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| **Development of Self-Knowledge Scale for Learning English: A Study of Validity and Reliability**Betül Altay Adnan Menderes University, Turkey betulaltay@adu.edu.tr Asuman Seda SaracaloğluAdnan Menderes University, Turkey sedasaracal@gmail.com**Recommended citation:** Altay, B & Saracaloğlu, A.S. (2017). Development of Self-Knowledge Scale for Learning English: A Study of Validity and Reliability. *Turkish Online Journal of English Language Teaching (TOJELT),2*(3), 133-150. |
| Received: 14 January 2017Revised: 23 April 2017Accepted:1 June 2017betulaltay@adu.edu.tr  © 2017 TOJELT.  All rights reserved. | **Abstract:** The aim of this research is to develop the scale of self-knowledge for learning English. The research population consists of all the ninth-grade students receiving education in Anatolian high schools of the Aydın city in the academic year 2015-16. For the first pre-implementation, the sample of the study includes 646 ninth class students in five Anatolian high schools in a province of Aydın. Following the analyses, the scale was revised. For the second pre-implementation of the revised scale, a different sample in another two provinces of Aydın was determined, and the sample included 816 ninth grade students receiving education in eight Anatolian high schools in total, four schools for each one of the two provinces in the same academic year. After the analyses of the first pre-implementation and second pre-implementation data separately, it was determined that, the scale developed consists of a total of 17 items and those items were grouped under the four factors identically in both analyses. Regarding to the factors’ percentages in explaining total variance of the scale; the percentages are 19% for metacognition, 17% for motivation, 13% for anxiety and 12% for endeavor. It was identified that all these factors together contribute to the variance of the scale with a percentage of 61%. Key to the confirmatory factor analysis carried out after the explanatory factor analysis, the fit indices were examined altogether, and the model was determined as acceptable overall. In the analysis carried out to determine the internal consistency coefficients of the scale, Cronbach Alpha reliability coefficient was found to be 0.81 for the whole scale. This indicated that the items of the scale are consistent with each other. Internal consistency reliability coefficients determined for the factors respectively are; 0.84 for metacognition, 0.85 for motivation, 0.72 for endeavor and 0.70 for the fourth factor anxiety. In accordance with the results obtained in the study, the scale can be used as a valid and reliable instrument to measure ninth class students’ self-perceptions for learning English.**Keywords:** *English learning, metacognition,motivation, endeavor, anxiety* |

**1. Introduction**

English is now regarded as a global language and it stands out among the foreign languages that have been learned in our country. The need for foreign language learning is increasing in accordance with the intensification of inter-communal relations and the development of mass media (Öner & Gedikoglu 2007). Increasing and intensifying international relations make it difficult for nations to communicate with their native language, and learning the languages of other nations seems to be a precondition for living as a member of the international community (Bagçeci, 2004). At the same time, one of the criteria of modernity is accepted as knowing foreign language. Many people in our country are aware of the importance of foreign language learning, and they are making every effort for themselves and to get their children to learn the language (Öner & Gedikoglu 2007).

In the twenty-first century, program designers focused their attention on learning quality and learning development in foreign language teaching (Tanyeli & Kuter, 2013). In many countries around the world, great importance has been given to teaching foreign languages. Knowledge a foreign language in Turkey has become one of the core compulsory courses in educational programs today (Demirpolat, 2015). Especially during the eighties and afterwards in our country, in accordance with the world, although English gets more and more preferred every day, the expected goals in lessons of English, which started in primary school and continued until the end of high school, were not reached (Kırkıç & Boray, 2017).

 Foreign languages begun to be taught in Turkish education system training programs a long time ago and various changes have been made in terms of quantity and quality in foreign language education programs in order to respond to the changing needs and demands over time. However, despite the changes made in the training programs, it cannot be said that Turkey is successful in foreign language teaching. The failure of foreign language teaching is clearly seen both in the gradation of international foreign language competence and in the national examinations (Demirpolat, 2015). In our country, very different English-based school attempts such as high school (super high school) and preparatory class (Anatolian High School), in which foreign language education has been prominently carried out up to now, have been adopted and English programs starting from pre-school classes have been practised in private schools. Very different solutions have been sought for teaching English so far. However, even though these changes provide only a limited improvement, our country has not moved beyond the 50th place among the 70 countries in the study of the English Proficiency Index (EPI) in 2015 (Kırkıç, Boray, 2017). In the same study, in 2016, our country was 51st out of 72 countries with very low proficiency (www.ef.com.tr/epi/).

