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Examining the role of emo-sensory intelligence in teaching burnout, teaching interest, and teachers' success

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Abstract

Given the importance of teaching quality in the education of students, especially adolescents in the critical stage of identity formation, emotions arising from sensory experiences play a significant role in teaching quality, such as enthusiasm for teaching, burnout, and teaching effectiveness. The authors measured 315 (136 male and 179 female) middle school teachers' emo-sensory intelligence (ESQ). The relationship between ESQ, the measurement of experienced burnout, teachers' success, and interest scales were also examined. Based on the descriptive and inferential analyses, burnout negatively correlated with teachers' ESQ, success, and interest. Furthermore, mediated by burnout, ESQ positively predicted teachers' success and interest. Teachers' burnout negatively predicted their success and interest. Considering the correlation between ESQ, burnout, and the mediating role of burnout on success and interest, it is recommended that teachers cultivate an understanding of the ESQ concept and develop an awareness of sensory-induced emotions, which may lead to a decrease in burnout and an increase in success and interest.

Keywords: Emo-sensory intelligence, Teaching burnout, Teachers' success, Teaching interest, Middle school teachers, Structural equation model

Introduction

The potential contribution of teaching quality is held accountable for meeting the full educational potential of each student (Niemi et al., 2018). While enhancing the teaching quality is a worthwhile goal, some groups of learners should be paid more heed than others. The education literature gives remarkably higher consideration to adolescent students who present elements of biological growth. Since the teenage phase underpins social role transitions in line with biological growth, teachers' roles gain more importance in forming adolescents' identities (Wanders et al., 2021). Consequently, a crucial element to consider in the educational process, aimed at augmenting students' motivation for improved learning, is the comprehension of their essential psychological demands and their incorporation into the teaching methodology (Wang & Reynolds, 2024). These demands include the necessity for competence and relationship, which are satisfied through active behavioral, cognitive, and emotional involvement in learning

activities (Wang & Wang, 2024). So, stimulating students' emotions during learning significantly influences their educational outcomes and, therefore, their happiness with instructional approaches (Ebrahimi & Jahani, 2024).

Teachers should apply high-quality teaching methods and be aware of students' emotions (Kasalak & Dagyar, 2022). Both positive and negative emotions significantly influence the quality of teaching and learning (Derakhshan et al., 2023a, 2023b; Wang et al., 2022a, 2022b, 2022c). In fostering teachers' emotional awareness, the role of the senses in emotions is irrefutable (Rouby et al., 2016). In this regard, Pishghadam and Shayesteh (2017) introduce the emo-sensory intelligence concept firmly rooted in emotional intelligence (Bar-On, 1997) and sensory intelligence (Lombard, 2007). The rationale behind introducing emo-sensory quotient (ESQ) intelligence is to integrate the emotional and sensory types of intelligence that have historically been considered separately (Pishghadam & Shayesteh, 2017). Pishghadam and Shayesteh (2017) proposed this concept to unify the distinct types of intelligence, thereby filling the gap between sense and emotion. By introducing the ESQ, the authors broadened the understanding of intelligence. ESQ posits that intelligence encompasses not only emotional capacity but also the processing of sensory information. This sensory-based approach defines intelligence as 'sensitivity to emotions evoked by sensory inputs' (Naji Meidani et al., 2022). The goal that constitutes the framework of emo-sensory intelligence is the importance of emotions evoked by sensory experiences (Pishghadam et al., 2020).

Emo-sensory intelligence denotes the capacity to identify, categorize, regulate, and manage emotions elicited by sensory experiences to govern behavior (Pishghadam & Shayesteh, 2017). According to this approach, educators should regulate their feelings and employ them in their jobs (Ebrahimi et al., 2022). Positive emotions significantly contribute to the growth and development of educators, improving their teaching performance. Conversely, adverse emotions impede education (Derakhshan & Shakki, 2024). Educators who possess superior emotional regulation skills exhibit enhanced classroom time management and more enthusiasm to accomplish their teaching duties relative to their colleagues (Rahimi & Modarresi, 2023). Conversely, when educators suppress their emotions, apathy may infiltrate their teaching methodology (Shukla & Trivedi, 2008). This situation gradually makes teachers susceptible to burnout (Kant & Shanker, 2021).

Burnout symptoms may directly or indirectly influence teachers' success and interest (Shukla & Trivedi, 2008). Therefore, teachers exhibit physical and emotional exhaustion (Pines & Aronson, 1988), resulting in demotivation, impatience, and frustration in teaching (Pishghadam et al., 2021a, 2021b). Furthermore, if their burnout remains unaddressed, educators may forfeit their passion for education, neglect their duties (Bedanta, 2020), and encounter discontent from the community and authorities. This may result in the belief that they are ineffective educators (Ustin et al., 2021).

The pervasiveness of teaching burnout makes us scrutinize the matter. Though studies (e.g., Fiorilli et al., 2019; Kant & Shanker, 2021; Kotaman et al., 2022; Naji Meidani et al., 2018) have been conducted on burnout, they have yet to explore the interplay between burnout and emo-sensory intelligence. The significance of the study lies in the use of emo-sensory intelligence. It examines to what extent 'sense-induced emotions' (emotions that are triggered or influenced by sensory experiences) can be recognized,

labeled, and managed by teachers about the six basic emotions and five basic senses. Previous studies only examined teachers' EQ in connection with burnout. This study is significant as it explores sensory intelligence and the integration of sensory and emotional intelligence under emo-sensory intelligence. Another critical aspect of the study is the exploration of ESQ among middle school teachers. While previous studies have investigated various predictors of teacher burnout in middle education, the relationship between burnout, sensory intelligence, and emotional intelligence has not been thoroughly examined. The study also signifies the examination of teacher burnout in Iran, which has recently become a prominent issue.

