Innovations

Influence of self-efficacy, empathy and self-esteem on teachers' attitudes toward students with autism spectrum disorder

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Abstract
The purpose of this study was to examine the influence of self-efficacy, empathy and self-esteem on teachers' attitudes toward students with autism spectrum disorder (ASD). The sample consisted of 69 teachers who completed the scales online. Data were analysed using SmartPLS-SEM software. Findings revealed a significantly positive relationship between teachers' self-efficacy and empathy toward students with ASD.A significantly positive relationship between teachers' empathy and attitudes toward students with ASD was also found. Recommendations on how to increase teacher empathy toward students with ASD were provided in light of the findings.

Keywords: *1.autism, 2.empathy, 3.self-efficacy, 4.self-esteem*

Introduction

Self-efficacy, empathy and self-esteemare three of the most frequently researched socio-emotional attributes in the field of education. Previous research indicated that these three psycho-emotional constructs not only play a significant role in instructional effectiveness, learning outcomes and development of generic attributes, but also influence teachers' attitudes toward students and different dimensions of the teaching profession.Besides demonstrating a positive professional attitude, teachers should also possess the socio-affective competencies to effectively discharge their responsibilities.

The term "self-efficacy" was coined by Bandura who defined it as a personal judgment of how well an individual can execute courses of action required to deal with prospective situations. It is an individual's particular beliefs that determine how well he or she can succeed in a particular situation (1977).Demirtaş (2018) found that self-efficacy beliefs, together with students' participation, teaching motivation and teaching strategies weresignificantly related with affection for children among teacher candidates. On the other hand, Romero-García, Buzón-García and Beatriz (2022) found that self-efficacy was positively related with such psychosocial competencies as emotional awareness, optimism, pro-sociality and empathy.

The term "empathy" wascoined by Titchener who introduced it into the English language as the translation of the German term "Einfühlung" which means "feeling into" (1909). Wilson (2020) who examined the empathy and self-efficacy of preservice early childhood educators found significant positive correlations within the four subscales of empathy, specifically between perspective-taking and fantasy, personal distress and empathic concern,as well as personal distress and perspective-taking. Çelikkaleli

and Ökmen (2021) who examined the relationships among empathy, belief in teaching competency and job satisfaction found that empathy, together with self-efficacy and job satisfaction, was a statistically meaningful predictor of attitudes toward teaching.

The term "self-esteem" was coined by William James who stated that it equals success divided bypretensions (goals, values and what people believe about their potential). Ifindividuals'perceived potential and goals are high, but their actual achievements are low, they will view the mselves as failures. However, if people's success exceeds their expectations, they will feel positive about themselves, thus raising their self-esteem (Library of America, 1992).Fu et al. (2021) who examined the mediation effect of self-esteem on jobburnout and self-efficacy of special education teachers found positive correlations between personal teaching effectiveness and self-esteem, and between general teaching effectiveness and self-esteem. Baguri et al. (2022) who examined the influence of self-esteem, dispositional hope, mattering and crisis self-efficacy on the resilience of secondary school teachers found that self-esteem, together with all the other variables, had a positive and significant influence on teacher resilience.

Review of Literature

The review of literature covered research studies from 2012 to 2022, all of which were related to self-efficacy, empathy and self-esteem of teachers. As aforementioned, none of them focused on all three socio-affective variables simultaneously, or linked them with ASD at the same time.

Nikoopour et al. (2012) examined the relationship between trait emotional intelligence and self-efficacy among 336 teachers. Findings showed a significant relationship between trait emotional intelligence and self-efficacy. Moreover, trait emotional intelligence subconstructs showed a significant relationship with self-efficacy subconstructs as well as total self-efficacy; all subconstructs of trait emotional intelligence were moderate predictors of self-efficacy. Teachers with more years of teaching experience exhibited higher levels in both trait emotional intelligence and self-efficacy.