Private secondary schools and state Anatolian high schools emphasize English and spend a lot of time and resources learning English (Işık, 2013). Over the years, Anatolian high schools instruction system has shown changes. In the beginning years of these schools, students, firstly, received foreign language preparatory education for one year and in the following years, they learnt all the lessons through foreign language. Because of the criticism directed towards education in foreign language, instruction programs were revised and the lessons except from the foreign language lesson began to be taught in mother tongue (Hancı Yanar, 2008). In 1997, education in foreign language came to an end and instruction of foreign language was carried into practice. In both system, duration of education in Anatolian high schools was four years in total in the form of one year preparatory class and three years of high school education. In the academic year of 2005-2006, duration of education in the Anatolian and General high schools was changed with the declaration of Ministry of National Education. With regard to this declaration, by that time, high schools in which students received preparatory education as well as general and vocational high schools having the form of preparatory class plus three years adopted education duration of four years without including preparatory class (Hancı Yanar, 2008). This implementation was carried out gradually. A total of 40 hours of English lessons which had been allocated as 24 hours for preparatory class per week; eight hours for the first year of high school and eight hours for the second year, were allocated for four years of high school. Key to that system, per week, the students were given ten hours of English lessons in ninth class; and in the 10th,11th and 12th grades, four hours of English lessons were given for each, per week. Hence, 40 hours of English lessons were reduced to 22 hours per week (Hancı Yanar, 2008). In the year of 2010, with a circular, the process of restructuring all the general high schools in the form of Anatolian or vocational high schools within the subsequent four years, was commenced in the academic year of 2010-2011 and 1.477 general high schools were transformed into Anatolian or vocational high schools. That process was completed in the academic year of 2013-2014 (Küçüker, 2017). With this amendment, an improvement in the quality of secondary schools were pursued (Çelik, 2015). As of the academic year 2017-2018, the foreign language lessons of 4 hours are included in the curriculum of the 9th, 10th, 11th, and 12th classes of the Anatolian High School (ogm.meb.gov.tr, 2017). The basic purpose of secondary school English lesson curriculum of 9th-12th grades is to provide students with an encouraging, motivating and enjoyable learning environment with the aim of enabling them to use English language in an effective, fluent and accurate way (mufredat.meb.gov.tr, 2017).

Affective variables such as motivation, attitude and self-efficacy are as important as the cognitive domain in reaching the purpose of foreign language teaching programs (Hancı Yanar & Bümen, 2012). According to the results of a research conducted by Kazazoğlu (2013) on 8th and 9th grade students, it was determined that there is a significant relationship between students' attitudes towards English lesson and academic achievement. Kazazoğlu (2013) has found that the relationship between attitude and language achievement is significant because the attitude determines the capacity of individual to learn effectively in the learning process and that the individual should have a positive attitude toward the subject in order to achieve cognitive success and as a result, has emphasized that the attitude should not be underestimated during the foreign language learning process. Affective factors such as attitude, emotion, motivation, and values significantly influence learning. There are three strategies in this group: anxiety reduction, self-encouragement and taking the level of emotion into account. Good language learners are also aware of the negative feelings that hamper learning while controlling their feelings and emotions towards learning (Samida, 2012). Anxiety can be both beneficial and harmful. It is believed to be beneficial, to a certain degree, allowing learners to gain the highest level of performance. Excessive anxiety has the opposite effect by preventing learning. Anxiety often manifests itself in the form of sadness, anger, insecurity, fear, self-doubt (Samida, 2012). Learners must also have time management skills and be able to cope with stress and other affective factors that can negatively impact learning. In addition, learners should have basic knowledge about the learning process and language nature (Crookall, 1983, Ellis & Sinclair, 1989, Wenden, 1991, cited by Ho & Crookall, 1995). Encouraging oneself requires the learners have motivation. The effect of motivation on learning and the fact that awareness of the learning strategies used by learners affects academic achievement has been accepted as important issues in the literature (Yağlı, 2014). Motivation is the most underlying factor in language learning, but studies in this regard are not enough. Since language teaching is more skill training than knowledge teaching, it is very important that the students are active in the teaching process and they are willing to learn the language (Gömleksiz & Kılınç, 2014). The willingness of the learners to take responsibility does not have to be innate, and this is something that should be encouraged and can be learned by formal learning (Holec, 1981; cited by Chan, 2001). Learners should learn to be motivated and self-disciplined (Ho & Crookall 1995). In addition to general knowledge, the individuals also have beliefs about their own motivations. These include judgements about the performance of a task (self-efficacy), the goals of completing a task (learning or just getting a good score) and the value of the task for them (low interest and attention, high interest and high value) (Pintrich, 2002). The awareness of individuals about their own learning and perception styles also play an important role in motivating them (Suna & Durmuşçelebi, 2013).