Based on some of the study's findings (e.g., Fiorilli et al., 2019; Pishghadam & Sahebjam, 2012) that examined the effects of emotions and emotional intelligence on teachers' burnout, the authors assumed there might be a significant relationship between teachers' ESQ levels and burnout. Considering the bilateral relationship between teachers' performance, success, and interest, the authors explored whether emo-sensory intelligence could predict teachers' success and interest. Given that teachers' emotions predict their success and interest according to previous studies (e.g., Chen et al., 2023; Frenzel et al., 2021; Li & Lv, 2022), authors hypothesized that ESQ would also predict their success and interest. Focusing on middle school teachers, this study is the first to investigate emo-sensory intelligence as a novel variable affecting job burnout, interest in teaching, and teaching effectiveness among secondary school teachers in Iran, highlighting the importance of adolescence in identity formation and the impact of teaching quality in this context. This research utilizes Structural Equation Modeling (SEM) as an advanced tool to evaluate intricate interactions between variables, in contrast to standard methodologies, to solve the following research questions:

1. Is there any significant relationship between emo-sensory intelligence and teachers' burnout?
2. Can emo-sensory intelligence predict teachers' interest?
3. Can emo-sensory intelligence predict teachers' success?

Literature review

Emo-sensory intelligence (ESQ)

Binet and Simon (1905) initially enunciated the evolutionary explication of intelligence as a single factor referring to the cognitive strengths of children with special needs. The shift of approach to intelligence as a multifaceted concept was highlighted in the triarchic theory of intelligence (Stenberg, 1985) and multiple intelligence (Gardner, 1983). After that, researchers became interested in other forms of intelligence, including emotional intelligence (Salovey & Mayer, 1990) and sensory intelligence (Lombard, 2007). While emotional intelligence relates to the ability to overcome differences in emotions, behaviors, and thoughts, sensory intelligence pertains to the adjustment of senses to unfamiliar situations. Though various definitions emerged, they needed to have the power to compel the acceptance of researchers, and each required more comprehensiveness. Meanwhile, Pishghadam and Shayesteh (2017) shed light on the convoluted sense-emotion relationship and coined emo-sensory intelligence [emotional-sensory quotient

(ESQ)] as the conciliatory approach and interplay between emotional and sensory intelligence. ESQ is the 'ability to recognize, label, monitor, and manage sense-induced emotions to guide one's behavior' (Pishghadam & Shayesteh, 2017, p. 24). This all-inclusive definition emphasizes the amalgamation of senses and emotions and suggests that a high ESQ level reveals sense-induced emotion recognition and behavioral modification (Pishghadam et al., 2020).

An intelligence-based analysis employed psychometric intelligence (IQ), EQ, and ESQ to predict students' academic achievement (Pishghadam, Faribi et al., 2022). Accordingly, IQ, EQ, and ESQ (the auditory sub-component) levels predicted the students' success. Besides academic achievement, the ESQ level also conforms with students' cognitive and metacognitive learning strategies (Pouryazdanpanah Kermani, 2022). Moreover, Naji Meidani et al. (2022) executed the ESQ concept, which prompted gender differences analysis and revealed females' superiority over males for tactile, visual, and olfactory senses. In addition, the ESQ results compared with females' better ability (vs. males' ability) in identifying the emotions evoked by their sensory experiences and communications. In this respect, Nayebi (2024) highlighted the significant role of ESQ in language learners' academic success and underscored that neuro-linguistic programming can further enhance this intelligence.

Regarding teachers' ESQ, Jahani and Aminzadeh (2024) examined whether there were differences in ESQ among high school teachers based on gender and age. The findings revealed that female teachers had higher levels of ESQ than their male counterparts. Additionally, teachers between 30 and 40 years showed stronger ESQ than teachers of other age groups (i.e., 20–30, 40–50, 50–60). These results suggest that ESQ is an essential quotient for teachers and may vary according to gender and age. In sum, senses and emotions are inextricably intertwined, affecting an individual's life. The ESQ concept coalesces sensory-induced emotions into one connected whole, forming an individual's understanding of the world.

In summary, emo-sensory intelligence suggests that intelligence encompasses more than IQ, EQ, and SQ. Educators can distinguish between emotions that elicit happiness or unhappiness. Individuals possessing elevated sensory emotional intelligence actively want to amplify their pleasant emotions, resulting in increased engagement and success in teaching (Chen, 2018).

Teachers' interest

Although interest is crucial in education, most studies have concentrated on students' interests concerning characteristics like learning. Nevertheless, more research needs to be undertaken regarding this concept of educators. This is critical because teachers' engagement is essential and greatly influences their professional development (Hargreaves, 1998). Teachers profoundly affect individuals in society, and their engagement directly influences their conduct and efficacy.

Research conducted by Bedanta (2020) and Schiefele et al. (2013) demonstrated that educators' enthusiasm for teaching forecasts their professional well-being, job-related burnout, and satisfaction in the classroom environment. Eren (2012) similarly discovered that demographic factors, including gender, age, teaching experience, and academic discipline, influence teachers' enthusiasm for teaching, predicting their work

satisfaction. Schiefele and Schoffner (2015) found that educators' enthusiasm for teaching and their self-efficacy influence their instructional methods, with this passion significantly affecting student motivation.

Ifeakor and Odo (2020) emphasized that elements including access to internet resources in classrooms, teachers' remuneration, their influence in educational decisions, prospects for advancement, and consideration of their welfare are essential for enhancing teachers' motivation and sustaining their engagement in the teaching profession.

Furthermore, research conducted by Handal and Bobis (2004), Russo et al. (2019; 2020), and Krafy and Lyon (2024) highlighted the beneficial impact of teachers' enthusiasm for and pleasure in teaching on student involvement and academic performance. Krafy and Lyon (2024) examined teachers' interest in the profession in the United States during the last fifty years, determining that economic, political, and social transformations and educational policies have led to variations in this metric.

Consequently, the current research indicates that educators' enthusiasm for teaching is pivotal in education. Establishing the requisite conditions for nurturing and maintaining this interest substantially enhances instructors' professional effectiveness.

