression is anxiety, setbacks, and doubt (Mahdavi et al., 2023).

Previous relevant research findings have shown that achievement motivation directly affects better employee engagement at work (Tuominen et al., 2020). Individual achievement motivation significantly influences their learning behavior (Purwanto & Sunawan, 2022). Achievement motivation mediates the influence of the work environment on work engagement (Dan et al., 2023). Consistently tested achievement motivation is an essential predictor of personal career development (Emamjomeh et al., 2021). Individuals with solid achievement motivation tend to have the confidence to overcome challenges, a willingness to devote themselves to more substantial tasks, and a persistent struggle to achieve goals (Dan et al., 2023).

The background of the problem and the study of the theory above are the basis for building a conceptual structural model used as a hypothetical model in this study. Based on the theory study above, it is suspected that academic supervision (AS), organizational culture (OC), and achievement motivation (AM) collectively determine the effectiveness of differentiated learning (EDL). In this context, achievement motivation acts as a mediator. Thus, a hypothetical structural model is formulated as presented in Figure 1.

**FIGURE 1
HYPOTHETICAL STRUCTURAL MODEL**



Based on the hypothetical structural model, it is further described in formulating the research hypothesis as follows.

**TABLE 1
RESEARCH HYPOTHESIS**

Hypothesis number	Hypothesis formulation
Main effects	
H ₁	Academic supervision has a direct effect on achievement motivation.
H ₂	Academic supervision has a direct effect on organizational culture.
H ₃	Academic supervision has a direct effect on the effectiveness of differentiated learning.
H ₄	Achievement motivation has a direct effect on the effectiveness of differentiated learning.
H ₅	Organizational culture has a direct effect on achievement motivation.
H ₆	Organizational culture has a direct effect on the effectiveness of differentiated learning.

Indirect effects	
H ₇	Academic supervision indirectly affects achievement motivation, where organizational culture acts as a mediator.
H ₈	Academic supervision indirectly affects the effectiveness of differentiated learning, where achievement motivation acts as a mediator.
H ₉	Organizational culture indirectly affects the effectiveness of differentiated learning, where achievement motivation acts as a mediator.
H ₁₀	Academic supervision indirectly affects the effectiveness of differentiated learning, where organizational culture acts as a mediator.
H ₁₁	Academic supervision indirectly affects the effectiveness of differentiated learning, where organizational culture and achievement motivation act as mediators.

METHOD

Research Design

The cross-sectional survey was conducted in the Cibinong sub-district, Bogor district, West Java province, Indonesia, from June 10 to July 5, 2023. Sampling using a simple two-stage random cluster method with proportional probability. In the first stage, 11 private junior high schools were randomly selected from 42 private junior high schools in the Cibinong sub-district. In the second stage, sample selection was done using proportional random techniques according to the required sample size of 182 teachers. Socio-demographic data of teachers who were participants in this study are presented in Table 2.

TABLE 2
DEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS

Demographic Characteristics		Participants (n = 182)	
		Total	%
Gender	Male	77	42.31
	Female	105	57.69
Age	25-35 years	33	18.13
	36-45 years	56	30.77
	46-55 years	89	48.90
	>55 years	4	2.20
	Educational qualifications	Bachelor	176
	Magister	6	3.30
Experience as a teacher	< 10 years	25	13.74
	10-20 years	67	36.81
	20-30 years	83	45.60
	> 30 years	7	3.85

Before conducting the survey, we applied for permission from the Principal by sending a letter to each Principal of the selected school. After obtaining the approval of each Principal, a self-administered questionnaire survey was conducted—a survey using Google Forms by sending all respondents a link to the Google Forms research instrument. Self-administered surveys are prone to missing data or incomplete questionnaire filling. To avoid this, a pre-trained quality control personnel carefully checks and reviews each questionnaire. The team is a Master's student in the Education Administration study program at Graduate School, Pakuan University.

