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Exploring the impact of preservice teacher internship programs on students' perception of the teaching profession

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ABSTRACT

This study aims to analyze how the preservice teacher internship program influences students' perception of the teaching profession by examining the variables of reaction, learning experiences, behavior, and the mediating role of results. By examining these variables, the study synthesizes findings from multiple studies and incorporates them. Using a survey conducted among students at a university in Medan, Indonesia, the study collected data electronically through the distribution of a questionnaire via Google Forms. The sample consisted of 252 students, and partial least square structural equation modeling (PLS-SEM) was employed to analyze the data. The outer models (measurement) and inner model (structural relations among latent variables) were validated and evaluated. The results indicate significant positive direct effects of reaction, learning, and behavior on results. Moreover, the results from the preservice teacher internship program have a significant positive effect on students' perceptions. The study also reveals that results act as a partial mediator in the relationships between behavior and perception, learning and perception, and reaction and perception.

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1. INTRODUCTION

Since 2017, the government of Indonesia has implemented regulations pertaining to the Bachelor of Education Program. These regulations are outlined in the Minister of Research, Technology, and Higher Education's decree number 55 of 2017, which focuses on teacher education standards. The decree specifically addresses the development of teacher education curricula, including the implementation of the field school program or internships in schools. The internship program is designed to be conducted in two stages, namely Internship I and Internship II. Internship I aim to establish the foundation of the teaching profession by providing students with various activities and experiences in school settings. This stage focuses on building practical skills and knowledge relevant to the field of education. On the other hand, Internship II aims to further enhance the academic competence of education and field of study. This stage provides opportunities for students to apply their theoretical knowledge in real-world classroom situations, refining their teaching skills under the guidance of experienced educators.

The purpose of these internship stages is to bridge the gap between theoretical learning and practical application, preparing future teachers for the demands and challenges of the teaching profession. By engaging

in internships within school environments, education students gain valuable hands-on experience and develop a deeper understanding of the teaching process [1]–[3]. The regulations set forth by the government underscore the importance of providing comprehensive and well-structured internship programs as part of teacher education. These programs play a vital role in equipping aspiring teachers with the necessary skills, knowledge, and practical experience needed to become effective educators. By aligning education curricula with these regulations, universities and teacher training institutions can ensure that future teachers are adequately prepared to meet the needs of the education system and contribute to the development of quality education in Indonesia.

This program is crucial, because education plays a crucial role in shaping society, and teachers are at the heart of this transformative process [4], [5]. Their ability to impart knowledge, foster learning, and inspire students has a profound impact on the future. Understanding students' perception of the teaching profession is vital, as it influences their attitudes, behaviors, and academic outcomes [6]–[8]. In recent years, there has been a growing body of research exploring the impact of preservice teacher internship programs on students' views of teaching [9], [10]. However, there is a need for a comprehensive analysis that delves deeper into the variables of reaction, learning experiences, and behavior, while also considering the mediating role of results. This study addresses this research gap by providing an extensive and theory-driven examination, drawing on the works of prominent scholars, to elucidate the transformative influence of preservice teacher internship programs on students' perception of the teaching profession.

Students' initial reactions to preservice teachers play a critical role in shaping their perception of the teaching profession. Tarman [11] conducted a study exploring students' reactions and found that positive initial impressions, characterized by approachability, warmth, and enthusiasm, led to more favorable perceptions of the teaching profession. Students were more likely to develop positive attitudes towards teaching when preservice teachers demonstrated effective communication skills, established rapport, and created a supportive learning environment. Similarly, research by Arndt and Liles [12] emphasized the importance of preservice teachers' competence and professionalism in shaping students' perceptions. These studies underscore the significance of positive initial reactions in influencing students' overall perception of the teaching profession.

