

The mediating role of listening motivation in the relationship between listening self-efficacy and metacognitive awareness¹

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ABSTRACT

The role of metacognitive awareness on learning and the increasing importance of listening in the 21st century reveal the need to examine the relationships between listening motivation, listening self-efficacy and metacognitive awareness. The aim of this study is to examine the mediating role of listening motivation in the relationship between middle school students' listening self-efficacy and metacognitive awareness. The study group consisted of 1074 middle school students attending 13 schools selected from the public middle schools. The data of the study were collected using Personal Information Form, Listening Self- Efficacy Scale, Metacognitive Awareness Scale-Form B and Listening Motivation Scale for Secondary School Students. Structural equation modeling was used to analyze the data. As a result of this study, it was determined that there were positively significant relationships between middle school students' listening self-efficacy, listening motivation, and metacognitive awareness. Higher listening self-efficacy was associated with higher levels of listening motivation and metacognitive awareness. The structural model indicated significant positive associations between listening self-efficacy and listening motivation, between listening self-efficacy and metacognitive awareness, and between listening motivation and metacognitive awareness. In addition, listening motivation played a mediating role in the relationship between listening self-efficacy and metacognitive awareness. Based on the findings, listening instruction may incorporate metacognitive listening strategies to support students' metacognitive awareness, while also giving greater attention to affective factors such as listening motivation and self-efficacy.

KEYWORDS: Listening skills; Listening self-efficacy; Metacognitive awareness; Listening motivation; Structural equation modeling

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1. Introduction

In the 21st century, listening has become more important than ever (Wolvin, 2010). With the increase of online learning environments, students have started to use more visual and auditory tools (Hubbard, 2017). Technological developments in listening skills have further increased the

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importance of metacognitive awareness (MA). Indeed, awareness of the information learned from the listening source is related to using metacognitive skills (Goh, 2017). Greater control, strategy selection and use in listening activities are associated with higher self-efficacy and motivation (Bourdaud'hui et al., 2021; Rahimi & Abedi, 2014). It can be stated that when Listening Motivation (LM) and Listening Self-Efficacy (LSE) are high, students have more control over what they listen to (Landine & Stewart, 1998). Consciously attending to spoken input, monitoring comprehension, recognizing difficulties during listening, and organizing the information obtained are among the metacognitive processes that may be associated with higher levels of listening motivation and self-efficacy. The concept that these features correspond to can be defined as MA (Flavell, 1979). Accordingly, a model was established to examine the mediating role of LM in the relationship between LSE and MA. The existing literature shows that no study has examined LSE, LM and MA together. Studies on self-efficacy and MA, especially concerning listening skills, are mostly conducted on second or foreign language teaching (Bozorgian, 2014; Canaran et al., 2020; Cross, 2010; Davoudi & Chavosh, 2016; Fathi et al., 2020; In'nami & Koizumi, 2022; Rahimirad & Zare-ee, 2015; Sok & Shin, 2022), whereas studies on LM are very few in both first, second and foreign language teaching (Bourdaud'hui et al., 2021; Lau, 2017; Yekeler-Gökmen, 2020). Although listening in one's native language may appear to be an automatic process that occurs naturally in everyday life, listening at critical and academic levels requires conscious mental focus beyond mere hearing (Harmankaya & Melanlıoğlu, 2017; Özbay & Daşöz, 2014). Indeed, it has been suggested that this skill, often assumed to develop naturally, is not sufficient on its own to enable individuals to question and evaluate what they hear unless it is supported by systematic metacognitive awareness (Harmankaya & Melanlıoğlu, 2017; Melanlıoğlu, 2012). For this reason, it is believed that examining the mediating role of LM in the relation between LSE and MA in this study will be instructive in terms of improving listening skills and metacognitive skills of middle school students receiving mother tongue education.