Research Instruments

The instrument used consisted of four questionnaires to measure the variables that became the focus of the study, namely the effectiveness of differentiated learning, academic supervision of the Principal, school organizational culture, and achievement motivation. The questionnaire we use is a comprehensive instrument that collects information not just about the variables being measured but also about the demographic characteristics of respondents. All four research questionnaires were developed by themselves. Before use, the four instruments are first tested to test their validity and reliability.

The Differentiated Learning Effectiveness Questionnaire consists of 36 items that meet the valid criteria. The measurement scale used is a ranking scale with five graded answer choices: always, often, sometimes, ever, and never. The score of each questionnaire item is set from 1 to 5 by considering whether the direction of the question item is positive or negative. Thus, the minimum score of the instrument is 36, and the maximum score is 180. The reliability of instrument α -Cronbach based on our test results is .94, so it meets the criteria for reliability.

The Principal's Academic Supervision Questionnaire consists of 35 items that meet valid criteria. The measurement scale used is a ranking scale with five graded answer choices: always, often, sometimes, ever, and never. The score of each questionnaire item is set from 1 to 5 by considering whether the direction of the question item is positive or negative. Thus, the minimum score of the instrument is 35, and the maximum score is 175. The reliability of the α -Cronbach from the instrument based on our test results is .90, so it meets the reliable criteria.

The Organizational Culture Questionnaire consists of 36 items that meet valid criteria. The measurement scale used is a ranking scale with five graded answer choices: strongly agree, agree, hesitate, disagree, and strongly disagree. The score of each questionnaire item is set from 1 to 5 by considering whether the direction of the question item is positive or negative. Thus, the minimum score of the instrument is 36, and the maximum score is 180. The reliability of the α -Cronbach from the instrument based on our test results is .95, so it meets the reliable criteria.

The Achievement Motivation Questionnaire consists of 35 items that meet valid criteria. The measurement scale used is a ranking scale with five graded answer choices: strongly agree, agree, hesitate, disagree, and strongly disagree. The score of each questionnaire item is set from 1 to 5 by considering whether the direction of the question item is positive or negative. Thus, the minimum score of the instrument is 35, and the maximum score is 175. The reliability of instrument α -Cronbach based on our test results is .92, which meets the reliability criteria.

Data Analysis Techniques

Model structural hypothetic between academic supervision, organizational culture, and achievement motivation on the effectiveness of differentiated learning tested using partial least-squares structural equation modeling (PLS-SEM). The reflective measurement model examines convergent validity, internal consistency reliability, and discriminant validity. Convergent validity is assessed from item loading and average variance extracted (AVE). Internal consistency reliability is evaluated from the intercorrelation of item scores observed in a construct, composite reliability, and Cronbach alpha. Discriminatory validity is assessed from the Fornell-Larcker criterion value and heterotrait-mono-trait ratio (HTMT) correlation between constructs. Hair et al. (2021) explain that the "rules of thumb" criteria that indicate the validity and reliability of the measurement model must be met. We use the "rules of thumb" criteria as a reference to assess the quality of measurements and results of structural models in this study. SmartPLS 3 software was used to help analyze the data in this study.

Data analysis includes two steps. First, evaluate the output results of PLS-SEM by examining reflective measurement models. Second, assess structural models of the direct influence of exogenous variables on endogenous and analyze mediator effects. Bootstrapping tests are used to determine the significance of mediator effects based on direct and indirect effects statically. Both of these tests are performed to assess the significance of the effects of the mediator.

FINDINGS AND DISCUSSION

Findings

Measurement Model Assessment

The results of the examination of the reflective measurement model are presented in Table 3. Based on these tables, it is obtained that all the criteria of “rules of thumb” have been met so that this measurement model is conclusively valid and reliable.