Sarkhosh and Rezaee (2014) examined the relationship between the emotional intelligence and self-efficacy among 105 university teachers. Findings revealed that there was a strong positive relationship between emotional intelligence and self-efficacy beliefs. Significant and positive correlations were found between self-efficacy and self-regard, interpersonal relationship, flexibility and stress tolerance. Flexibility, optimism and interpersonal relationship were found to be positive predictors of self-efficacy, covering 29 percent of its total variance.

Khan, Fleva and Qazi (2015) examined the impact of self-esteem and general self-efficacy among 200 primary school teachers. Findings indicated significant relationships among teachers' efficacy and general self-efficacy and self-esteem. Teachers with high self-efficacy tended to exhibit high self-esteem and high general self-efficacy. Further, self-esteem significantly influenced decision-making, educational self-efficacy, disciplinary self-efficacy, ability to get community cooperation, and development of positive school environment.

Goroshit and Hen (2016) examined the impact of overall self-efficacy and emotional self-efficacy on the empathy of 543 teachers. Findings indicated that both teachers' self-efficacy and emotional self-efficacy significantly predicted empathy among teachers. Teachers who scored high on both kinds of self-efficacy tended to score high on empathy. Nevertheless, teachers' self-efficacy was the stronger predictor, implying that confidence in teaching had greater influence on teacher empathy compared to emotional regulation.

Sahin (2017) examined the relationships among self-efficacy perceptions, emotional intelligence and self-esteem of 212 preservice teachers. Findings revealed that emotional intelligence and self-esteem explained nearly 38 percent of the total variance in the self-efficacy, while wellbeing, sociability and self-esteem significantly and positively predicted self-efficacy of preservice teachers.

Sezgin and Erdoğan (2018) examined humility and forgiveness as predictors of self-efficacy among 303 primary and secondary school teachers. Findings revealed a significant positive relationship between self-efficacy and humility, and between self-efficacy and forgiveness, indicating that, when humility and forgiveness increased, self-efficacy also increased accordingly. The highest levels of significant relationships were found between openness-self forgetfulness and forgiveness, and between openness-self forgetfulness and forgiveness of others and situations. Overall, humility and forgiveness were positive, significant predictors of self-efficacy, with forgiveness as a more effective predictor.

Navarro-Mateu et al. (2019) examined the predictive power of sociodemographic variables, empathy, and social dominance orientation on the attitudes, sentimentsand concerns about inclusion of 268 teachers. Findings showed that teachers' attitudes towards inclusion were positively related to emotional empathy, while teachers' concerns were positively related to emotional empathy. Both emotional and cognitive empathy increased the explained variance in attitudes towards inclusion. Findings indicated that empathy, together with low social, dominance orientation and high opposition to equality tended topositively impact on teachers' attitudes toward inclusive education.

Chung(2019) examined teacher efficacy, collective self-esteem and organisational commitment of 212 childcare teachers. Findings indicated that collective self-esteem partially mediated the relationship between teacher efficacy and organisational commitment. Further, teacher efficacy tended to translate into higher organisational commitment among those who had relatively more social support through collective self-esteem. Higher perceived social support tended to increase teacher efficacy, which in turn, enhanced teacher commitment to the educational institution.
Wilson (2020) examined the empathy and self-efficacy of 51 preservice early childhood
educators. Findings revealed significant positive correlations within the four subscales of empathy, specifically between perspective-taking and fantasy, personal distress and empathic concern, and personal distress and perspective-taking. A positive relationship was found between perspective-taking and self-efficacy whereby an increase in perspective-taking was related to an increase in self-efficacy beliefs. Finally, significant group differences were found in self-efficacy, with second-year students obtaining higher self-efficacy than their fourth-year peers.

Aparicio-Flores et al. (2020) examined the relationship between academic self-efficacy and dispositional empathy of 805 preservice teachers. Findings revealed significant correlations between academic self-efficacy and perspective taking and fantasy. Preservice teachers with high academic self-efficacy tended to have significantly higher means in perspective taking and fantasy than those with low self-efficacy.