According to Vandergrift (2005), the strategies most affected by motivational level are cognitive and metacognitive strategies. It is important that students should develop self-knowledge and self-awareness of motivation as well as developing self-knowledge and self-awareness of their information and knowledge (Pintrich, 2002). Schmidt and Watanabe argue that if a person believes in the value of learning another language, both instrumentally and internally, he/she may be expected to use various cognitive and metacognitive strategies to achieve the goal (Schmidt & Watanabe cited by Vandergrift, 2005). Flavell (1979) describes cognitive awareness, metacognition, and cognitive knowledge as the consciousness about the factors and variables which affect the cognitive processes of an individual and knowing how they influence those processes. Metacognition involves the ability of an individual to predict, plan, monitor and evaluate his / her mental activities (Özsoy, 2008, p. 716). As one can see, cognitive and affective features influence each other and create a dynamic whole in learning English. According to Gestalt theory, the whole is greater than the sum of all parts (Clarkson, 1989, Clarkson & Mackewn, 1993, cited by Ikehara, 1999). A holistic understanding of any phenomenon can only be achieved through multiple viewpoints (Yıldırım & Şimşek, 2008: 28, cited by Karataş, 2015).

Cognitive and affective features originate from individual differences and influence the quality of learning English as a foreign language. Erbil Tursun (2010) emphasizes that many language educators say that individual differences are more or less contributing to language learning success, indicating that failure to adequately address individual characteristics and differences in foreign language teaching can be shown as a reason for failure. Larsen-Freeman separated the individual differences into 3 groups; first, the determinants of learner such as age, gender, personality, social status; second, motivation, attitudes and beliefs of learners in the acquisition of foreign languages; (Matsuura, 2007) and finally, the activities of the learners in language learning (learning strategies, etc.). In this respect, it is crucial to dwell on how to improve the effectiveness of the English learning process, taking individual characteristics into account. Language teaching in Turkey occurs in an environment where natural language exposure is at the lowest level. Learning is limited solely to the school environment (Suna & Durmuşçelebi, 2013). In order that foreign language education to be carried out effectively, there is a need for students to be self-confident learners who can also maintain their out-of-school learning effectively. In this context, the concept of learning autonomy in secondary language education is important (Kurt & Acat, 2016).

Communicative approach’s coming into prominence, innovations such as the learner centered instruction and autonomy have made the learner as the main actor in the learning process (Barbot, 2000, cited by, Kurt & Acat, 2016). It can be said that some kinds of knowledge, skills and attitudes qualify autonomous learning. Among these, self-knowledge which means that someone knows what he/she needs to learn and how to learn comes the first (Dickinson, 1987; Holec, 1981, 1989, cited by Ho & Crookall, 1995). Not all self-knowledge is used for the individual to think about oneself at any time. The working self-concept originates from the set of existing self-perceptions which are active in mind and memory. This can be viewed as continuously active alternating sequencing of available self-information (Markus & Nurius, 1986, 957, cited by Henry, Dörnyei & MacIntyre, 2015). Once the learners have begun to develop their self-knowledge, they have a basis for learning how to design their own learning pathways and managing their learning. Self-knowledge forms the basis for the use of self-management strategies that seem to be central to a more autonomous approach to language teaching (White, 1995). Self-knowledge includes knowledge strengths and weaknesses of oneself. For example, a student knowing that he or she is more successful in multiple-choice exams than in written exams shows that he/she has metacognitive knowledge about his / her test skills. This information can be useful when the student is working for two different types of exams. One of the distinguishing features of the experts is that they know that they do not know something, and they need to use some general strategies to find the right information. The awareness of the breadth and depth of one's own knowledge base is an important aspect of self-knowledge (Pintrich, 2002). It is possible that improved metacognition, through increased self-awareness, leads to greater autonomy, more effective strategies and the use of more diverse sources and increased interaction with language. A more autonomous approach also accelerates the rate of improvement. This operation interacts with the emotions of learners (less anxiety, more motivation, increased self-confidence) so that the whole process will accelerate even more. In summary, neglecting metacognition can have a negative impact on autonomy and learning to interact with each other and on the dynamism of this interaction (Victori & Lockhart, 1995). Chamot (2005) stated in the research that it has been proven that good learners have the ability to match appropriate strategies to the tasks they are working on, but that those less successful in language learning obviously do not have metacognitive knowledge of the task requirements needed to choose appropriate strategies. Chamot (2005) emphasizes that language learners who learn well have been defined as the ones whose minds are active, who control the language and performance, practice communicating on the field, using general and linguistic preliminaries, using various memory techniques, and asking questions for clarity. Autonomous learner needs to improve his/her capacity to start and control in order to be able to make important decisions about what, how and when to learn. It is claimed that increasing learning control increases the level of self-determination and thus increases general motivation for autonomous learning (Dickinson, 1987; as cited by Chan, 2001).