1.1. Literature Review

1.1.1. Listening Self-Efficacy

Listening skills are affected by many cognitive and affective factors. Trust in listening from an affective perspective has a determining role in listening performance (Chen, 2007). One of the concepts in the affective dimension of listening is self-efficacy. Graham (2011) defined LSE as individuals' trust in understanding what they listen to. Yıldız (2021) defines the concept as "the individual's belief about whether he/she can perform the act of listening effectively" (p. 41). Based on these definitions, it is believed that an individual's self-perception of competence is necessary for listening comprehension success (Rahimi & Abedini, 2009). When this belief is not strong, students cannot be expected to engage in effective listening activities. If students' LSE is high, it enables them to show effort in the face of difficulties in listening comprehension. In contrast, low LSE causes them not to show any effort (Bandura, 1997). In addition, students with strong LSE have more beliefs about succeeding in the listening process. On the other hand, students with low LSE have listening anxiety (Graham, 2011). Aydın, Demircan and İnnalı (2015) state that feedback, self-evaluation, self-regulation and self-efficacy are effective in developing listening skills, and also state that the individual should evaluate the listening activity and develop a perception of competence. Existing literature indicates a positive, albeit variable, predictive relationship between LSE and listening comprehension (Du & Man, 2023; Mills et al., 2006), suggesting that fostering LSE may be a key factor in supporting students' listening skills.

1.1.2. Metacognitive Awareness

Today, the concept of metacognition is the subject of study in many fields, including education. Many definitions have been made in the literature for metacognition, which has a complex structure, and its boundaries have been tried to be determined. According to John Flavell (1976), the pioneer of the concept, metacognition refers to one's knowledge about cognitive processes. Flavell (1979) emphasizes metacognitive knowledge, metacognitive experiences, objectives (tasks) and actions (strategies) in monitoring cognition. According to him, cognitive activities are realised through these four elements and their interactions (Flavell, 1979). Metacognition includes knowledge of cognition and regulation of cognition (Brown, 1987). Regulation of cognition is the control and management of learning activities; knowledge of cognition is the individual's current understanding of their own cognitive processes (Brown, 1987). When the relationship between the concept and cognition is examined, it is stated that while it is the function of cognition to bring cognitive activities to the desired result and to find solutions to problems, it is the function of metacognition to regulate the cognitive mechanism of the individual while performing these activities (Vos, 2001). Veenman et al. (2006) also state that metacognition is not only a structure that controls cognition but also a part of cognition. According to Costa (1984), metacognitive skills refer to the individual's ability to plan the strategies they need in their learning, to analyze the degree of impact of their ideas, and to be aware of the appropriate strategy and solution stages of a problem. Recent empirical studies have also provided support for the role of metacognitive awareness in educational and listening contexts. Self-efficacy has been associated with metacognitive awareness among middle school students (Oğuz & Kutlu-Kalender, 2018), while metacognitive awareness has been linked to listening motivation and critical listening in L1 learners (Bourdeaud'hui et al., 2021), and metacognitive listening strategies have been found to positively predict critical listening attitudes and academic listening skills (Polatcan et al., 2025). In this sense, it is believed that metacognition is a fundamental component for listening.

1.1.3. Listening Motivation

Motivation is one of the factors that are effective in teaching the four basic language skills. When it is considered in terms of listening skills, motivation is defined as the state of the willingness of the individual towards the listening activity, and it motivates the individual to listen and perceive what he/she listens to (Dölek & Yıldırım, 2021). Motivation is important in listening skills because the concept is effective in developing communication skills (Ajmal & Kumar, 2020). Motivation is broadly conceptualized in terms of intrinsic motivation, extrinsic motivation, and amotivation (Deci & Ryan, 1985; Ryan & Deci, 2000). In the context of listening, the present study focuses on the dimensions of benefit, interest, and amotivation (Dölek & Yıldırım, 2021). Benefit refers to the perceived benefits of listening, whereas interest reflects students' interest in engaging in listening activities. Amotivation, in turn, refers to a lack of motivation toward listening (Dölek & Yıldırım, 2021). In this respect, it can be said that students with low motivation for listening or who experience amotivation may have difficulty completing listening activities successfully. Since motivation is one of the factors necessary for listening comprehension (Jafari, 2010) and success in using listening strategies (Chen et al., 2014; Vandergrift, 2005), there is a need to improve this feature in language education through various studies.