Nwosu et al. (2021) examined the relationship between the self-concept and willingness to include children with special needs among 316 teachers, with teacher empathy as a mediator. Findings showed that teachers'self-concepts and empathy were positively and significantly related to willingness to teach and provide emotional and adaptive support to students with special needs. Moreover, teachers' cognitive self-concept had a significant indirect effect on willingness to teach, and for emotional and adaptive support through teacher empathy. Teachers with higher cognitive self-concept tended toshowgreater empathy, which in turn, led them to exhibit greater emotional/adaptive support toward students with special needs.

Moyano et al. (2021) examined the impact of mindfulness and self-efficacy on classroom relationships among 425 teachers. Findings indicated that both intrapersonal and interpersonal mindfulness mediated the relationship between self-efficacy, which had direct impact on teacher-student relationships, burnout and engagement. Teachers with greater self-efficacy were more likely to pay attention to their daily activities and to show more acceptance toward students, which resulted in lower burnout and more

engagement. Better relationships with students also led to higher intrapersonal mindfulness levels, which mediated the relationship between burnout and engagement.

Werner et al. (2021) examined the relationship between perceived self-efficacy and attitudes toward inclusion among 352 elementary school teachers. Findings showed that while knowledge of inclusion policy was not directly related to teachers' attitudes towards inclusion, indirect associations were significant via self-efficacy. Greater familiarity with inclusion policy was associated with greater self-efficacy; self-efficacy, in turn, was associated with teachers' perception of their professional roles and functions, besides cognitive, affective and behavioural attitudes. Findings also showed that school support of inclusion had both a direct and an indirect relationship with teachers' attitudes towards inclusion, indicating that higher levels of school support regarding inclusion were associated with greater self-efficacy.

Finally, Katsora, Kaprinis and Strigas (2022) examined the relationship between emotional intelligence and self-efficacy among 114 special education teachers within the context of inclusion of students with disability. Findings revealed a significant positive relationship between teachers' emotional intelligence and self-efficacy. Emotional intelligence and self-efficacy were alsoclosely linked since an increase in the former tended to lead to an increase in the latter. Further, a significant effect was found between emotional intelligence and self-efficacy in relation to the empowerment and social inclusion of students with disability.

Significance of the study and research gap

Research has repeatedly shown that self-efficacy, empathy and self-esteem act as powerful drivers influencing teacher behaviour in the classroom. Enhancingteacher self-efficacy, empathy and self-esteem can result in improved teacher mental health, job satisfaction and attitudes toward the teaching profession, which in turn, translate into favourable students' academic performance and socio-emotional development. It is therefore important to understand to what extentself-efficacy, empathy and self-esteeminfluence teachers' perceptions on howthey can successfully cope with tasks, obligations and challenges related to their professional role, especially in dealing with students with autism spectrum disorder (ASD).

A review of literature showed that there is a dearth of research on the self-efficacy, empathy and self-esteem of Malaysian teachers. Further, no research has been undertaken to examine the relationship between these socio-emotional constructs and attitudes toward ASD. Findings of this study wouldreflect how self-efficacy, empathy and self-esteem are interwoven in shaping Malaysian teachers' attitudes toward ASD.Additionally, no research has been found that simultaneously examinesself-efficacy, empathy and self-esteemin relation to ASD attitudes anywhere. Previous studieson these psycho-affective variables rarely showed the magnitude of the differences on the analysis of logistic models, which in turn,limited the generalisability and practical utility of the findings.

Purpose, objectives and hypotheses of the study

The purpose of this study is to examine the influence of self-efficacy, empathy and self-esteem on teachers' attitudes toward students with ASD in Malaysia. It conceptualises the antecedent-to-consequence constructs of an attitudinal framework toward students with ASD. Two objectives are formulated for the study: First, it explores the effect of self-efficacy, empathy and self-esteem on teachers' attitudes toward students with ASD. Second, it investigates the mediating effect of empathy on the relationship between (a) efficacy and attitudes toward ASD and (b) self-esteem and attitudes toward ASD.