The fact that learners have a high level of motivation and cognitive awareness and that their anxiety is at a level which does not negatively affect their learning will allow them to use self-knowledge more effectively in the learning process, and naturally they are expected to carry learning processes out of the classroom environment. These students are most probably struggling to transfer what they learn about the target language to daily life. An example is the way in which students can read books written in target language and practice speaking by communicating with others in the target language. This endeavor is an action to improve English language skills. According to Kahneman (1973), the endeavor in the direction of the current plan and in chosen actions with current purpose is a product of voluntary attention. Endeavor requires the mind to be active in order to achieve the goal. The activeness of the mind increases the quality of actions that will achieve the goal by providing continuity in the foreign language improvement effort. Consequently, in order to deepen research on self-knowledge which is accepted as the basis for the practice of skills considered as the key to autonomous and self-directed learning as with the words of Dickinson (1987) and Holec (1981, 1989) and cited by Ho and Crookall (1995), it is important to study the concepts of motivation, endeavor and anxiety, which are all related to each other. No measurement tool which adress all the concepts mentioned above as a whole to carry out research has been encountered. In this study, a scale consisting of metacognition, motivation, endeavor and anxiety subscales was developed for 9th grade secondary school students in order to study on their of self-knowledge perceptions about learning English.

In this research, it was aimed to develop a valid and reliable scale for 9th-grade students of Anatolian High Schools with the aim of finding out their perceptions towards self-knowledge for learning English.

***2.1. Research Context and Site***

The general population of the research consists of all the Anatolian high schools affiliated to the National Education Directorate in Aydın. During the academic year of 2015-16, in autumn period, Anatolian High School students in three provinces affiliated to Aydın city center formed the sample of the research.

***2.2. Research design***

This research was designed in descriptive survey model. The research method that takes the subject matter area in terms of the existing probable conditions, practice beliefs, processes, relations and tendencies is always called the descriptive survey research (Salaria, 2012). The descriptive research is to define a phenomenon and its features. Research is more concerned with the question ''what'' rather than why and how something happens. As a result, observation and survey tools are used to collect data (Gall, Gall, & Borg, 2007; cited by Nassaji, 2015). Descriptive data can be expressed qualitatively by verbal symbols or quantitatively by mathematical symbols. Two structures can be used in one study (Khan et al., 2017). Descriptive research defines a given situation as fully and carefully as possible. The most common descriptive method in the study field is the survey study because researchers summarize the characteristics (skills, preferences, behaviors, etc.) of individuals, groups or (sometimes) physical environments (such as school) (Büyüköztürk et al., 2017).

***2.3. Participants***

The first form of the measurement tool was implemented 646 students in one province of Aydın and the deficient or missing data were removed, and the data obtained from 604 students were included in the analysis (339 f, 265 m). After the analysis, and in accordance with expert opinion, revised form of measurement tool was implemented on a total of 816 students attending Anatolian High School in two provinces. A total of 593 (378 f, 215 m) students were included in the analysis by extracting deficient or missing data.

**3. Development Process of the Scale**

Literature review had been performed before the item pool was formed for the scale. And also, to measure the cognitive, emotional and behavioral characteristics of the 9th Grade students in order to determine how they know themselves about learning English by making use of the findings of qualitative studies on the English learning process, previously conducted by the researcher, a 7th likert type (1: least likelihood 7: most appropriate) form was prepared and the first implementation of the form was made. The reconstructed measuring tool was implemented on a different sampling group, taking into account the expert opinion in the direction of the analyses made and the content validity.