TABLE 3
MEASUREMENT RESULTS OF AS, OC, AM, AND EDL LATENT CONSTRUCTION MODELS

Latent variable	Indicator label	Rule of thumb				
		Convergent validity		Internal consistency reliability		
		Indicator reliability	Cronbach's alpha	rho A	Composite reliability	AVE
		Loading > .7	.7 – .95		.7 – .95	> .5
AS	AS1	.708				
	AS2	.882				
	AS3	.938	.873	.892	.914	.730
	AS4	.870				
OC	OC1	.743				
	OC2	.827				
	OC3	.010	.739	.884	.832	.554
	OC4	.883				
	OC5	.867				
AM	AM1	.849				
	AM2	.811				
	AM3	.733	.870	.857	.906	.658
	AM4	.817				
	AM5	.840				
EDL	EDL1	.766				
	EDL2	.733				
	EDL3	.654	.830	.843	.880	.597
	EDL4	.822				
	EDL5	.834				

Note: AVE Average variance extracted, AS Academic Supervision, OC Organizational culture, AM Achievement Motivation, EDL The Effectiveness of Differentiated Learning.

Next, discriminant validity tests whether reflective indicators show a good measure for its construct. Fornell-Larcker Criterion and HTMT values are used to test the validity of the discriminant. The Fornell-Larcker Criterion value is the square root value of the AVE. The test criterion is that if the AVE root value is greater than the correlation between latent variables, then the construct is said to have good discriminant validity. Table 4 presents the results of the Fornell-Larcker Criterion test. The bolded value is the square root value of the AVE, while the bolded value is the correlation coefficient between variables in the structural model.

Based on Table 4, it is illustrated that all Fornell-Larcker criterion values of each construct are more significant than the correlation coefficients between latent variables in structural models. Thus, the discriminant validity criterion in this structural model has been met.

TABLE 4
FORNELL AND LARCKER TEST RESULTS

	AS	OC	AM	EDL
AS	.854			
OC	.446	.811		
AM	.625	.660	.744	
EDL	.454	.352	.222	.772

TABLE 5
HTMT TEST RESULTS

	AS	OC	AM	EDL
AS				
OC	.748			
AM	.495	.780		
EDL	.526	.306	.420	

Discriminant validity testing is also carried out using the HTMT method. The multitrait-multimethod matrix is used as the basis for measurement in this method. The test criterion is that if the HTMT value is less than .9, the discriminant between the two reflective constructs is valid. Test results using the HTMT method are presented in Table 4. Based on the HTMT values in Table 5, it is found that all HTMT values are smaller than .9, which indicates that all constructs have met the criteria for discriminant validity.

Hypothetical Structural Model Testing

Table 6 presents the hypothetical model, the standard path coefficients of the hypothesized model, t-values, p-values, and confidence interval values corresponding to the direct, indirect, and mediating effects of achievement motivation. The test used a bootstrapping percentile method with bias correction from 2,000 bootstrap samples at 2.5/97.5% confidence intervals (Hayes, 2009) to test the significance of path coefficients or indirect effects ((Hair et al., 2021)

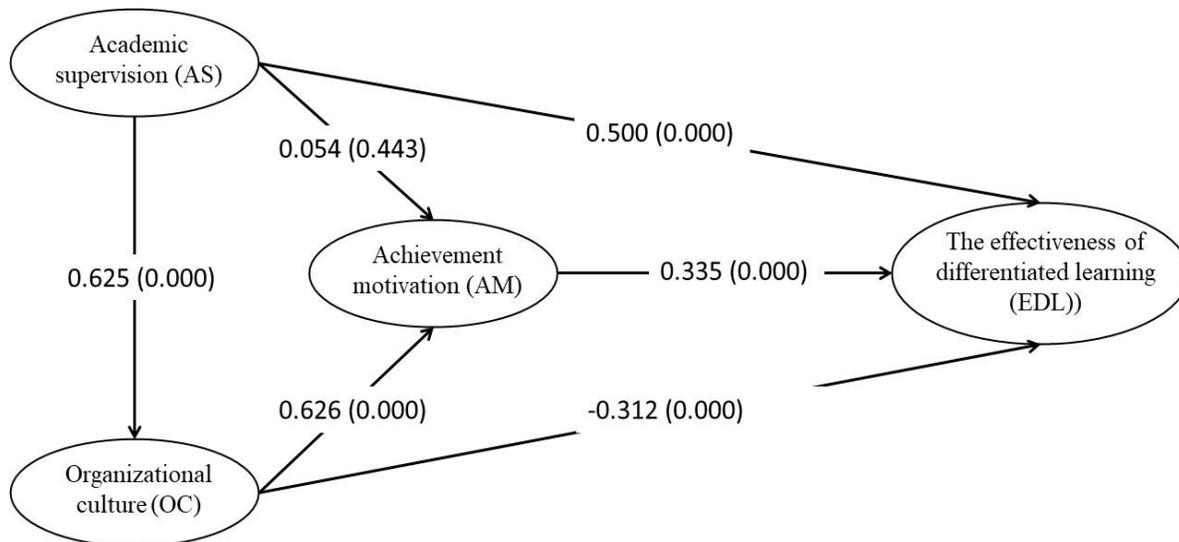
The first model hypothesis deals with the direct effects of exogenous variables on endogenous variables. The second model hypothesis deals with indirect effects by placing the achievement motivation variable as the mediator variable.