Based on a quantitative or positivist stance, this study collected data and analysed the causal relationships of the antecedent-to-consequence on large amounts of data using simple random sampling technique. This method was adopted as it could overcome weaknesses with path analysis and regression techniques for better variable reliability and credibility (Amaro & Duarte, 2015). Seven hypotheses were formulated for this study:

- Hypothesis 1 predicted a positive association between teachers' self-efficacy and attitudes toward students with ASD.
- Hypothesis 2 suggested a positive relationship between teachers' self-efficacy and empathy toward students with ASD.
- Hypothesis 3 proposed a positive relationship between teachers' empathy and attitudes toward students with ASD.
- Hypothesis 4 suggested a positive relationship between teachers' self-esteem and attitudes toward students with ASD.
- Hypothesis 5 anticipated a positive relationship between teachers' self-esteem and empathy toward students with ASD.
- Hypothesis 6 predicted that empathy would mediate the relationship between teachers' self-efficacy and attitudes toward students with ASD.
- Hypothesis 7 proposed that empathy would mediate the relationship between teachers' self-esteem and attitudes towards students with ASD.

Methodology

Subjects

The sample consisted of 69 teachers from five secondary schools, three private colleges and two universities in Malaysia. The schools were randomly selected from 15 schools using a table of random numbers. The private colleges were randomly selected from 10 colleges, while the two universities were randomly selected from three. Drawn from communities that were culturally, linguistically and ethnically diverse, the middle-class sample was subsequently obtained with the cooperation of principals, coordinators and deans who agreed to share the survey link. All teachers responded to the scales online. Table 1 provides the demographic information of the sample.

Table 1: Demographic information of the sample

Job title	**Frequency**	**Percent**	**Gender**	**Frequency**	**Percent**
Regular	48	69.6	Male	23	33.3
Inclusive	5	7.2	Female	46	66.7
Special educ	16	23.2			
Total	69	100.0	**Total**	69	100.0
Age	**Frequency**	**Percent**	**Job/years**	**Frequency**	**Percent**
25-35	13	18.8	1 - 5	8	11.6
36-45	25	36.2	6 - 10	11	15.9
46-55	20	29.0	11 - 15	18	26.1
56-60	11	15.9	16 +	32	46.3
Total	69	100.0			
Qualifications	**Frequency**	**Percent**			
Diploma	3	4.3			
Bachelors	42	60.9			
Masters	17	24.6			
PhD	7	10.1			
Total	69	100.0	**Total**	69	100

Instruments

Self-efficacy was measured by using an eight-item scale designed by Robinson (2020). Using a Likert scale, the scale was developed based on Bandura's recommendation for creating self-efficacy scales (Bandura, 2006) and the teacher general efficacy scale (Skaalvik & Skaalvik, 2009). A Confirmatory Factor Analysis showed that the relational self-efficacy scale fit a one-factor model, $X^2(20) = 26.73$, p =

.14; RMSEA = .07, 90% CI [.00, .13]; CFI = .956. A factor score for the scale was extracted, and the correlation with the unit-weighted composite was .99.

Empathy was measured by using the Toronto Empathy Questionnaire's (TEQ). TEQ was constructed by Spreng, McKinnon, Mar and Levine (Spreng et al., 2009) to assess empathy as an emotional process. Its construct validity has been demonstrated through associations with other measures of empathy (positive correlation with the EQ $r = 0.80, p < 0.001$) or similar concepts, such as interpersonal sensitivity and social comprehension. Its internal consistency was high, ranging from $\alpha = 0.85$ to $\alpha = 0.87$, as well as its test-retest reliability at $r = 0.81$, $p < 0.001$ (Spreng et al., 2009).