1.2. The Current Research

In this study, a model was created in which the mediating role of LM was hypothesised in interpreting the relation between LSE and MA. LSE positively predicts LM considering the power of self-efficacy to influence motivation in Bandura's social cognitive theory (Bandura, 1986). In language teaching, writing self-efficacy affects writing motivation (Pajares, 2003), and the positive relation between

critical reading self-efficacy and reading motivation (Şahin, 2019) shows the determining role of self-efficacy on motivation. The fact that LSE positively affects listening comprehension (Du & Man, 2023) shows that this factor increases listening success. LSE also has a determining role in MA. Considering that high self-efficacy positively affects the use of cognitive and metacognitive strategies (Linnenbrink & Pintrich, 2003), students with high LSE are expected to use metacognitive strategies more often and effectively. The fact that self-efficacy is an effective factor in developing metacognitive skills (Wibowo et al., 2018) makes it necessary to examine the effect of L1 LSE on MA. Another effective factor in MA is LM (Bourdeaud'hui et al., 2021). Motivation affects the use of metacognitive strategies (Sungur, 2007). Accordingly, students with high LM are expected to have more MA. Based on the effect of LM on MA, this study investigated the predictive power of LM on MA. In this direction, based on the predictive power of LSE on MA, the predictive power of LSE on LM and the predictive power of LM on MA, this study investigated the mediating role of LM in the relation between LSE and MA. Examining the relationship between these three variables, Landine and Stewart (1998) found positive relationships between self-efficacy, motivation and metacognition use; that is, using metacognitive strategies is associated with high self-efficacy and intrinsic motivation of the students. While previous research, particularly in L2 contexts, provides support for these relationships, their applicability to the more automatized processes of L1 listening requires empirical examination. The following hypotheses were tested in the theoretical model based on the literature:

H1. There are significant relationships between LSE, LM and MA.

H2. LSE positively predicts LM.

H3. LSE positively predicts MA.

H4. LM positively predicts MA.

H5. LM plays a mediating role in the relationship between LSE and MA.

2. Method

2.1. Participants

The participants of the study were 1074 middle school students from 13 public middle schools selected through convenience sampling in a province located in northeastern Türkiye. Of the 1074 students, 580 were female (54%) and 493 were male (45.9%). In terms of grade level, 291 students were in 5th grade (27.1%), 244 students were in 6th grade (22.7%), 286 students were in 7th grade (26.6%) and 253 students were in 8th grade (23.6%). It was determined that the socioeconomic status of the majority of the students was medium (76.1%), followed by high (18.7%) and low (3.7%) levels respectively.

2.2. Measures

Personal Information Form: A four-item personal information form was developed by the researcher to get some personal and demographic information from the students. The form includes questions on gender, grade level and family socioeconomic level.

Listening Self-Efficacy Scale: This scale was developed by Aydın et al. (2015) to find out the LSE perceptions of middle school students. In the five-point Likert-type scale, items are scored between not good at all (1) and very good (5). A single-factor, 56-item scale was obtained. The calculated Cronbach's alpha coefficient of the scale is 0.97. The original validation study supported a single-factor structure for the scale, resulting in a 56-item unidimensional measure of listening self-efficacy (Aydın et al., 2015). In this study, the Cronbach's alpha coefficient of the scale was determined as .95.

Listening Motivation Scale for Secondary School Students: It was developed by Dölek and Yıldırım (2021) to find out the LM of middle school students. The scale is given in five-point Likert-type, and the scores of the items are rated from strongly disagree (1) to strongly agree (5). It is composed of three factors and 14 items. The first factor is named "Benefit", the second factor is named "Interest", and the last factor is named "Amotivation". The internal consistency coefficient of the scale was found .81; .77 for the first factor, .72 for the second factor and .74 for the last factor (Dölek & Yıldırım, 2021). The Cronbach's alpha coefficient of the scale was calculated as .81 in this study. It was found to be .75 for the first factor, .77 for the second factor and .82 for the last factor. Following the original scoring procedure, the four items in the Amotivation subscale were reverse-coded before the analyses (Dölek & Yıldırım, 2021). Thus, higher scores on this subscale indicate lower levels of amotivation.