Preservice teacher internship programs offer students unique and transformative learning experiences. Izadinia [13] conducted research highlighting the positive impact of such programs on students' perception of the teaching profession. Exposure to preservice teachers who utilized innovative teaching methods, provided individualized attention, and fostered student-centered learning environments contributed to increased engagement, motivation, and overall enjoyment of the learning process. These findings are consistent with the principles of Bandura's social learning theory [14], which emphasizes the role of observation and modeling in shaping individuals' beliefs and behaviors. Furthermore, Koc [15] found that the practical experiences gained through the preservice teacher internship program enhanced students' understanding of the complexities of teaching, deepened their subject knowledge, and improved their critical thinking and problem-solving skills. These learning experiences play a pivotal role in influencing students' perception of the teaching profession by providing them with firsthand exposure to effective teaching practices.

The influence of the preservice teacher internship program extends beyond academic outcomes, as it can elicit significant behavioral changes in students. Freese [16] conducted research demonstrating that exposure to enthusiastic and dedicated preservice teachers positively influenced students' attitudes, motivation, and classroom behavior. Students exhibited higher levels of participation, cooperation, and positive peer interactions. This aligns with Vygotsky's sociocultural theory [17], which emphasizes the role of social interactions and relationships in shaping individuals' cognition and behavior. Moreover, preservice teachers' ability to establish positive teacher-student relationships and create a supportive classroom environment resulted in improved student behavior, reduced disciplinary issues, and increased overall satisfaction with the learning process. These behavioral changes reflect the impact of preservice teachers as role models, shaping students' perceptions of the teaching profession.

Results, including academic achievements and long-term career aspirations, play a crucial mediating role in the relationship between students' reactions, learning experiences, behavior, and their perception of the teaching profession. Exposure to preservice teachers had a significant positive impact on students' academic achievements [18]. Students taught by preservice teachers demonstrated higher test scores, improved grades, and greater subject interest and enjoyment. These positive outcomes can reinforce students' perceptions of the teaching profession as rewarding and impactful. Additionally, Manuel and Hughes [19] highlighted that exposure to preservice teachers sparked an increased interest in pursuing teaching as a career among students. This finding emphasizes the potential of the preservice teacher internship program to inspire future educators and address the ongoing shortage of highly skilled teachers. Long-term follow-up studies also indicated that students exposed to preservice teachers maintained positive perceptions of the teaching profession even after the conclusion of the program, highlighting the lasting impact of the internship experience.

This study aims to analyze how the preservice teacher internship program influences students' perception of the teaching profession by examining the variables of reaction, learning experiences, behavior, and the mediating role of results. By synthesizing the findings from multiple studies and incorporating theories,

such as Bandura's social learning theory [14] and Vygotsky and Cole [17], this analysis sheds light on the multifaceted relationship between the program and students' perception. The insights gained from this research contribute to the existing body of knowledge, inform educational institutions and policymakers, and guide the design and implementation of preservice teacher internship programs to cultivate positive perceptions of the teaching profession. The model proposed in this study can be seen in Figure 1, which was generated based on the theoretical foundation and hypotheses postulated. Drawing from established theory and past research outcomes, we present the following hypotheses: Reaction has a significant positive direct effect on result (H1); Learning has a significant positive direct effect on result (H2); Behavior has a significant positive direct effect on result (H3); Result has a significant positive direct effect on perception (H4); Result mediates the relationship between reaction and perception (H5); Result mediates the relationship between learning and perception (H6); and Result mediates the relationship between behavior and perception (H7).