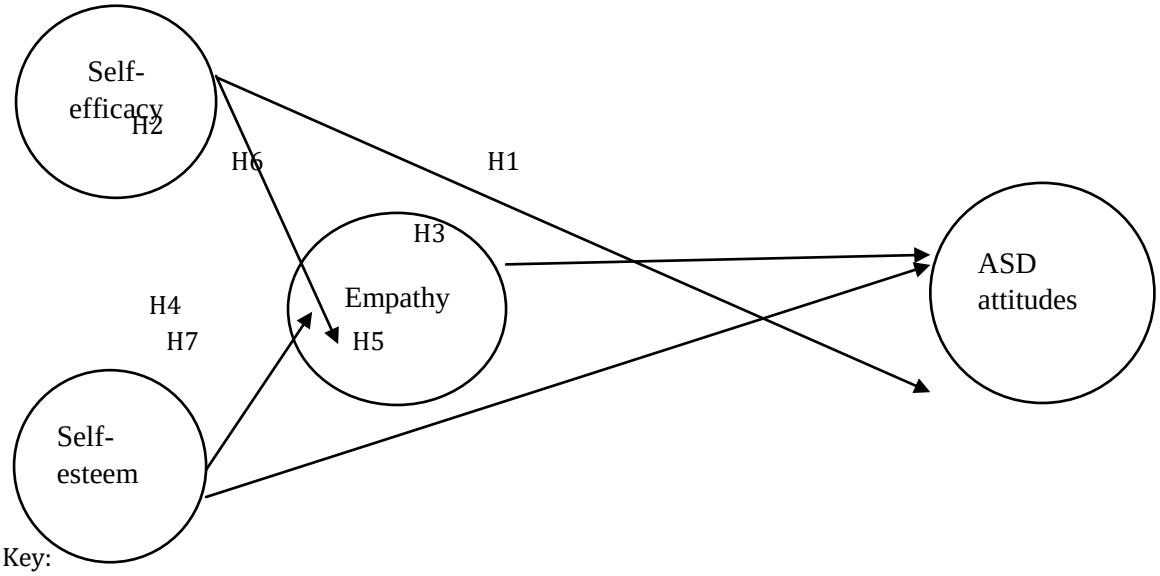
Self-esteem was measured by using theRosenbergSelf-Esteem Scale (Rosenberg, 1965). The scale is unidimensional andall items are answered using a five-point Likert scale format ranging from strongly agree to strongly disagree. Fleming and Courtney (1984) administered the scale to 259 undergraduates and factor analysis yielded a single, superordinate factor of global self-esteem, supporting the hierarchical interpretation of the facet model. Moreover, results yielded a test-retest reliability of .82 and a coefficient alpha of .88.On the other hand, Reynolds (1988) who examined the self-esteem and self-concepts of589 undergraduates, found a moderate .44 correlation between the Rosenberg Scale and the Academic Self-Concept Scale.

Attitudes toward ASD was measured by using the Autism Attitude Scale for Teachers (Olley, et al., 1981). Based on a five-point Likert scale, it consists of two seven-item alternate forms that correlate .84 with each other. The alpha reliability coefficients from Form A, Form B and the 14 items combined into a single form are .85, .78 and .91, respectively. Items were selected from a pool of over 40 items intended to measure attitudes toward the inclusion of children with ASD in public schools. The 14-item subset derived from the revised list was selected because it its high correlation (.90, .95 and .97 for Form A, Form B as well as Forms A/B, respectively; $p < .0001$ in all cases).

Data analysis method

The partial least squares-structural equation modelling software, Smart-PLS, was deployed to analyse data, including testing for indicator reliability, validity and path coefficients (Hair et al., 2022).The current study adopted the 10-times rule as propounded by Hair and colleagues (2017). In the 10-times approach, the rule-of-thumb on the minimum sample size is measured by the largest number of formative indicators pointed at a latent construct in the model, multiply by 10. Based on the research framework of this study (see Figure 1), the largest number of predictors to a construct was three (arrowheads to the ASD attitudes construct). As such, the minimum sample size was 30; a total of69 secondary school, college and university teacherscompleted the online survey.