Based on the results of testing the hypothesis of the first model, as presented in Table 6, we found that academic supervision has no direct effect on achievement motivation (path coefficient $\beta = .054$; $t = .799$; $p = .425$), so the test results do not support H1. Academic supervision has a direct positive and significant effect on organizational culture (path coefficient $\beta = .625$; $t = 12.880$; $p = .000$), so the test results support H2. Academic supervision has a direct positive and significant effect on the effectiveness of differentiated learning ($\beta = .500$; $t = 6.615$; $p = .000$), so the test results support H3. Achievement motivation has a direct positive and significant effect on the effectiveness of differentiated learning ($\beta = .625$; $t = 4.048$; $p = .000$), so the test results support H4. Organizational culture directly affects achievement motivation ($\beta = .626$; $t = 10.718$; $p = .000$), so the test results support H5. Organizational culture has a direct negative and significant effect on the effectiveness of differentiated learning ($\beta = -.312$; $t = 3.831$; $p = .000$), so the test results support H6. The results of testing the direct influence of exogenous variables on exogenous variables in structural models are also presented in Figure 2.

TABLE 6
PATH COEFFICIENT TEST RESULTS

Hypotheses	Standardized path coefficients (β)	t Values	p Values	Confidence intervals		Decision
				Lower 2.5%	Upper 97.5%	
Model 1: Main effects						
H ₁ : AS → AM	.054	.799	.425	-.078	.183	Not supported
H ₂ : AS → OC	.625	12.880	.000	.529	.716	Supported
H ₃ : AS → EDL	.500	6.615	.000	.360	.642	Supported
H ₄ : AM → EDL	.335	4.048	.000	.158	.482	Supported
H ₅ : OC → AM	.626	10.718	.000	.499	.724	Supported
H ₆ : OC → EDL	-.312	3.831	.000	-.465	-.144	Supported
Model 2: Indirect effects						
H ₇ : AS → OC → AM	.392	7.888	.000	.290	.477	Supported
H ₈ : AS → AM → EDL	.018	.781	.435	-.023	.070	Not supported
H ₉ : OC → AM → EDL	.210	3.840	.000	.092	.309	Supported
H ₁₀ : AS → OC → EDL	-.195	3.602	.000	-.291	-.086	Supported
H ₁₁ : AS → OC → AM → EDL	.131	3.491	.001	.055	.211	Supported