Metacognitive Awareness Scale for Children-B Form: Karakelle and Saraç (2007) adapted the Metacognitive Awareness Scale (Jr. MAI) into Turkish which was developed by Sperling et al. (2002) to measure metacognitive skills in 3rd-9th grade students. Form B was developed for 6th, 7th, 8th and 9th-grade students, and there are 18 items in the form. The scale is given in a five-point Likert type, and the scores of the items are rated from never (1) to always (5). Cronbach's alpha value for Form B was found to be .80, and the test-retest correlation value was determined as .72. Although the original validation study identified a four-factor structure, the authors reported that a single-factor solution provided a more appropriate representation of the construct (Karakelle & Saraç, 2007). In this study, the Cronbach's alpha coefficient of the scale was determined as .85.

2.3. Data Collection

Before collecting the data, permissions for scale use were obtained from the owners. Then, Ethics Committee permission was obtained from Trabzon University (Date: 29.12.2022, Issue no: E-81614018-000-2200056636), and Scientific Research permission was obtained from the Trabzon Provincial Directorate of National Education.

After obtaining permission for data collection, 13 schools were selected from the official secondary schools in Trabzon province. Schools with varying socioeconomic backgrounds were carefully chosen. The data were collected by the researcher in the fall and spring semesters of the 2022-2023 academic year. The researcher obtained permission from the school administration, entered the designated classrooms and carried out the applications herself. The scales were administered to 5th, 6th, 7th and 8th-graders from randomly selected classes in the schools in a single class hour. Attention was paid to applying the scales in one class from each grade level. Before the scales were administered, the researcher informed students about the study and that the data would not be used for any purpose other than the study. In addition, it was emphasized that participation was voluntary, and students who signed the Participation Acceptance Form participated in the study. Students were also informed that they would not receive any grades or rewards for their participation. It took approximately 25-30 minutes to complete the scales. The researcher explained the parts of the scale items that the students did not understand and made sure that the students did not leave any blank items. 1282 secondary school students were included in the study. However, 125 forms in which one or more scales were not filled in or were filled in randomly and filled in by students with special needs were excluded from the scope of the study. However, the study was conducted with the remaining 1074 participants after 83 data were removed in the outlier analysis.

2.4. Data Analysis

In the study, the mediating role of LM in the relation between LSE and MA was examined through equation modelling. Before the analysis, item parceling was employed for the LSE and MA scales. The LSE scale was represented by three parcels, whereas the MA scale was represented by two parcels. Compared with the use of individual items, parceling may reduce the likelihood of measurement error due to the smaller number of indicators and increase the likelihood of meeting the assumption of multivariate normality (Sass & Smith, 2006). In this study, the item-to-construct balance approach was used as the parceling strategy, in which items with relatively high and low factor loadings were distributed across parcels to obtain balanced indicators of the corresponding latent construct (Little et al., 2002).

After excluding forms with incomplete or invalid scale responses, the retained dataset still contained some item-level missing values, as identified through Missing Value Analysis in SPSS 23. These missing values were handled using mean value assignment before the outlier analysis. In the data set, univariate outliers can be defined as the values obtained by standardising the raw scores and converting them into z scores outside the ± 3 range (Mertler & Vannatta-Reinhart, 2017). In this study, the raw scores were standardized and converted into z-scores and 19 data outside the ± 3 range were excluded. Mahalanobis distance values were used to identify multivariate outliers in the data set (Kline, 2016). Accordingly, 64 data with a significance value of $p < .05$ were deleted from the data set. To determine the normality of the data, kurtosis and skewness values were calculated. Skewness values ranged between -0.08 and -0.60; kurtosis values ranged between -0.22 and -0.78. In the study, linearity was tested using the P-P plot and curve estimation analysis. The P-P plot diagram found that the residuals were arranged in a straight line. In the Curve Estimation analysis, the F values were significant ($p < .001$) and higher than the relationship shapes other than linearity. The study tested covariance by examining the scatter diagram containing the standardized regression estimates. It is found that the residuals are roughly grouped and distributed in a rectangular shape. For multicollinearity, the correlation values between the variables were first analyzed. Multicollinearity occurs when the relationship between independent variables is .90 and above (Pallant, 2005). The highest correlation in this study was .89 between the parcels of the LSE variable (see Table 1). However, as these parcels are indicators of the same latent construct, this correlation was not interpreted as evidence of multicollinearity. The multicollinearity problem was also evaluated by calculating VIF and tolerance values, and it was found that VIF values ranged between 1.11-6.29, and tolerance values ranged between .16-.91. Tolerance values less than .10 and VIF values bigger than 10 point out that there is a multicollinearity problem (Pallant, 2005). In addition, the Durbin-Watson test yielded a value of 1.96. This value was within the expected range (1-3) (Field, 2009), indicating no substantial autocorrelation of the residuals.