Figure 1: **Research framework: Three predictors of ASD attitudes with seven hypotheses**



Key:
H1: Self-efficacy →ASD attitudes
H2: Self-efficacy → Empathy
H3: Empathy → Attitudes
H4: Self-esteem → Empathy
H5: Self-esteem →ASD attitudes
H6: Self-efficacy → Empathy →ASD attitudes
H7: Self-esteem → Empathy →ASD attitudes

Measurement and structural model

Using the SmartPLS-SEM software, tests on Convergent Validity (CV) and Discriminant Validity (DV) in Confirmatory Factor Analysis (CFA) were conducted on the measurement items. In addition, Cronbach's alpha (α) and composite reliability (CR) were carried out for reliability testing. Results from the tests indicated high levels of internal consistency, and thus reliability (see Table 2).

Table 2: Measurement model: Reliability and validity

Variable	Measurement Item	Cronbach's Alpha (α)	FactorLoading	CR	AVE
ASD Attitudes	ATT1 ATT2 ATT3 ATT4 ATT5	0.861	0.833 0.823 0.709 0.819 0.824	0.900	0.644
Efficacy	EFC1 EFC2 EFC3 EFC4 EFC5 EFC6 EFC7	0.938	0.859 0.759 0.884 0.891 0.866 0.872 0.834	0.949	0.728

Empathy	EMP1 EMP2 EMP3 EMP4	0.737	0.725 0.846 0.690 0.729	0.836	0.562
Self-Esteem	SET 1 SET 2 SET 3 SET 4 SET 5	0.914	0.920 0.788 0.804 0.775 0.805	0.911	0.672

Discriminant validity was also confirmed based on the Fornell-Lacker test. Discriminant validity of ASD attitudes, self-efficacy, empathy and self-esteem were found to be .80, .85, .75 and .82, respectively (see Table 3).

Table 3: Discriminant Validity

	ASD attitudes	**Self-efficacy**	**Empathy**	**Self-esteem**
ASD attitudes	0.803			
Self-efficacy	0.243	0.853		
Empathy	0.555	0.208	0.750	
Self-esteem	0.048	0.285	0.140	0.820

In evaluating the path relationships among the variables in the model, the procedure for bootstrapping was done. Beta coefficient and *p*-value were calculated for the individual path relationship. Based on a .05 significant level, the individual relationship between self-efficacy, empathy, self-esteem, and ASD attitudes was tested and validated for positive effect according to the seven hypotheses mentioned above.

Findings

Consequent to evaluating the measurement model, the theoretical elements and their relationships in the structural model were examined. Using the bootstrapping procedure in Smart PLS-SEM, the direct relationships between exogenous variables and endogenous variables were tested. ASD attitudes and empathy wereendogenous variables, while efficacy and self-esteem were exogenous variables. The approaches to measuring the path relationships in the structural model included coefficient of determination (R^2), predictive relevance (Q^2) and the mediating effect of the endogenous variables in the research framework (see Table 4).

Based on a bootstrapping procedure, the critical *t*-values were derived. Alternatively, the *p*-values were also observed for significance. Findings revealed thatself-efficacy was positively related to empathy (β = 0.270, *p* = 0.011).In turn, empathy was shown to significantly influenceASD attitudes (β = 0.548, *p* = 0.000). As such, the null hypotheses for H2 and H3were rejected and it was concluded that the antecedents were statistically significantly different from zero. Hence, Hypothesis 2 and Hypothesis 3 were supported for the overall sample. However, the findings for Hypothesis 1 suggested a weak relationship between efficacy and attitude (β = 0.102, *p* = 0.238). Contrary to prediction, self-esteem demonstrated a direct weak relationship with empathy (β = -0.217, *p* = 0.146) and attitude (β = 0.096, *p* = 0.269). Therefore, Hypotheses 4 and 5 were not supported (see Table 4)