Teachers' success

A teacher's success requires applying the correct principles to create an environment conducive to learning. Teachers' success ensures a quality education with manifold principal qualities. For instance, emotional, thinking, and mental components (Pishghadam, Faribi, et al., 2022) as well as the educational environment (Ustin et al., 2021), autonomy, and professional identity (Derakhshan et al., 2020) are some factors that impact on multidimensional roles of successful teachers. Notably, paying attention to the interrelationship of variables, especially emotional well-being and professional efficiency, can be helpful in the field of education (Fan & Wang, 2022). In other words, a solid and positive relationship exists between teachers' well-being, ability to manage their emotions, and professional success. Wang et al., (2022a, 2022b, 2022c) also highlighted the interaction of teachers' psychological well-being, work engagement, and immunity. Their results presented the positive effect of teachers' psychological well-being and work engagement on their immunity. Moreover, they found that psychological well-being was a more accurate predictor of teachers' immunity in Asia than work involvement. Successful teachers conduct a well-managed classroom with adequate knowledge, ability, and personality to grow students' character to a satisfactory level (Lupascu et al., 2013). Although teachers experience positive and negative emotions, they attempt to employ various 'preventive' and 'responsive' strategies to control them (Derakhshan et al., 2023a, 2023b).

Furthermore, in addressing teachers' and students' emotions to achieve the best educational outcomes, Wang et al., (2022a, 2022b, 2022c) explored love as a variable of positive psychology, believing it would enhance the learning experience by fostering a supportive and empathetic environment. Pishghadam et al. (2012) add that motivation, stroke, and creativity are pivotal factors that enrich teachers' efficacy to effectuate desired outcomes. More specifically, the association between active motivations and positive stroke remarkably predicts teachers' professional success and students' satisfaction in an interactive manner (Pishghadam et al., 2021). In this view, teachers'

interpersonal communication, an instance of positive stroke, can encourage students' active motivation, giving rise to perceptions of teachers' effectiveness. On the contrary, teachers' success and motivation negatively correlated with the abatement of emotional investment in teaching, 'emo-educational divorce' (Ebrahimi et al., 2022). Correspondingly, in examining factors influencing teachers' maintenance and development, Ahmadi (2022) designed a model of these factors and found that teamwork, organizational culture, providing opportunities for growth and prosperity, information and communication management, organizational climate, empowerment, education and improvement, school leadership, performance management, educational needs assessment, mission and a clear vision, appreciation and encouragement, and job factors including job reputation, job satisfaction, job dynamics, and quality of work life affect teacher development and retention (p. 55).

Appropriately, teachers with emo-educational divorce are emotionally demotivated to present in the course and withdraw from the requirements of their job. Loss of feelings of accomplishment in the job generates burnout (Shukla & Trivedi, 2008). In general, multiple factors, such as emotion, motivation, educational environment, and professional identity, have a complex interplay contributing to teachers' success and the overall quality of education. The following part delineates the bilateral relationships between these variables with a specific concentration on burnout.

Educators are the principal influencers of educational quality, so it is crucial to discover the elements contributing to their advancement and success. Disregarding these elements may result in issues such as job burnout among educators.

Teaching burnout

Freudenberger (1974) introduces staff burnout, referring to members' physical and behavioral exhaustion for all purposes. Lack of physical, emotional, and mental energy (Pines & Aronson, 1988) blocks progress and effectiveness (Cherniss & Krantz, 1983), leading to physical fatigue and psychological stress (Cherniss, 1980). Persistence of frustration and stress causes burnout syndrome. Burnout syndrome occurs through the critical dimensions of depersonalization, emotional exhaustion, and lack of personal accomplishment (Maslach & Jackson, 1981). For instance, teachers who carry the burden of teaching hold debilitating psychological disorders due to an imbalance between demands and resources (Stewart, 2015). In this view, some demands are role conflict, role ambiguity, student misbehavior, and workload, while resources include peer and supervisory support besides decision-making. Consequently, teachers' instantaneous irritation, negative attitude (Iancu et al., 2018), and low self-efficacy (Yurt, 2022) cause a loss of enthusiasm (Kasalak & Dagya, 2022), emotion, attention to students' demands, and educational system requirements (Shukla & Trivedi, 2008).

Considering depersonalization, emotional exhaustion, and lack of personal accomplishment, Pishghadam and Sahebjam (2012) explored teachers' personality types and emotional intelligence to predict burnout levels. Accordingly, extroversion and neuroticism predicted emotional exhaustion, while the intrapersonal scale of emotional intelligence and agreeableness predicted the depersonalization dimension. Moreover, the best predictors for personal accomplishment were conscientiousness and interpersonal scale. Besides these variables, internal (vs. external) social support and EQ also influence

teachers' burnout levels (Fiorilli et al., 2019). The experiences of emotional exhaustion and depersonalization burnout are more prominent among teachers with past and future negative outlooks; however, those with past, present, and future positive perspectives feel personal accomplishment (Naji Meidani et al., 2019).

Moreover, the three dimensions of burnout exhibited a significant relationship with temporal intelligence, with particular differences in teachers' gender and academic degrees (Naji Meidani et al., 2018). In addition to EQ and temporal intelligence, spiritual intelligence contributes to teachers' burnout (Pishghadam et al., 2021a, 2021b). Alhamami et al. (2024) also concluded that emotional intelligence and job stress significantly influence teachers' performance. By fostering emotional intelligence and effectively addressing job stress, schools can substantially enhance the overall well-being of their teachers (Wang et al., 2024). Overall, teacher burnout describes individual suffering caused by job stress. Undergoing burnout, teachers cannot maintain a positive attitude, enthusiasm, and morale; they may physically and psychologically withdraw from work.