FIGURE 2
PATH COEFFICIENT AND ITS SIGNIFICANT STATUS



Based on the results of testing the second model hypothesis, we found that organizational culture acts as a positive and significant mediator of indirect effect between academic supervision on achievement motivation through organizational culture ($\beta = .392$; $t = 7.888$; $p = .000$), so the test results support H₇. Achievement motivation does not show a role as a mediator of the indirect effect of academic supervision on the effectiveness of differentiated learning through achievement motivation ($\beta = .018$; $t = .781$; $p = .435$), so the test results do not support H₈. Achievement motivation is a positive and significant mediator of the indirect effect of organizational culture on the effectiveness of differentiated learning through achievement

motivation ($\beta = .210$; $t = 3.840$; $p = .000$), so the test results support H_9 . Organizational culture shows a significant negative mediator of the indirect effect of academic supervision on the effectiveness of differentiated learning through organizational culture ($\beta = -.195$; $t = 3.602$; $p = .000$), so the test results support H_{10} . Organizational culture and achievement motivation are positive and significant mediators of the indirect effect of academic supervision with differentiated learning effectiveness through organizational culture and achievement motivation ($\beta = .131$; $t = 3.491$; $p = .001$), so the test results support H_{11} .

Discussion

Main Effects

Our empirical study found that academic supervision does not directly impact achievement motivation. For example, this finding does not align with previous studies' results (Stramkale, 2022; Zohair et al., 2021). The findings of this study showed that teachers judged that academic supervision activities by the Principal did not motivate them to achieve more. Viewed from the Principal's side, this finding shows that the Principal's supervisor does not have adequate competence as a prerequisite for implementing academic supervision. From the teacher's side, these findings explain that teachers' commitment to quality is low and teachers' motivation to work solely to pursue prosperity (Rahabav, 2016).

Our empirical study also found that academic supervision directly impacts organizational culture. Academic supervision is one of the Principal's duties as a leader in school organizations to improve competence and encourage the habit of innovation among teachers. Educational innovation occurs when changes include changes in management, work organization, or innovation in the teaching process by giving birth to several new teaching methods (Gorzelany et al., 2021). Thus, the Principal's academic supervision as a leader contributes to the school's organizational culture and leads toward an innovative culture. This finding aligns with the study's results (Astrama et al., 2020; Gorzelany et al., 2021; Mutonyi et al., 2022; Rizki et al., 2019).

Our empirical study also found that academic supervision directly impacts the effectiveness of differentiated learning. This finding aligns with previous studies that showed that implementing the Principal's academic supervision increased the effectiveness of teaching activities (Noor et al., 2020). The effectiveness of differentiated learning is a form of teacher performance. Thus, these findings are also in line with the research of Munawaroh et al. (2020), which found that academic supervision has a direct positive effect on teacher performance. This finding also aligns with the research results that academic supervision positively and significantly improves teachers' professional competence (Airlanda, 2021; Rambe, 2019) because differentiated learning can run if teachers have competent professional competence. Academic supervision can encourage the effectiveness of differentiated learning because academic supervision acts as feedback for teachers to improve the quality of their learning activities and student learning outcomes (Hidayat & Irdiyansyah, 2023). This finding also illustrates that the Principal's academic supervision is effective in helping teachers solve the problems they face in learning (Al-Saree et al., 2020).