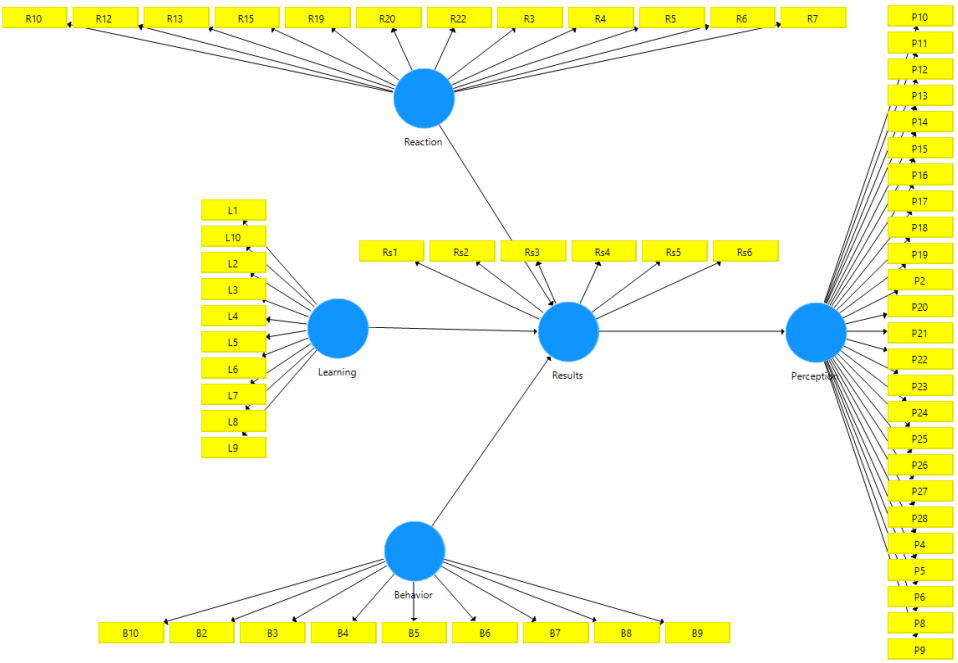

Figure 1. Research model

2. RESEARCH METHOD

2.1. Data collection and research instrument

The data was obtained by conducting an electronic survey among students at a university located in Medan, Indonesia. The utilization of electronic questionnaires aimed to improve the efficiency of reaching the sample, although the researcher had limited control over certain aspects of the questionnaire completion process. Nonetheless, this method of data collection is deemed feasible as long as the participating respondents meet the eligibility criteria for data completion, such as being adults [20]. The Google Form platform was utilized to distribute the electronic survey, which was completed by a total of 252 students, consisting of 31 males and 221 females as shown in Table 1. The overall sample size in this study was considered sufficient, as the authors initially determined the minimum required sample size using G*Power [21]. Based on the G*Power calculation, the recommended minimum sample size was 107, indicating that the sample size in this study exceeds the necessary requirement as displayed in Figure 2. To ensure validity and reliability, the authors employed instruments that were developed by experts for measuring each variable. These instruments were validated both statistically and theoretically. The variables utilized in this study were derived from the construct of the Evaluation Instrument for the Internship Program, which was developed by Dalimunthe [22].