Methodology

Participants

The participants for this study were 315 teachers (male = 136; female = 179) from Mashhad, Iran. They were Persian speakers, aged between 20 and 60. The participants were middle school teachers who taught grades 7 to 12 in public secondary schools in Razavi Khorasan province. These teachers, categorized by experience as follows: 1 to 5 years (74 participants), 5 to 10 years (38 participants), 10 to 15 years (69 participants), 20 to 25 years (25 participants), 25 to 30 years (88 participants), and over 30 years (21 participants), were instructed at the first and second secondary levels (grades 7 to 12) in Iran, covering subjects in the humanities, sciences, mathematics, and vocational education. The method of data collection was convenience sampling. This method was selected because of the constraints imposed by the coronavirus pandemic, and the researchers could not possibly be physically present in schools. This also caused data to be collected via Google Forms.

Teaching in one of the public secondary schools of Razavi Khorasan province was established as the entry criterion for participation in this research, considering the conditions are similar to those of other public schools. The exclusion criterion was the provision of incomplete or erroneous responses, determined by selecting identical options for most questions. The reverse-coded items of the Emo-Sensory Intelligence and Job Burnout questionnaires might indicate carelessness in replies. Participants were guaranteed the confidentiality of their information before answering the questions (British Educational Research Association guidelines, 2018).

Instruments

The study's instruments were the emo-sensory intelligence [emotional-sensory quotient (ESQ)] scale, the measurement of experienced burnout, and the teachers' success and interest scales.

Emo-sensory Quotient Scale (ESQ)

The ESQ scale (designed by Pishghadam et al., 2020) with 144 items was used to measure the teachers' emo-sensory quotient. The authors took its Persian form from Pouryazdanpanah Kermani's (2022) dissertation to measure the teachers' management, monitoring, labeling, and recognition abilities towards the six basic emotions (i.e., happiness, surprise, sadness, disgust, anger, and fear). The items were categorized into visual, auditory, gustatory, olfactory, tactile, and kinesthetic sub-items and were formed based on Likert scale ratings (1 to 5). The scale displayed an acceptable index of reliability ($r = 0.8$). Validity was also checked through structural equation modeling, multitrait-multimethod design, and the Rasch measurement model. A high score reflects the respondent's sensitivity to emotional aspects of sensory experiences.

The Measurement of Experienced Burnout

The Maslach Burnout Inventory (designed by Maslach & Jackson, 1981), which had 22 items, was used to measure teachers' job burnout. The authors adopted its authentic Persian form from Naji Maidani's (2015) dissertation. The inventory had accurate reliability ($r = 0.83$) and validity. Based on Maslach and Jackson's frequency model, the teachers should indicate how often they had experienced these emotions [from 0 (never) to 6 (every day)]. Higher scores indicated more significant levels of burnout.

Teachers' Success and Interest Scales

This study evaluated teachers' interest in teaching and their perceived success with a single question for each dimension. The inquiry "*How interested are you in teaching?*" was formulated to assess educators' interest in their jobs. The inquiry *'To what extent do you perceive yourself as successful in teaching*?' sought to evaluate instructors' self-assessment of their classroom effectiveness. The participants were asked to rate their success and interest on a five-point Likert scale, ranging from 1 (very little) to 5 (very much).

These questions were purposefully created to capture teachers' overall perceptions regarding their interest and self-assessment of achievement. Employing single-item measures for these dimensions was designed to maintain survey brevity and concentration while still acquiring clear insights into teachers' perspectives. The primary purpose of these questions was to get an overall sense of teachers' success and interest in teaching rather than delving into specific reasons that may contribute to these categories. These single-item questions were deemed adequate for the scope of this study.

The reliability of the two single-item scales and their use in similar research contexts were considered. While multi-item scales are generally preferred for assessing complex constructs due to their higher reliability, single-item measures are reliable for capturing general perceptions of interest and success in specific contexts (Bergkvist & Rossiter, 2007; Wanous et al., 1997). Krosnick and Presser (2010) have demonstrated that single-item questions can provide reliable assessments of global constructs like self-reported success and professional interest.

Procedures

The following sections separately describe the two parts of data collection and analysis to explain the experimental procedures further.

Data collection

The ESQ scale, the measured experienced burnout, and the teacher success scale were meticulously designed to gather comprehensive data on teachers' emotions, senses, burnout, and interest levels. To facilitate the submission of responses and prevent the consequences of Coronavirus, the questionnaires were distributed to the teachers via Google Forms. The participants were instructed to complete the surveys at a suitable time, given the extensive quantity of questions. Participants were urged to engage in the study during their spare time to provide sufficient time and opportunity for correct responses. This method sought to mitigate the impact of variables such as demanding schedules, time limitations, and stress induced by occupational pressures on their responses. Participants were advised that completing the surveys would need approximately 20 min, enabling them to allocate adequate time for considered responses. The data collection process lasted six months, from April to September 2022.

Data analysis

After analyzing 325 replies, it was concluded that ten respondents had indiscriminately chosen the same option throughout the survey, as shown by reverse-coded questions in the Sensory Emotional Intelligence and Job Burnout questionnaires. As a result, 315 genuine responses were incorporated for analysis. The data were input into IBM SPSS Statistics software (version 25) and AMOS for additional analysis.

Cronbach's alpha test facilitated the assessment of the internal consistency of the questionnaires, ensuring that the items within the scales reliably measured the same underlying concept. The Pearson product-moment correlation coefficient was utilized to determine the strength and direction of the linear relationship between variables. Moreover, structural equation modeling (SEM) was employed to examine the relationships among the variables. SEM was also used to check the predictive power of the ESQ concerning the other variables under investigation.

Results

Descriptive statistics

Table 1 provides descriptive statistics for ESQ, teaching burnout, teachers' interest, and success, including mean and standard deviation.

Reliability of the scales

Table 2 shows the reliability estimates for ESQ and teacher burnout and their underlying sub-constructs. The estimates are all above 0.70, which is considered acceptable.