3. Findings

The relationships between LSE, MA and LM are given in Table 1. When Table 1 is analyzed, it is understood that there are statistically significant relationships between all of the variables.

Table 1 Relationships between variables

	1	2	3	4	5	6	7	8
1. MA1	1							
2. MA2	.77**	1						
3. LSE1	.68**	.69**	1					
4. LSE2	.69**	.70**	.88**	1				
5. LSE3	.69**	.69**	.88**	.89**	1			
6. BENEFIT	.60**	.58**	.59**	.58**	.58**	1		
7. INTEREST	.54**	.45**	.51**	.51**	.52**	.66**	1	
8. AMOT	.17**	.23**	.26**	.30**	.27**	.15**	.10**	1

Note. ** $p < .01$. MA1 = Metacognitive Awareness Parcel 1; MA2 = Metacognitive Awareness Parcel 2; LSE1–LSE3 = Listening Self-Efficacy Parcels 1–3; Benefit, Interest, and Amotivation (AMOT) = Listening Motivation Scale sub-factors.

3.1. Measurement Model

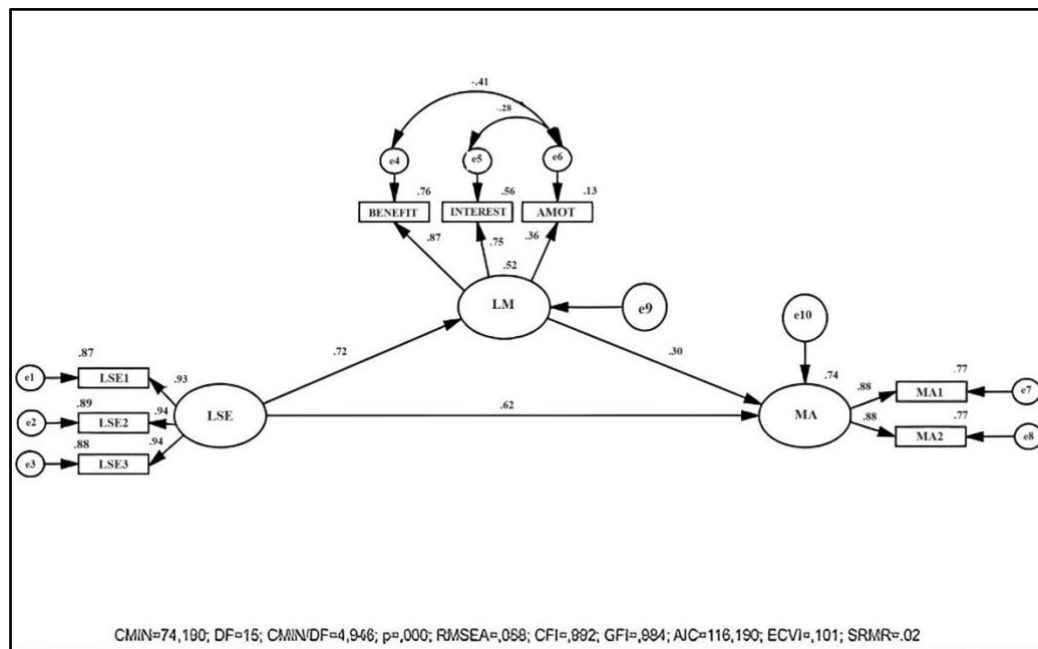
Prior to testing the hypothesized structural model, the measurement model was examined to assess the adequacy of the measurement structure. The model comprised three latent constructs –LSE, LM, and MA– and eight observed indicators. LSE was represented by three parcels, MA by two parcels, and LM by its three subdimensions (benefit, interest, and amotivation). Based on the modification indices, residual correlations were added between interest and amotivation and between benefit and amotivation. These modifications improved the fit of the measurement model. The final measurement model demonstrated an acceptable-to-good fit to the data, $\chi^2/df = 4.691$, CFI = .99, GFI = .98, RMSEA = .06, and SRMR = .02. The standardized factor loadings ranged from .36 to .95 and were statistically significant. Composite reliability (CR), calculated from the standardized factor loadings of the measurement model, was .96 for LSE, .87 for MA, and .72 for LM, indicating acceptable reliability for all three latent constructs.