In examining the impact of exogenous variables onendogenous variables in the research framework, the score of coefficients of determination (R^2) must be generated as the R^2 value reflects the total amount of variance in the endogenous variables explained by the related exogenous variables (Hair et al., 2017).In this study, the R2 value of 0.333 was recorded for ASD attitudes. This suggested that empathy accounted for 33 percent in teachers' attitudes toward students with ASD, while self-efficacy and self-esteem were able to explain only 8.6 percent of empathy.
The next approach in the structural model concerns the predictive relevance (Q^2) of exogenous variables on endogenous variables. In this test, the blindfolding procedure is used, whereby difference between omitted and predicted data points are inputs to calculate Q^2. Based on cross-validated redundancy, Q^2 value greater than 0 signifies the predictive relevance ofexogenous variables for the endogenous variables in the structural model (Chin 1998; Hair et al., 2014).

Current findings revealed thatQ^2 values for ASD attitudes and empathy were greater than 0, indicating the research model had sufficient predictive relevance. According to Hair et al. (2017), Q^2 values larger than 0 suggest that the model exhibits predictive relevance.In other words, Q2 values of the two endogenous variables, ASD attitudes and empathy,were above 0. Referring to Hair et al., (2017), inclusion of the two variables tended to enhance the explanatory power of the research model,rather than just empathy or ASD attitudes alone.More specifically, ASD attitudes (0.192) showed the higher Q2 value, followed by empathy (0.025), which provided sufficient evidence to support the research framework's predictive relevance for both endogenous variables (see Table 4).

Table 4: Path coefficient of hypotheses

No.	Hypothesis	Beta	*p* - value	Hypothesis Decision
H1.	Self-efficacy → ASD attitudes	β = 0.102	*p* = 0.238	Not supported
H2.	Self-efficacy→ Empathy	β = 0.270	*p* = 0.011**	Supported
H3.	Empathy → ASD attitudes	β = 0.548	*p* = 0.000**	Supported
H4.	Self-esteem → ASD attitudes	β = 0.096	*p* = 0.269	Not supported
H5.	Self-esteem → Empathy	β = -0.217	*p* = 0.146	Not supported

Note: * $p<0.05$, ** $p<0.01$

To further validate the mediation effects of empathy in the research framework, a bootstrapping analysis was conducted (Ramayah et al., 2018). Empirical results validated the mediating effect of empathy for the relationship betweenself-efficacy and ASD attitudes.Contrary to prediction, the relationship between self-esteem and ASD attitudeswas not mediated by empathy. Therefore, Hypothesis 6 wasverified,while Hypothesis 7was not supported (see Table 5).

Table 5: Hypothesis testing on mediating effects

					Confidence Interval (BC)		
No.	**Relationship**	**Std. Beta**	**Std. Error**	***t*-value**	**LL**	**UL**	**Decision**
H6.	Self-efficacy →empathy → ASD attitudes	0.153	0.168	2.377*	0.058	0.303	Supported
H7.	Self-esteem → Empathy → ASD attitudes	-0.113	-0.105	1.063	-0.317	0.108	Not supported

Note: *p–value<0.05,**p<0.01, BC = Bias corrected, UL = Upper level, LL = Lower level

Discussion

Results showed that Hypothesis 2 was supported for the overall sample whereby a significantly positive relationship was found between teachers' self-efficacy and empathy toward students with ASD. This finding was supported by previous research. Di Giunta et al. (2020) who assessed perceived empathic and social self-efficacy across several countries found that perceived empathic self-efficacy was more highly related to empathy. On the other hand, Hen (2010) who examined the effect of general education teachers' self-efficacy on empathy and their attitudes toward the inclusion of students with special needs found that teachers' self-efficacy, academic degree, age and seniority were significantly associated with empathy.