Correlational analysis

The Pearson product-moment correlation was employed to answer the first research question, '*Is there a significant relationship between emo-sensory intelligence and teachers' burnout?*'. This analysis explored the potential correlations between the participants' ESQ and burnout. As Table 3 reveals, some of the variables are significantly correlated with each other. ESQ has a negative relationship with teacher

Table 1 Descriptive statistics for ESQ, teacher burnout, teachers interest, and teachers success

	Min	Max	Mean	SD
ESQ	279	724	513.52	86.61
Visual	53	120	86.19	13.26
Auditory	43	120	86.57	14.71
Olfactory	36	120	84.62	17.07
Gustatory	40	120	84.04	17.23
Tactile	43	120	85.61	17.06
Kinesthetic	49	125	86.50	16.89
Teacher Burnout	22	86	43.46	13.13
Emotional Exhaustion (EE)	9	41	16.10	6.04
Depersonalization (Dp)	5	16	7.40	2.82
Reduced Personal Accomplishment (RPA)	8	48	19.96	8.53
Teachers' Interest (TI)	3	5	4.52	.63
Teachers' Success (TS)	1	5	4.01	.71

Table 2 Reliability estimates for ESQ and teacher burnout

	N of Items	Cronbach's Alpha
ESQ	144	.97
Visual	24	.84
Auditory	24	.89
Olfactory	24	.92
Gustatory	24	.92
Tactile	24	.92
Kinesthetic	24	.91
Teacher Burnout	22	.84
Emotional Exhaustion (EE)	9	.73
Depersonalization (Dp)	5	.71
Reduced Personal Accomplishment (RPA)	8	.87

burnout ($r=-0.40$, $p<0.01$) and all its sub-constructs, namely emotional exhaustion ($r=-0.13$, $p<0.05$), depersonalization ($r=-0.16$, $p<0.01$), and reduced personal accomplishment ($r=-0.47$, $p<0.01$). All the sub-constructs of ESQ, including visual ($r=-0.29$, $p<0.01$), auditory ($r=-0.41$, $p<0.01$), olfactory ($r=-0.36$, $p<0.01$), gustatory ($r=-0.34$, $p<0.01$), tactile ($r=-0.41$, $p<0.01$), and kinesthetic ($r=-0.33$, $p<0.01$) are negatively correlated with teacher burnout. Nevertheless, ESQ has no significant correlations with teachers' interest and success. Teacher burnout has a negative relationship with teachers' interest ($r=-0.50$, $p<0.01$) and success ($r=-0.29$, $p<0.01$).

SEM analysis

To answer the second research question, *'Can emo-sensory intelligence predict teachers' interest?*' and the third one, '*Can emo-sensory intelligence predict teachers' success?*', SEM analysis was conducted. The purpose of this analysis was to determine the predictive power of ESQ. Four models were proposed for predicting teachers'

Table 3 Correlational analysis for the variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. ESQ	1												
2. Visual	.81**	1											
3. Auditory	.92**	.76**	1										
4. Olfactory	.91**	.65**	.83**	1									
5. Gustatory	.93**	.66**	.81**	.83**	1								
6. Tactile	.92**	.70**	.82**	.77**	.87**	1							
7. Kinesthetic	.89**	.65**	.77**	.78**	.79**	.80**	1						
8. Burnout	− .40**	− .29**	− .41**	− .36**	− .34**	− .41**	− .33**	1					
9. EE	− .13*	− .05	− .13*	− .12*	− .12*	− .16**	− .10	.70**	1				
10. Dp	− .16**	− .14*	− .13*	− .12*	− .17**	− .13*	− .16**	.62**	.37**	1			
11. RPA	− .47**	− .36**	− .49**	− .44**	− .38**	− .48**	− .38**	.84**	.24**	.36**	1		
12. Interest	.00	− .02	.05	.02	− .01	.02	− .06	− .50**	− .48**	− .31**	− .33**	1	
13. Success	.09	.13*	.12*	.11	.08	.02	.03	− .29**	− .13*	− .21**	− .29**	.43**	1

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

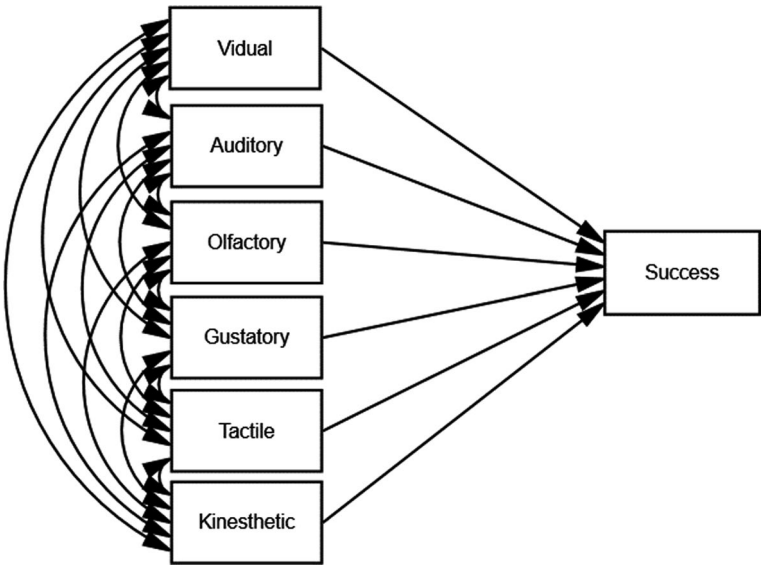

Fig. 1 The Schematic Representation of the Relationships among ESQ and Teachers' Success