Table 1. Demography of respondent

	Frequency	%
Male	31	12.30
Female	221	87.70

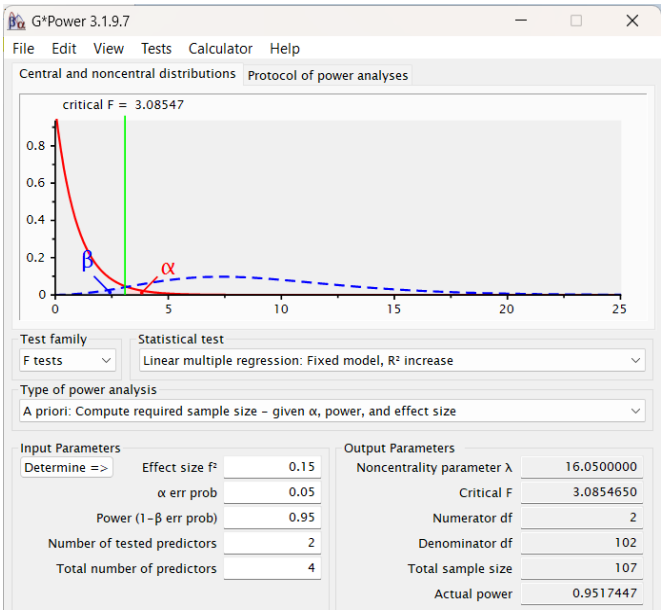

Figure 2. G*Power calculation

2.2. Data analysis procedure

In this study, partial least square structural equation modeling (PLS-SEM) was utilized to analyze the collected data. PLS-SEM was chosen as it allows for the examination of intricate interrelationships between observed and latent variables. The analysis was conducted in two steps: firstly, the validation of the outer models (measurement), and secondly, the evaluation of the inner model (structural relations among latent variables). The choice of employing PLS-SEM in this research can be attributed to its suitability for exploratory and predictive studies [23], [24]. Additionally, PLS-SEM is preferred in this study because it enables researchers to approximate complex models containing numerous constructs, indicators, and structural paths. Notably, researchers need not be concerned about the distributional assumptions of the research data since PLS-SEM is non-parametric in nature, as highlighted by Hair *et al.* [23]. Furthermore, the measurement model employed in this study adopts a reflective measurement model.

3. RESULTS AND DISCUSSION

3.1. Evaluation of measurement model (outer model)

The constructs in this study have reflective constructs, thus, the assessment of reflective constructs involves convergent validity, internal consistency reliability, and discriminant validity [23]. Convergent validity measures the extent to which a measure correlates with other measures of the same construct. In this study, it is determined by ensuring that both the loading factors and average variance extracted (AVE) values exceed 0.5 [23]. Internal consistency reliability, another aspect of measurement evaluation, examines the similarity in scores among items measuring a construct. To meet the internal consistency reliability criterion, both composite reliability and Cronbach' s alpha values should be above 0.6, as suggested by Hair *et al.* [23]. The final aspect of assessing the measurement models for first-order constructs is discriminant validity. Several approaches exist for evaluating discriminant validity, including cross-loading, the Fornell-Larcker criterion, and the Heterotrait-Monotrait ratio (HTMT). Among these, HTMT is considered a more accurate method as cross-loading and the Fornell-Larcker criterion may overlook certain issues related to discriminant validity, according to Henseler *et al.* [25]. The HTMT threshold is considered satisfactory if the confidence interval does not include 1, with a more conservative threshold being 0.85 [25].

Table 2 presents the results of the second run analysis, following the removal of certain measurements that did not meet the established requirements. Specifically, measurements B1, P1, P3, P7, R14, R16, R17, and R21 were excluded. B1 represents parts of the behavior construct, while P1, P3, P7 are components of the perception construct. Similarly, R14, R16, R17, R21 belong to the reaction construct. All constructs demonstrate satisfactory levels of convergent validity, internal consistency reliability, and discriminant validity. These measures ensure the robustness and accuracy of the measurement models. Table 3 shows the results of the HTMT analysis. Once it has been confirmed that the evaluation of the measurement models for all constructs is feasible, the study can proceed to the evaluation of the structural model.

Table 2. Convergent validity and internal consistency reliability measures

Latent variable	Indicators	Loadings	AVE	Composite reliability	Cronbach's alpha	Discriminant validity
		>0.50	>0.50	0.60-0.90	0.60-0.90	HTMT confidence interval does not include 1
Behavior	B2	0.768	0.598	0.93	0.931	Yes
	B3	0.709				
	B4	0.881				
	B5	0.778				
	B6	0.689				
	B7	0.768				
	B8	0.812				
	B9	0.712				
	B10	0.824				
Learning	L1	0.806	0.608	0.939	0.938	Yes
	L2	0.773				
	L3	0.786				
	L4	0.811				
	L5	0.818				
	L6	0.808				
	L7	0.582				
	L8	0.812				
	L9	0.817				
	L10	0.754				
Perception	P2	0.491	0.438	0.95	0.953	Yes
	P4	0.546				
	P5	0.571				
	P6	0.518				
	P8	0.733				
	P9	0.75				
	P10	0.783				
	P11	0.863				
	P12	0.757				
	P13	0.695				
	P14	0.594				
	P15	0.624				
	P16	0.78				
	P17	0.777				
	P18	0.877				
	P19	0.581				
	P20	0.615				
	P21	0.697				
	P22	0.51				
	P23	0.652				
	P24	0.57				
	P25	0.62				
	P26	0.589				
	P27	0.537				
	P28	0.601				
Reaction	R3	0.723	0.509	0.925	0.925	Yes
	R4	0.801				
	R5	0.746				
	R6	0.734				
	R7	0.635				
	R10	0.775				
	R12	0.634				
	R13	0.71				
	R15	0.648				
	R19	0.654				
	R20	0.729				
	R22	0.747				
Results	Rs1	0.836	0.562	0.884	0.884	Yes
	Rs2	0.806				
	Rs3	0.784				
	Rs4	0.673				
	Rs5	0.657				
	Rs6	0.722				