3.2. Structural Model

The structural model was tested to examine the mediating role of LM in the relationship between LSE and MA. Based on the modification indices, two modifications were made sequentially. Based on the largest modification index, a residual correlation was first added between the benefit and amotivation dimensions of LM, and the model was re-estimated. The modification was evaluated by examining the chi-square difference between the models as well as changes in the AIC and ECVI values (Kline, 2016). The chi-square difference exceeded the critical value ($18.226 > 3.84$), and the AIC and ECVI values decreased; therefore, the residual correlation was retained. The second modification involved adding a residual correlation between the interest and amotivation dimensions of LM, based on the next largest modification index. These residual correlations were also considered theoretically plausible given the conceptual relatedness among the three dimensions of listening motivation. Specifically, amotivation reflects difficulties and unwillingness associated with listening, whereas benefit and interest represent positive motivational orientations toward listening. In addition, the original validation study reported meaningful associations among these three dimensions (Dölek & Yıldırım, 2021). The chi-square difference again exceeded the critical value ($39.20 > 3.84$),

accompanied by lower AIC and ECVI values; therefore, this residual correlation was also retained. Following these modifications, the final structural model demonstrated acceptable-to-good fit. The fit indices of the final structural model were $\chi^2/df = 4.946$, $p < .001$, RMSEA = .06, SRMR = .02, CFI = .99, GFI = .98, AIC = 116.190, and ECVI = .101. Figure 1 shows the parameter estimates of the final model.

Figure 1 *Parameter estimates of the final model*



Note. MA1 = Metacognitive Awareness Parcel 1; MA2 = Metacognitive Awareness Parcel 2; LSE1–LSE3 = Listening Self-Efficacy Parcels 1–3; Benefit, Interest, and Amotivation = Listening Motivation Scale sub-factors.

Figure 1 presents that the model explained 74% of the change in MA. The standardized path coefficients ranged between .30 and .72, and all of them were significant. In the study, the significance of indirect effects was calculated by creating confidence intervals (95%CI) with a bias-corrected bootstrap procedure with 10000 resampling options. Table 2 shows the model's direct, indirect, total effects and Bootstrap Analysis results.

Table 2 Direct, indirect, total effects and bootstrap analysis results for the model

Path	B	β	SE	95% CI for standardized estimate
LSE → LM (Path a)	.191	.72**	.009	.680–.766
LSE → MA (Path c)	.321	.62**	.018	.541–.691
LM → MA (Path b)	.585	.30**	.070	.216–.381
Indirect effect				
LSE → MA (a × b)	.111	.22		.156–.280
Total effect				
LSE → MA (a × b) + c	.432	.83		.804–.860
Regression Equation and Explained Variance Ratios				R^2
LM = .72 (a)				.52
MA = .30 (b) + .62 (c)				.74

Note. ** $p < .001$. B = unstandardized regression coefficient; β = standardized regression coefficient; SE = standard error; LM = listening motivation; LSE = listening self-efficacy; MA = metacognitive awareness.

When Table 2 is examined, it is observed that the direct path from LSE to LM is significant ($\beta = .72$, 95% CI [.680, .766], $p < .001$). The direct path from LSE to MA was also significant ($\beta = .62$, 95% CI [.541, .691], $p < .001$). The direct path from LM to MA was also statistically significant ($\beta = .30$, 95% CI [.216, .381], $p < .001$). When the indirect effects in the model were analyzed, it was determined that LSE showed a significant indirect association with MA through LM ($\beta = .22$, 95% CI [.156, .280]). Accordingly, LM has a partial mediating role in the model. Considering the total effect in the model, it was concluded that the direct and indirect effects of LSE on MA were significant ($\beta = .83$, 95% CI [.804, .860]). This finding indicates that LSE was positively associated with MA both directly and indirectly through LM. LSE explained 52% of LM ($R^2 = .52$), and LSE and LM together explained 74% of MA ($R^2 = .74$).