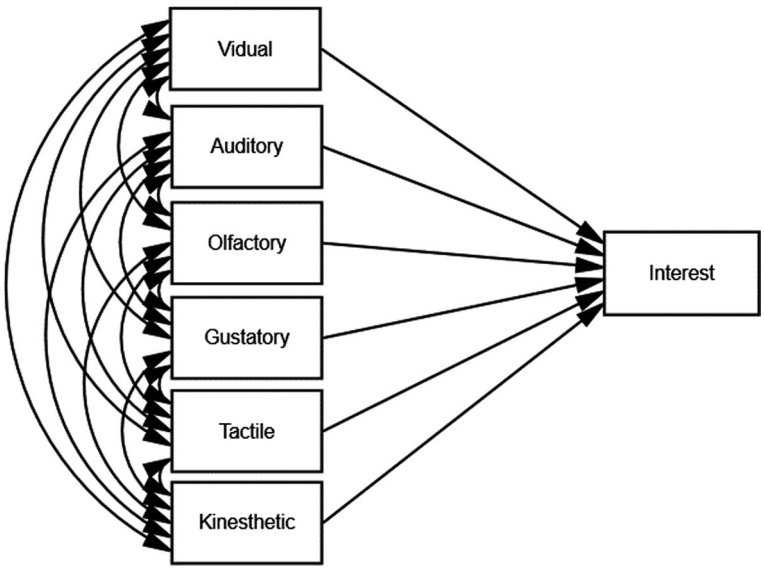

Fig. 2 The Schematic Representation of the Relationships among ESQ and Teachers' Interest

success and interest in their jobs (Figs. 1, 2, 3, & 4). A bootstrap analysis of mediation was performed to determine the indirect effects. The goodness of fit indices showed whether the models fit the data adequately (see Table 4).

Model 1: Prediction of Teachers' Success

The first model verifies the power of the six components of ESQ (i.e., visual, auditory, olfactory, gustatory, tactile, and kinesthetic) in predicting the teachers' success. As Table 4 shows, the model did not fit the data adequately.

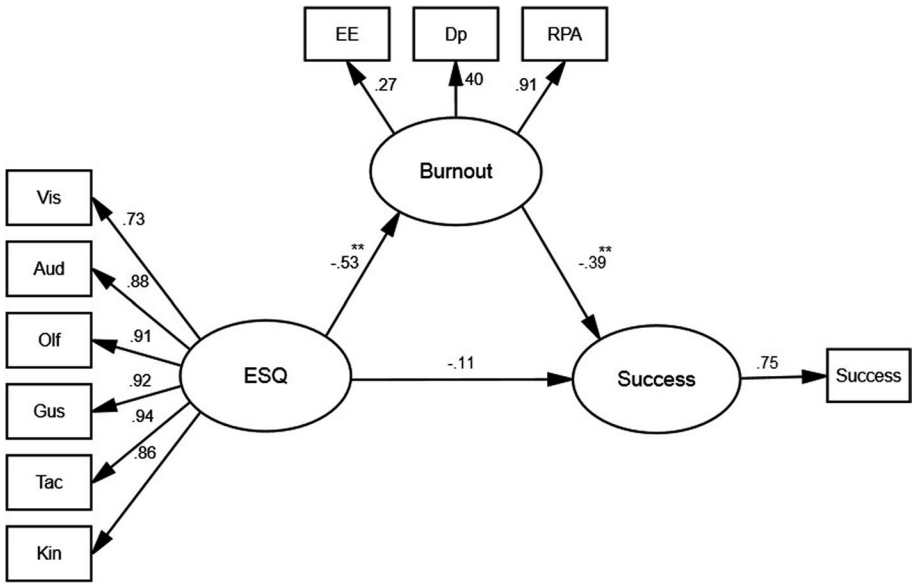

Fig. 3 The schematic representation of the relationships among ESQ, burnout, and success

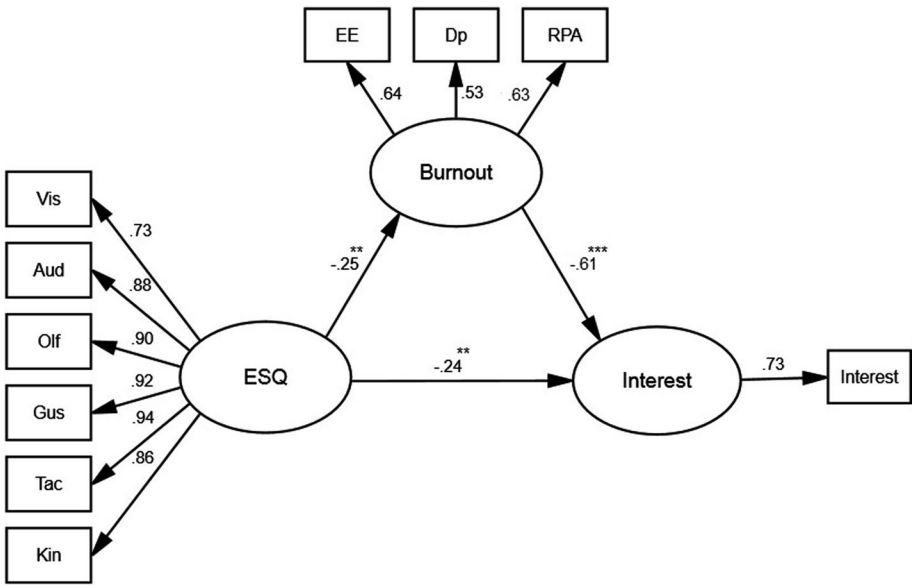

Fig. 4 The schematic representation of the relationships among ESQ, burnout, and interest

Table 4 Goodness of fit indices for the models

	χ^2/df	Df	CFI	TLI	RMSEA	SRMR	
Model 1 (Fig. 1)	88.61	1	.58	.44	.18	.12	Non-fit
Model 2 (Fig. 2)	91.2	1	.34	.31	.19	.11	Non-fit
Model 3 (Fig. 3)	3.11	29	.97	.96	.08	.03	Fit
Model 4 (Fig. 4)	3.07	29	.97	.96	.08	.03	Fit

Model 2: Prediction of Teachers' Interest

The second model verifies the predictive power of the six components of ESQ (i.e., visual, auditory, olfactory, gustatory, tactile, and kinesthetic) in predicting the teachers' interest in their jobs. As Table 4 shows, the model did not fit the data adequately.

Model 3: Prediction of Teachers' Success, Burnout as the Mediator

The third model verifies the power of ESQ mediated by teacher burnout in predicting teachers' success. As Fig. 3 illustrates, ESQ does not expect teachers' success directly; yet, mediated by teacher burnout, ESQ is a positive predictor of teachers' success ($\beta = 0.21$, $p < 0.001$). Burnout can also predict teachers' success negatively ($\beta = -0.39$, $p < 0.01$).