Table 3. HTMT values for discriminant validity

	Behavior	Learning	Perception	Reaction	Results
Behavior					
Learning	0.833				
Perception	0.618	0.675			
Reaction	0.637	0.645	0.468		
Results	0.851	0.816	0.597	0.655	

3.2. Evaluation of the structural model (inner model)

Once the reliability and validity of the outer model have been established, it is important to examine the inner model estimates to assess the hypothesized relationships among constructs in the model [23], [26]. However, it is important to note that PLS-SEM differs from CB-SEM, which means that the goodness-of-fit measures used in CB-SEM may not be directly applicable to PLS-SEM. In this study, the evaluation of the inner model's goodness-of-fit was conducted following the approach suggested by several studies [23], [27], [28]. This evaluation involved assessing the effect sizes of r2, f2 and Q2. Additionally, the standardized path coefficients and their significance levels were examined using 5,000 bootstrapping iterations. These measures allowed the researchers to test the proposed hypotheses and determine the significance and strength of the relationships among the constructs.

The coefficient of determination (R^2 value) is widely used to evaluate the structural model. This measure indicates the proportion of variance in the endogenous constructs that is explained by the exogenous constructs associated with them [23]. The R^2 value ranges from 0 to 1, with higher values indicating a stronger explanatory power. While it is difficult to establish specific rules of thumb for what constitutes an adequate R^2 value, a commonly accepted guideline is that an R^2 value of 0.20 or higher is considered adequate [23]. This threshold indicates that at least 20% of the variance in the endogenous construct is accounted for by the exogenous constructs linked to it. In addition to the coefficient of determination (R^2 value), another approach used to assess the goodness of fit of endogenous constructs is Stone-Geisser's Q^2 [29], [30]. In the context of PLS-SEM, this approach involves a blindfolding procedure where the omitted part of the data is estimated using the estimated parameters [31]. In this study, the researchers utilized the blindfolding feature in SmartPLS, with an omission distance of 8. The choice of an omission distance within the range of 5 to 10 [27], [32]. For interpretation purposes, if the Q^2 value is greater than 0, it indicates that the model has predictive relevance. Conversely, if the Q^2 value is less than 0, it signifies a lack of predictive relevance [28], [31].

Alongside Q^2, prominent scholars [23], [28], [33] have emphasized the importance of assessing the effect size of each path using f^2, which is Cohen's effect size [34]. This metric provides valuable insights into the practical significance of the relationships between variables. When interpreting f^2 values, researchers commonly utilize the following thresholds: a range of 0.02 to 0.15 suggests a small effect size, 0.15 to 0.35 indicates a medium effect size, and values exceeding 0.35 indicate a large effect size [31], [32]. These effect size guidelines can also be applied to Q^2, enabling an evaluation of the practical significance of the model's predictive relevance [28].

The path coefficients and significance levels are presented in Table 4. The analysis reveals several significant direct effects. Notably, behavior exhibits the strongest effect (β=0.45, $p<0.001$) on results. Additionally, the path coefficient for learning demonstrates a significant effect (β=0.32, $p<0.001$). Moreover, reaction also shows a positive and significant effect on results (β=0.14, p=0.05). Therefore, hypotheses 1, 2, and 3 are supported. The model also explores how the obtained results influence perception. The results in Table 4 indicate that the students' results from the preservice teacher's internship program have a positive and significant effect on their perception (β=0.57, $p<0.001$). Hence, hypothesis 4 is supported.