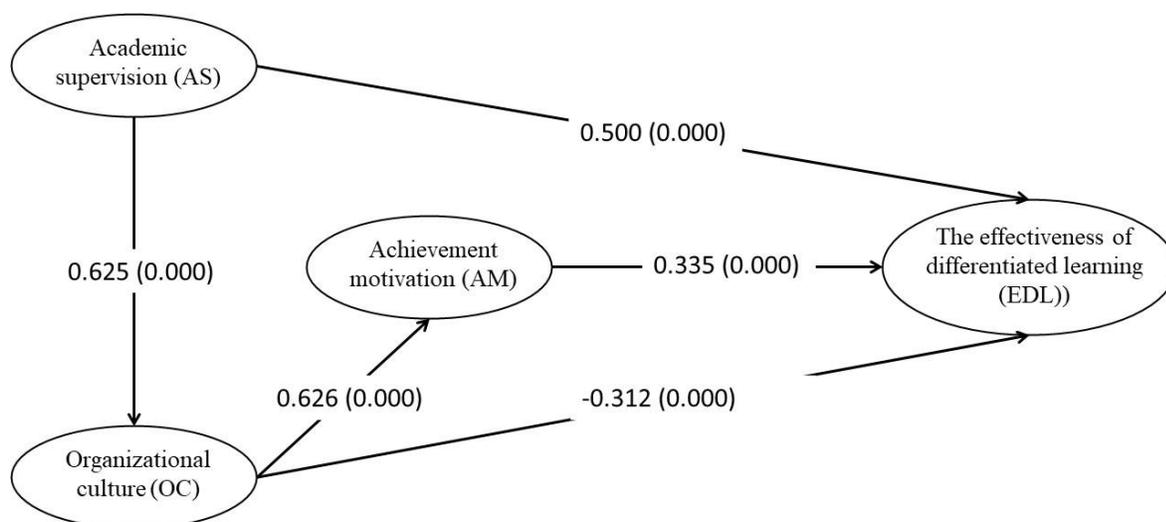
Achievement motivation directly affects the effectiveness of differentiated learning. This finding aligns with the results of the research of Rahmah et al. (2022), which found that motivation directly affects teacher performance. In this context, the effectiveness of differentiated learning is one form of teacher performance. For differentiated learning to effectively achieve the set learning objectives, teachers must have qualified knowledge and understanding of differentiated learning conceptually and practically. Teachers who can implement differentiated learning effectively are those who continue to learn about what and how to design and implement differentiated learning. Teachers who desire to continue learning have high achievement motivation, as Purwanto & Sunawan's (2022) research results show that achievement motivation affects one's learning behavior. These findings indicate that achievement motivation affects the intensity of teacher involvement in designing and implementing differentiated learning activities to achieve learning objectives effectively. These findings align with the research results of Tuominen et al. (2020) that their achievement motivation influences better employee engagement in work.

Organizational culture has a direct positive and significant effect on achievement motivation. However, it has a direct negative and significant effect on the effectiveness of differentiated learning. This finding is exciting because this empirical fact contradicts rational thinking and previous research by Fenn & Bullock

(2022), which shows that organizational members' perceptions of organizational values positively affect employees' discretionary efforts and work commitments. Organizational culture impacts employees' innovative behavior (Mutonyi et al., 2022). A supportive organizational culture affects employee achievement motivation, ultimately improving organizational performance (Jin & Kim, 2022; Otrębski, 2022; Vito, 2020). This fact illustrates that teachers variously perceive the cultural values adopted and agreed upon by school organizations. Some teachers agree and try to act according to the agreed culture. For them, the school's organizational culture positively affects its performance, as shown by the effectiveness of the differentiated learning it implements. However, some teachers do not agree with the cultural values adopted by the school organization, so for them, the school organizational culture negatively impacts their work behavior, as shown by the low effectiveness of differentiated learning they implement.

Based on the discussion of the research findings described above, we found a constellation of structural models of causality relationships between variables studied in this study, as shown in Figure 3.

FIGURE 3
EMPIRICAL STRUCTURAL MODEL



Indirect Effects

Based on the results of the hypothesis test, it was found that organizational culture mediates the influence of academic supervision on achievement motivation. Academic supervision is an activity carried out by the Principal to assist teachers in developing their competencies. It includes four main attributes or indicators: guidance, supervision, coaching, and feedback. This finding shows that academic supervision carried out by the Principal will be effective in increasing achievement motivation among teachers if supported by positive perceptions from teachers of school organizational culture. Thus, to improve teacher achievement motivation, academic supervision must be carried out with strategies that align with the organizational culture developed in schools.

These findings are consistent with the study Sancho-zamora et al. (2022). The study found that organizational culture is an essential mediator of leadership's influence on employee morale to innovate. The spirit of innovation is a manifestation of high achievement motivation. Organizational commitment is formed because of employees' positive perception of the organizational culture where they work. Past studies have shown that organizational culture positively influences organizational commitment (Hassanian et al., 2023; Khuong & Mai, 2022; Mutonyi et al., 2022). Organizational commitment encourages individuals to persevere and strive to excel in the workplace (Abouraia & Othman, 2017; Margaretha et al., 2021; Xu et al., 2022). This fact illustrates that organizational culture must be considered by the Head of

School so that it is understood and agreed upon by all teachers so that its role in mediating the influence of academic supervision on achievement motivation becomes optimal.