Model 4: Prediction of Teachers' Interest, Burnout as the Mediator

The fourth model verifies the power of ESQ mediated by teacher burnout in predicting the teachers' interest in their jobs. As Fig. 4 illustrates, ESQ predicts teachers' interest in their job negatively ($\beta = -0.27$, $p < 0.01$). However, mediated by teacher burnout, ESQ is a positive predictor of teachers' interest ($\beta = 0.15$, $p < 0.01$). Burnout can also predict teachers' interest negatively ($\beta = -0.61$, $p < 0.01$).

The goodness of fit indices was calculated using Amos to see whether the models fit the data. Table 4 shows the relative chi-square (i.e., chi-square index divided by the degrees of freedom (χ^2/df)), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Squared Error (SRMR). The criterion for acceptance is different across researchers. In the present study, values for χ^2/ df were within the acceptable limit of 5 or less (Schumacker & Lomax, 2010), TLI and CFI were over 0.90, and RMSEA and SRMR were equal to or less than 0.08 (Browne & Cudeck, 1993).

Discussion

Commencing with a brief sketch on emo-sensory intelligence and underscoring the contributions of teachers' success and burnout to teaching, we investigated the relationships between the variables. The authors also examined the predictive power of emo-sensory intelligence in determining teachers' success and interest. To clarify the logic of the discussion, results are presented under two subheadings: teachers' ESQ and burnout and the predictive power of ESQ.

Teachers' ESQ and burnout

Results from descriptive statistics showed no violations of normality and reliability. The results revealed the presence of burnout among middle school teachers in varying degrees. The findings evidenced a negative correlation between emo-sensory intelligence and teaching burnout dimensions. This indirect relationship presented the teachers' low level of emo-sensory intelligence associated with high burnout.

This section's findings correspond with earlier research by Gopal and Jagadeesh (2018), Fiorili et al. (2019), Schoeps et al. (2021), and Kant and Shanker (2021), which revealed a significant negative association between emotional intelligence and teacher

burnout. In contrast to prior studies, which mainly ascribed teacher burnout to emotional management deficiencies, the current research offers a more profound perspective through emo-sensory intelligence. Improper usage of sensory stimuli might hinder teachers' emotional regulation, exacerbating their burnout. The findings highlight that teachers' emotions and emotional intelligence are closely associated with their professional burnout. This relationship underscores the impact of emotional regulation on educators' beliefs, attitudes, and pedagogical methods (Egloff & Souvignier, 2020).

Tied to the power of sensory experiences on emotions (Pishghadam, 2015), external variables could provide obstacles to optimal performances and perceptions (Sharif et al., 2020). For instance, teachers' dissatisfaction with organizational conditions and lack of salaries (Sharif et al., 2020) are some prominent factors that disinterest them in using their senses.

Consequently, it can be deduced that elements such as inadequate facilities in educational institutions, the Ministry of Education's neglect of teachers' job satisfaction, the indifference of students and their parents towards teacher education, excessive coursework, time constraints, and the focus on university entrance exam preparation in Iran have resulted in teachers' reluctance to immerse themselves in their profession fully. As a result, they forfeit the potential advantages that emotional engagement in teaching could contribute to their professional and personal well-being.

The lack of emotional engagement in teaching may lead to burnout, resulting in a steady decline in teachers' motivation to fulfill their professional responsibilities efficiently (emotional exhaustion). Over time, people may execute these actions mechanically, without prior planning or critical thinking (depersonalization). Ultimately, this situation becomes unbearable, leading to a lack of interest in their profession and, in many cases, a preference to leave their job altogether (reduced personal accomplishment).

Wang et al. (2022c) emphasize that the roles of context-focused, system-focused, and process-focused factors are undeniable. In their positive psychology-based study, they underscored the value of developing teacher resilience and identified person-focused factors as the primary challenges to its maintenance. However, they noted that these personal factors were more significant than those focused on context, system, and process. Wang and Pan (2023) add self-efficacy, besides resilience, as the predictor of teachers' engagement, with self-efficacy being a more potent predictor. This suggests that teachers who believe in their teaching abilities are likelier to engage in their work.

Furthermore, teachers' lack of attention to the effects of senses and emotions could make them indifferent to their role as an 'envolver' (Pishghadam et al., 2019a, 2019b). Assuming that the pivotal role of envolvers is imparting knowledge, under this condition, they become indifferent to enhancing students' learning from null to involvement level (Pishghadam et al., 2019a, 2019b). The loss of concern for students can be emotionally and physically draining. As a result, it alienates teachers from the work environment, which is not a trivial problem. This situation could have a butterfly effect on students' strokes (Pishghadam, Derakhshan et al., 2021) and, finally, the quality of education.

Overall, the study's results indicated that middle school teachers experience burnout, and there was a significant negative correlation between this variable and ESQ. The

findings also underscored the considerable impact of teachers' emotional and sensory experiences on their professional well-being and performance. In this respect, the implication is the unification of emotional and sensory quotients, which is also emphasized by the theoretical framework of this study. The findings highlight the importance of considering the integrative perspective, and this finding implies adopting a holistic approach toward types of intelligence. Accordingly, this suggests the need to reevaluate teachers' burnout, success, and interest.

Moreover, the observed negative correlation between ESQ and burnout implies that enhancing teachers' ESQ can effectively decrease burnout. Teachers can benefit from training programs designed to integrate ESQ components and subcomponents. Indeed, based on the 'butterfly effect,' improving teachers' performance can affect the quality of education.

The predictive power of ESQ

The findings revealed that ESQ did not directly forecast teachers' interest and success in response to the second question. Nonetheless, influenced by burnout, emotional intelligence positively forecasted teachers' engagement and achievement. This discovery corresponds with the study conducted by Schiefele et al. (2013), which established that educators' enthusiasm for teaching predicts their burnout levels.