The model examined in this research also explores the mediation role of results. The specific indirect effects presented in Table 4 indicate that results mediate the relationship between behavior and perception, with a path coefficient of β=0.26 ($p<0.001$). Since behavior demonstrates a positive and significant effect on results (β=0.45, $p<0.001$), and results exhibit a positive and significant effect on perception (β=0.57, $p<0.001$), as well as behavior on perception (β=0.26, $p<0.001$), it can be concluded that results act as a complementary (partial mediation) in the relationship between behavior and perception. In terms of the mediation of results on the relationship between learning and perception, Table 2 provides evidence that results serve as a mediator (β=0.18, $p<0.001$). To further understand the nature of this mediation, it is necessary to examine the individual paths involved. The analysis reveals that learning has a positive and significant effect on results (β=0.32, $p<0.001$), and results, in turn, has a positive and significant effect on perception (β=0.57, p=0.05). Additionally, learning directly influences perception with a positive and significant effect (β=0.18, $p<0.001$). Based on these findings, it can be concluded that results act as a complementary factor, providing partial mediation in the relationship between learning and perception. In the context of the relationship between reaction and perception, the mediation of results is examined. Table 4 provides evidence that results act as a mediator in this relationship, indicating positive mediation. The path coefficient from reaction to results is positive and

significant (β=0.14, p=0.05), indicating that reaction has a direct effect on results. Additionally, results have a positive and significant effect on perception (β=0.57, p<0.001), suggesting that results influence perception. Furthermore, the direct path from reaction to perception also demonstrates a positive and significant effect (β=0.08, p=0.05). Therefore, results act as a complementary factor, providing partial mediation in the relationship between reaction and perception. Thus, the results of the analysis provide confirmation for hypothesis 5, 6, and 7.

Table 4 presents the results of the R^2 coefficient, indicating an adequate value of 0.32. This implies that the exogenous constructs explain 32% of the variance in the endogenous construct. The f^2 effect size calculations 4 reveal that the path from behavior to results has a medium effect size, while learning and reaction each have a small effect size on results. Moreover, results demonstrate a large effect size on perception. The findings in Table 4 also show that the Q^2 effect size of the exogenous constructs in the model of this study is adequate. Perception is found to have a small predictive relevance, whereas results exhibit a large effect size.

Table 4. Hypothesis tests and effect size results

		Coefficient	Mean	Standard deviation	t
Path coefficient (total effects)	Behavior->perception	0.26***	0.26	0.05	5.40
	Behavior->results	0.45***	0.45	0.07	6.83
	Learning->perception	0.18***	0.18	0.05	4.01
	Learning->results	0.32***	0.31	0.07	4.39
	Reaction->perception	0.08*	0.09	0.04	1.91
	Reaction->results	0.14*	0.15	0.07	1.97
	Results->perception	0.57***	0.58	0.05	11.19
Specific indirect effects	Behavior->results->perception	0.26***	0.26	0.05	5.58
	Learning->results->perception	0.18***	0.18	0.04	4.16
	Reaction->results->perception	0.08*	0.09	0.04	1.95
Effect size R2	Perception	0.32***	0.33	0.06	5.66
	Results	0.67***	0.68	0.04	18.70
Effect size f2	Behavior->results	0.22***	0.22	0.07	3.08
	Learning->results	0.11*	0.11	0.05	2.08
	Reaction->results	0.03	0.04	0.03	1.00
	Results->perception	0.48***	0.51	0.13	3.59
Effect size Q2	Perception	0.14			
	Results	0.42			

Notes: ***Significant at 0.001 level based on 5,000 bootstraps; **significant at 0.01 level based on 5,000 bootstraps; *significant at 0.05 level based on 5,000 bootstraps.