Hypothesis testing shows that achievement motivation does not offer a role as a mediator of the effect of academic supervision on the effectiveness of differentiated learning (H_3). This finding is different from the results of previous studies that showed that the Principal's academic supervision had a positive effect on teacher achievement motivation (Cece et al., 2022; Zohair et al., 2021), thus impacting the quality of learning (Stramkale, 2022). This fact illustrates that the Principal's academic supervision has not been able to achieve the objectives optimally. This statement is supported by the study results (Pusporini et al., 2020; Rahabav, 2016; Suyatno et al., 2023).

The results of other hypothesis testing suggest that achievement motivation mediates the influence of organizational culture on the effectiveness of differentiated learning. This finding aligns with the research of Rahmah et al. (2022), which concludes that teacher performance is significantly influenced by organizational culture either directly or mediated by achievement motivation. The findings also reinforce the results of previous studies showing that motivation has more to do with the social environment, namely organizational culture, than individual factors (Cece et al., 2022). Organizational culture significantly affects innovation and the components that create innovation opportunities (Gorzelay et al., 2021), including differentiated learning as an innovation carried out by teachers.

Organizational culture shows a role as a negative mediator and significant indirect influence between academic supervision and the effectiveness of differentiated learning. However, organizational culture and achievement motivation partially act as positive and essential mediators of indirect impact between academic supervision and the effectiveness of differentiated learning. The results of tracking previous studies, we did not find research relevant to the findings of this study. For this reason, it is necessary to deepen through further research to understand the cause better. This finding shows that the strategy applied by the Principal in implementing academic supervision is not supported by the organizational culture perceived by the teacher. This condition is suspected due to the habit of reflection and evaluation as part of the school's organizational culture.

Based on the empirical structural model of causality relationship between the variables studied in this study, strategies to increase the effectiveness of differentiated learning can be done: First, individual academic supervision must be carried out more by the Principal with coaching content according to the teacher's personal needs. Second, the Principal needs to establish a Professional Learning Community (PLC) staffed by creative and innovative teachers whose main task is to motivate other teachers to innovate and share. In this case, the Principal can utilize PLC in its academic supervision function. Third, the habit of reflection, evaluation, and improvement must be part of the school organizational culture that is agreed upon and perceived positively by all school residents. In this context, the role of organizational culture as a mediator to increase achievement motivation among teachers can be optimized by the Principal.

This study has limitations, including a sample of only private junior high school teachers in Cibinong District, Bogor, Indonesia, who implement the "Merdeka Curriculum" independently. Thus, researchers with similar interests should research with more samples from school categories and broader areas.

CONCLUSION

The results of the analysis and discussion of the findings of this study concluded that academic supervision, organizational culture, and achievement motivation are essential resources in increasing the effectiveness of differentiated learning. Academic supervision, organizational culture, and achievement motivation affect both directly and indirectly the effectiveness of differentiated learning. Academic supervision and achievement motivation have a direct positive effect on the effectiveness of differentiated learning, but organizational culture has a direct negative effect on the effectiveness of differentiated learning. Achievement motivation mediates the influence of organizational culture on the effectiveness of differentiated learning. Still, achievement motivation does not mediate the effect of academic supervision on the effectiveness of differentiated learning. Organizational culture and achievement motivation partially mediate the effect of academic supervision on differentiated learning effectiveness.

The results of this study imply that differentiated learning effectiveness strategies can be improved through the implementation of academic supervision programs and the development of a school organizational culture that is designed in such a way as to encourage increased achievement motivation among teachers. The recommended strategy, the Principal multiplies academic supervision individually, establishes PLCs and uses them as a medium in carrying out academic vision, and makes a habit of reflection, evaluation, and continuous improvement part of the school's organizational culture.

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