4. Discussion

The first finding of this study was that there were positive and significant relationships between LSE, LM and MA. Accordingly, it can be said that students with high LSE also have high LM and MA. There are many studies in literature that parallel this finding. Landine and Stewart (1998) showed that there are positive relationships between self-efficacy, motivation and metacognition use; students' use of metacognitive strategies is associated with high self-efficacy and intrinsic motivation. Rahimi and Abedi (2014) found a positive and significant relation between LSE and MA of listening strategies in general. It is seen that the findings of this study are supported by the studies determining that there is a significant relation between self-efficacy and achievement motivation (Zhang et al., 2015), self-efficacy and academic motivation (Ariff et al., 2022), metacognitive skills and motivation (Oğuz & Ataseven, 2016; Vandergrift, 2005). It is believed that students with high LSE will have strong beliefs that they will succeed in listening activities and will be highly motivated to listen to the listening text

or do the listening activity (Bandura, 1982; Yıldız, 2021). In the study, LSE was significantly and positively associated with LM, supporting the second hypothesis. In this respect, it can be concluded that higher levels of LSE were associated with higher levels of LM. Students willing to focus their attention and interest on the listening text, or the teacher have high levels of LM. This concept is one of the influential factors in listening. Jafari (2010) states that motivation for listening comprehension in language teaching is related to listening proficiency and that highly motivated students make more effort to improve their listening skills. Therefore, addressing factors associated with LM may also contribute to listening success. Considering the relationship between self-efficacy and motivation, LSE may also be associated with students' LM levels. A student with a high level of LSE may also have higher motivation toward listening through intrinsic and extrinsic motivators. Ungan (2014) states that for effective listening to occur, motivation must be fully provided. Motivation for listening is also related to students' high perceptions of their own efficacy. Students' self-confidence and belief in success in listening to texts and doing listening activities can enable them to make an attempt to perform that activity.

In the study, it was determined that LSE positively predicted MA. MA can be characterized as a concept that covers high-level skills such as an individual's knowledge of learning, planning and controlling their learning, and using cognitive and metacognitive strategies. For this reason, an individual's awareness of their own metacognitive skills has a positive effect on their learning (Vogel-Walcut & Fiore, 2010). High self-efficacy positively affects the use of cognitive and metacognitive strategies; cognitive and metacognitive strategies are more frequently used by people who have high belief in their ability to complete a task than by people who have low belief (Linnenbrink & Pintrich, 2003). In this respect, it can be stated that learners with high LSE are aware of which listening material to listen to and how to listen to it. Since high LSE expresses the belief that the student will succeed in the listening activity, the student can think more about what he/she listens to with self-confidence. Because LSE is directly connected to people's effective listening (Demircan & Aydın, 2019). Self-efficacy enables listeners to participate and use strategies in their listening skills (Rahimirad & Zaree, 2015). Accordingly, high LSE may also be associated with the use of metacognitive strategies. When metacognitive activities are combined with properly organized listening tasks, they can have positive effects on students' listening proficiency (Vandergrift & Goh, 2012). Students' ability to use metacognitive skills in their learning can have an impact on their academic lives (Coutinho, 2007). Accordingly, the role of LSE in relation to MA can be emphasized in mother tongue teaching at the secondary school level.

In the study, LM was significantly and positively associated with MA, supporting the fourth hypothesis. The use of metacognitive skills in listening improves listening comprehension skills (Smith, 2020). The use of metacognitive skills is closely related to LM because the individual encounters listening skills the most in daily life (Akyol, 2021) and resorts to listening while obtaining information. For this reason, it can be said that students with high LM are more motivated to use metacognitive skills for learning. According to Vandergrift and Goh (2012), individuals with high motivation use metacognitive listening activities in second language learning more than individuals with low motivation. For effective listening, the learner is supposed to have an active involvement in the listening activity process (Doğan, 2008). Observing and evaluating the listening process is related to the concept of metacognition. When students have high LM, they may be willing to engage in planning, monitoring or evaluating their learning. Indeed, students with high LM are more aware of metacognition than those with low (Bourdeaud'hui et al., 2021). In listening education, motivation and MA are of great importance in terms of students' active participation in the process (Erbilen, 2021; Vandergrift, 1990).