Similarly, Goroshit and Hen(2014) who examinedthe impact of emotional self-efficacy on teachers` self-efficacy and empathy found that emotional self-efficacy predicted both empathy and teachers` self-efficacy. Additionally, Aparicio-Flores et al. (2020) found that high academic self-efficacy was more likely to characterise preservice teachers with a high level of dispositional empathy factors, such as perspective taking and fantasy, while Tabares and Palacio (2021) found that empathy and self-efficacy were associated as significant protective factors of moral disengagement among adolescents. Finally, Deane et al. (2022) found that both empathy and efficacy predicted mentor relationship quality of a youth program.

Results also showed that Hypothesis 3 was supported for the overall sample wherebya significantly positive relationship between teachers' empathy and attitudes toward students with ASD was found. This finding was supported by previous research. Harding (2009) reiterated that the school culture should be empathetic to encourage students with special needs to become more inclusive, tolerant and accepting of one another. School administrators must act as empathetic listeners to staff and parents, while demonstrating that perspectives can and should be shared in a congenial way. Yunus (2013) found that humanistic practices in teaching students with ASD are crucial as they need empathy and close monitoring fromteachers. Moreover, empathetic teachers with an optimistic outlook and amicable attitudesoften create an affective learning environment conducive for active learning and meaningful student engagement.

Similarly, Hummerstone and Parsons (2021) found that students with ASD tended to underscore the importance of feeling understood and scaffolded in school, implying thatteachers should demonstrate empathy in their pastoral strategies to promote a socially and culturally inclusive school environment.Finally, Wink, LaRusso and Smith (2021) found that teachers with higher cognitive empathy reported more positive mindsets about student behaviour and greater competence in handling problem behaviours. They also reported increased use of effective problem-solving strategies, greater relationship closenessand lower levels of job burnout.

Limitations and Recommendations

This study was limited to 69 teachers from only two Malaysian states. To increase generalisability of findings, it is recommended that future research in this area use larger samples from different parts of the country, using a variety of instruments with high validity and reliability. Despite its constraints in sample size, the following recommendations arise from the findings of the study.

Since self-efficacy, empathy and self-esteem tend to exert an influence on instructional effectiveness; they need to be incorporated into teacher training and intervention programs. Encouraging teachers to capitalise on their psycho-emotional attributes and instilling a belief that they have the efficacy, empathy and self-esteem to become successful educators canbe made an integral part of teacher training and development. Besides subject matter mastery, teachers across all disciplines need to develop efficacious teaching behaviours and psychosocial skills to adequately meet the challenges of educating students with ASD.

Further, teacher empathy toward students with ASD needs to be increased. van Rooij (2012) proposed the use of research-based personasto teach empathy to job-oriented individuals. They can be used to integrate empathy into the practicum of preservice teachers, encouraging them to view themselves as problem-solvers and solution architects who have sound pedagogical and communication skills to adequately work with students with special needs. Additionally, research-based personas enable aspiring teachers to gain deeper insight into the challenges of the 21st century classroom, particularly when they themselves come from socioeconomic backgrounds that drastically differ from their students.

Swan and Riley (2012) recommended that teacher empathy be extended to include mentalising that embodies the capacity to make sense of the actions of oneself and other people on the basis of desires, feelings, and beliefs. Using mentalisation as a pedagogical tool allows teachers to incorporate interpersonal relationships into subject matter delivery and classroom management. Teachers must perceive and interpret student behaviour in terms of intentional mental states (needs, beliefs, feelings, desires, feelings, goals, purposes and reasons). This meta-cognitive ability enables them to reflect on their own mental world and the mental world of others, allowing them to effectively collaborate with students, understand feelings, and regard students as unique individuals.

Finally, Critchley (2019) emphasised that ASDempathy should be embedded in the education system, with ASD training for all teachers. To be able to support students with ASD, teachers need to havesolid understanding of ASD and an empathetic appreciation of how students' different brainscan affect their perceptions of school life differently. Moreover, empathy training therefore enables teachers to regard students as unique individuals with their own self-identities and lifestyle orientations. Some students with ASD may require extra help and support in a special school environment, while others are able to independently function within a mainstream classroom with minimal support.

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