The strong positive influence of behavior on results aligns with a substantial body of research examining the impact of student behavior on academic outcomes. Previous scholars found that students who exhibited positive behaviors, such as active participation, collaboration, and self-regulation, tended to achieve better academic results [35]–[37]. This suggests that the influence of behavior on academic outcomes is consistent across different educational contexts. Furthermore, their study highlighted the importance of creating a supportive learning environment that promotes positive behavior and engagement. Moreover, in the field of teacher education, similar findings have been reported. Well-designed and engaging learning experiences, such as opportunities for authentic classroom practice and reflective discussions, were associated with higher student performance during internships [38]–[40]. These findings support the notion that effective teaching and learning strategies within internships can contribute to improved student outcomes.

In addition to behavior and learning, students' emotional and attitudinal responses, as captured by reaction, have also been recognized as important factors influencing internship outcomes [41], [42]. They found that students who had a positive emotional response to the program and displayed high levels of motivation tended to achieve better results. This indicates that students' reactions to the internship environment, such as their level of excitement, commitment, and satisfaction, can impact their overall performance. These findings underscore the significance of creating a positive and supportive internship environment that fosters student engagement and motivation.

Furthermore, the finding that results significantly influence students' perception is consistent with previous studies examining the relationship between achievement and program satisfaction. A survey-based study on student satisfaction in internships and found a positive association between academic achievement and overall program satisfaction [43]–[47]. Students who achieved better results during their internships reported higher levels of satisfaction with the program. This suggests that academic outcomes play a pivotal role in shaping students' perception and overall satisfaction with their internship experience. These findings emphasize the importance of designing internship programs that provide meaningful learning experiences and opportunities for achievement, as these factors contribute to students' overall perception and satisfaction.

By building upon and corroborating previous research findings, our study adds further evidence to the existing literature on the relationships between behavior, learning, reaction, results, and perception within the context of the preservice teacher's internship program. These findings contribute to a deeper understanding of the factors influencing student outcomes and perceptions, providing valuable insights for educators and policymakers aiming to enhance the effectiveness of internship programs. Future research could further investigate the specific mechanisms through which these factors interact and explore additional contextual variables that may influence internship outcomes and perceptions.

4. CONCLUSION

The study findings offer empirical evidence supporting the relationships among behavior, learning, reaction, results, and perception within the preservice teacher's internship program. The analysis reveals significant direct effects, with Behavior having the strongest influence on results, followed by learning and reaction, thus supporting hypotheses 1, 2, and 3. Additionally, results show a significant impact on perception, supporting hypothesis 4. Furthermore, the mediation analysis demonstrates that results act as a partial mediator in the relationships between behavior and perception, learning and perception, and reaction and perception, thus supporting hypotheses 5, 6, and 7. Based on these findings, several recommendations can be made to enhance the effectiveness of the preservice teacher's internship program. First, it is crucial to emphasize the importance of fostering positive student behavior, as it has a significant influence on results. Interventions and strategies should focus on promoting positive behaviors such as active participation, collaboration, and self-regulation. Second, enhancing learning experiences and instructional practices is essential, considering the significant effect of learning on results. Providing authentic classroom practice, reflective discussions, and engaging instructional strategies can enhance student performance during internships. Third, creating a positive internship environment is vital, as evidenced by the significant effect of reaction on results. Strategies that foster student engagement, motivation, and satisfaction should be implemented, including meaningful experiences, mentorship, feedback, and reflection. Fourth, recognizing the role of results in shaping students' perception is important. Designing internship programs that offer meaningful learning experiences, opportunities for achievement, and clear performance feedback can positively influence students' perception and satisfaction. Finally, further research should explore additional contextual factors that may impact internship outcomes and perceptions, such as mentorship quality, program structure, and support systems. To conclude, this study contributes to our understanding of the relationships among behavior, learning, reaction, results, and perception in the preservice teacher's internship program. The provided recommendations aim to enhance internship program effectiveness and improve student outcomes and satisfaction.

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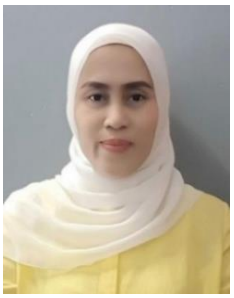

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