Metallidou and Vlachou (2007) also state that success in primary school language education depends on effort, self-confidence and the use of various strategies. LM, also addressed in mother tongue education, is positively associated with MA, which has an important place in the individual's learning throughout academic life. For this reason, it is believed that conducting studies on which both concepts are handled together is important. This finding suggests that the relationship between LM and MA should be considered in mother tongue teaching at the middle school level.

In the study, it was concluded that LM had a mediating role between LSE and MA. LSE was significantly and positively associated with MA, and a significant indirect association through LM was also observed. Thus, higher levels of LSE were associated with higher levels of MA both directly and indirectly through LM. It is seen that studies parallel to this finding have been conducted in literature. Thomas et al. (2009) determined the mediating role of recognition motivation in the relation between self-efficacy and academic adjustment and stated that learners who have more confidence in their ability to succeed tend to be more willing to learn. Koca and Dadandı (2019) determined that academic motivation has a mediating role in the relation between academic self-efficacy and academic achievement. High self-efficacy beliefs support students' academic success by increasing their motivation. Malkoç and Kesen-Mutlu (2018) also found that academic motivation mediated the relation between academic self-efficacy and procrastination. In this respect, it could be said that students with higher LSE and LM may also have higher levels of MA. Based on the findings of the study, practices aimed at enhancing LSE in mother tongue education may contribute to students' LM and, indirectly, their MA. In this context, teachers may use pre-listening activities that activate students' prior knowledge and encourage them to make predictions about the listening text, followed by listening tasks in which students monitor and evaluate their comprehension. Providing constructive feedback on students' listening performance and strategy use may also help strengthen their confidence and motivation toward listening.

4.1. Limitations and Future Directions

This study has several limitations. First, mean imputation was used to handle missing data; while this preserved sample size, it may have underestimated variability. Second, all variables were assessed via self-report measures at a single time point, which may have increased the risk of common method bias. Specifically, self-reported metacognitive awareness (MA) may not fully capture students' actual metacognitive performance during listening tasks due to inaccuracies in self-perception. Future studies could use objective or performance-based measures together with self-report measures. Future studies could also investigate the relationship between MA and other affective factors of listening, such as listening anxiety and attitude (Balta, 2018; Lien, 2016).

4.2. Conclusion

This study demonstrates the mediating role of LM in the relation between LSE and MA with a sample of middle school students. The theoretically grounded model was validated through Structural Equation Modeling analysis. The current study can be accepted as the first study examining LM in the relationship between LSE and MA. Higher levels of LSE and LM were associated with higher levels of MA among middle school students. The study underlines the significance of motivation, one of the affective characteristics in listening education. Therefore, this study is important since it provides empirical information about the relationship of motivation and self-efficacy with students' MA by emphasizing the mediating role of LM. Accordingly, middle school listening curricula should consider listening not only as a cognitive skill but also as a process in which self-efficacy, motivation, and metacognitive awareness are interconnected.

5. Declarations

5.1. Conflict of interest

The authors declare that there is no conflict of interest to disclose.

5.2. Funding

The authors declare that the study received no funding.

5.3. Author contributions (CRediT)

Selvanur Kayhan: Conceptualization; Methodology; Investigation; Formal analysis; Writing—original draft; Writing—review & editing

Bircan Eyüp: Conceptualization; Methodology; Supervision; Writing—original draft; Writing—review & editing

Author contributions were as follows: the first author contributed 60% and the second author 40% to the study.

5.4. Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request. The data are not publicly available because they were collected from minors and contain information that could compromise participant confidentiality.

5.5. Ethics approval

This study was approved by the Trabzon University Social and Humanities Scientific Research and Publication Ethics Committee (Approval Date: 29.12.2022; Approval Number: E-81614018-000-2200056636).

5.6. Use of artificial intelligence (AI) tools

The authors declare that no artificial intelligence tools were used in any part of this study.

5.7. Acknowledgements

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