A probable justification could reside in the effects of external variables (e.g., lack of salary and organizational commitment) overcoming the teachers' interest as an internal one. This aligns with previous research by Shukla and Trivedi (2008), highlighting the significant role of external variables. The reality of insufficient salaries could make teaching a frustrating occupation for teachers in Iran, and they may develop negative attitudes toward their profession and accomplishments. In other words, teachers think they are wasting their time and energy, so they lose their morale in self-accomplishments and their interest in students' demands, resulting in burnout (Shukla & Trivedi, 2008). The lack of organizational commitment in Iran's educational system has an additional impact on teachers' interests and success (Sharif et al., 2020). Teachers must collaborate with people, and the quality and continuity of relationships require a healthy environment (Sharif et al., 2020). Social dysfunction may emerge if organizations do not work systematically (Shukla & Trivedi, 2008).

Neglecting teachers' needs in schools diminishes their emo-sensory intelligence, resulting in burnout. This, therefore, reduces their enthusiasm for teaching and jeopardizes their mental well-being (Toolabi et al., 2018). Teachers who experience passive demotivation and lose interest in teaching fail to fulfill their professional responsibilities. Instead, they convey knowledge to students in the driest and most traditional manner, failing to result in meaningful learning. This leads to dissatisfaction among students, parents, and higher-level education authorities. Consequently, the teacher feels unsuccessful in their profession. When educators forsake their principles, they may disregard the significance of sensory engagement and the feelings it evokes. Consequently, people shift from active motivation to passive demotivation (Pishghadam et al., 2019a, 2019b).

Teachers who fall into passive demotivation and lose interest in teaching make little effort to perform their professional tasks. Instead, they employ the most inflexible and conventional approaches, just imparting knowledge to students. Real learning does not

occur in such circumstances, resulting in unhappiness among students, parents, and higher-level educational authorities. As a result, educators may view themselves as ineffective in their careers.

The results of this study segment correspond with those of Ustin et al. (2021), who indicated that elements such as stroke, motivation, the educational environment, and the resources available to educators significantly influence their success. Regarding the predictive power of ESQ, this study suggests that ESQ does not directly influence teachers' interest and success but indirectly influences these factors through burnout. There is a practical need for support systems that help teachers maintain interest in their profession. Such systems aim to provide professional development opportunities emphasizing cognitive, emotional, and sensory intelligence. Furthermore, the potential impact of burnout on teachers' mental health necessitates increased awareness and interventions to address teacher burnout.

Based on this, it can be inferred that if teachers cannot perceive emotions arising from their senses, their failure to manage these emotions severely affects their mental health and inhibits them from utilizing such feelings in their teaching. This subsequently results in burnout, eroding their enthusiasm for teaching and their perception of accomplishment in the field. This discovery corresponds with the findings of Qu and Wang (2024), who demonstrated that educators with heightened positive emotions are less prone to depression and have more efficacy in emotional regulation. Moreover, teachers who experience burnout owing to low emo-sensory intelligence cannot fulfill students' essential need for emotions to boost their desire for learning during the teaching process (Dai & Wang, 2024). This may result in significant repercussions, including insufficient education for kids, who represent society's future architects. In other words, the present study's findings demonstrate a recurring negative cycle within Iran's education system. The neglect or insufficient attention by society, educational authorities, students, and their parents to teachers' needs, together with a lack of suitable support, leads to diminished emo-sensory intelligence among instructors. This diminishment cultivates burnout, diminishes their enthusiasm for teaching, and engenders a sense of inadequacy.

Educators inadequately perform their responsibilities and neglect critical demands, such as engaging students' senses and emotions in the educational process. This neglect impedes the cultivation of children's sensory and emotional intelligence, obstructs their learning, and incites discontent among authorities, parents, and students toward educators. Moreover, these pupils, whose sensory emotional intelligence remains undeveloped, may ultimately select teaching as their vocation, repeating the cycle. Consequently, having established the specifics and components of this cycle through research, Iranian educational authorities must implement measures to disrupt it.

Conclusion

Examining the role of ESQ in teaching burnout, the authors found a negative correlation between ESQ and teaching burnout. They also evaluated the predictive power of ESQ and discovered that ESQ did not directly predict teachers' interest and success. When mediated by burnout, ESQ positively predicted the teachers' success and interest. In conclusion, regarding the correlation between ESQ and burnout and the mediating effect of burnout on ESQ, success, and interest, teachers should become aware of the

ESQ concept. Conducting teachers' training courses can provide insight into the importance of sensory-induced emotions, as they may decrease burnout and increase success and interest. Moreover, ESQ could be considered a factor in the teacher selection, as it would indirectly predict their success and interest. Furthermore, generating favorable organizational conditions could help teachers attend to the sensory combination levels and sensory-induced emotions to provide necessary preparations for growing emo-sensory intelligence in students and lessening burnout syndrome in themselves.

This investigation encountered specific restrictions. The cross-sectional design limited the capacity to deduce causal linkages among variables. Moreover, limitations on the research, including the prohibition of in-person interactions with educators, dependence on online data collection, and insufficient participation from all teachers in completing the questionnaire, constrained the sample size. These characteristics may influence the generalizability of the findings, which should be examined in future research.

Last, complementary studies should be conducted to provide more detailed insight into the ESQ characteristics. The study did not examine passive and active motivation variables, which could give a more thorough understanding of the impact of ESQ. Future research should explore passive and active motivation variables to complete the knowledge of ESQ. The aim of the study was limited to ESQ without examining its interaction with different teaching methods. It is also suggested that the role of ESQ be studied along with various teaching methodologies. Moreover, the study did not conduct academic emotions and teaching satisfaction questionnaires; however, considering the valuable role of teachers, future studies should conduct a questionnaire on academic emotions and satisfaction with teaching.

Author contribution
All authors contributed to the study's conception and design. They read and approved the final manuscript.

Data availability
No datasets were generated or analysed during the current study.

Declarations

Competing interests
The authors declare no competing interests.

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