***3.1. Data Analysis***

The first form of the measurement tool was implemented on 646 students in 5 Anatolian schools located in one province of Aydın and an explanatory factor analysis was performed with SPSS 18.0 statistical package program for 604 (339 f, 265 m) students after excluding deficient or missing data. As a result of the factor analysis, it was seen that the measurement tool had a 5-component structure consisting of 32 items. As a result of the analysis, the second preliminary implementation was made with a 32-item form and 816 students from 8 Anatolian schools, 4 in one province and 4 in the other province. The deficient or missing data were excluded and the descriptive (AFA) and confirmatory factor (DFA) analysis were performed using the data obtained from 593 (378 f, 215 m) students.

**4. Findings**

Before the factor analysis of the preliminary data for the development of the self-knowledge scale for learning English was performed, reversed items were recoded. After this process was completed, the principal components factor analysis was performed on the data obtained from the answers of 604 participants in order to determine the factor structure. KMO and Bartlett's test were performed to determine the appropriateness of the first preliminary data of the measurement tool to factor analysis. It is expected that the KMO coefficient is higher than .60 for factorability (Büyüköztürk, 2017). The KMO value of the scale was .93 and the Barlett's Test of Sphericity significance was p = .000 (p <.001). Accordingly, it has been determined that the measurement tool is appropriate for factor analysis.

In the first analysis with all the items, it was seen that there were 11 dimensions with eigen-values greater than 1. It is recommended that in a factor, the difference between the highest load value of an item and the highest load value after this value should be at least .10 (Büyüköztürk, 2017). Items that were included with factor load values in more than one factor and factor load value differences were less than 0.10 and the items which remained as the the only one in a factor were excluded from the scale. Also, 18 items which were determined to be below the .30 value of factor loadings were extracted from the scale. After the analyses made, it is seen that the measuring instrument consists of a total of 32 items and has a 5-component structure called metacognition, endeavor, anxiety, motivation, and memory.



Figure 4.1 Graph of the eigen values of the factors related to first preliminary implementation

The first preliminary data was subjected to factor analysis again after the second preliminary data analyses and for the reason that all three items gathered in the memory sub-dimension were determined as insufficient to measure memory features, these items were excluded from the analysis by taking the expert opinion and content validity taking into account, it was determined that the instrument was composed of a total of 17 items and 4 sub-dimensions.

**Figure 4.2. Graph of the eigen-values of the factors for the second analysis of the first preliminary implementation**

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**Table 4.1. Factor Load Values of the First Preliminary Implementation**

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| **Items** | **Load values after conversion** |
| **F1** | **F2** | **F3** | **F4** |
|  **Dimension 1: Metacognition**21. I study in a planned way to learn English effectively.26. If I have difficulties while learning English, I review the subject.28. I try to find out why I have difficulty in learning English.45. I question myself and evaluate my studies for a better performance while learning English.46. I can find the reasons for my mistakes when I evaluate myself in learning English  | .665.759.758.759.733 |  |  |  |
| **Dimension 2: Motivation**2. I believe that learning English will provide opportunities for me in the future.3. I would like to learn English for my professional development and career.4. I would like to acquire four language skills (speaking, reading, writing, listening) in English accurately.5. I am determined to learn English accurately. |  | .792.789.818.716 |  |  |
| **Dimension 3: Endeavor**16. To improve my English, I watch movies and programs, etc. in target language (English)17. To improve my English, I listen to the songs, radio programs, etc. in the target language (English) 19. To improve my English, I read the books and publications in the target language (English).20. I speak English with my friends or acquaintances. |  |  | .768.730.759.674 |  |
| **Dimension 4: Anxiety**39. I get anxious if I speak English with someone whose native language is English.40. I get anxious about my English exams at school.41. I get anxious about national English exams. 44. I get anxious about trying not to make grammar mistakes when I speak English. |  |  |  | .740.784.815.701 |

The total Cronbach Alpha reliability coefficient of the 17-item scale, which is the result of explanatory factor analysis of the first preliminary data, was found to be .84. Before the factor analysis of the first preliminary data for the development of the self-knowledge scale for learning English was performed, the answers of the test were reversed by coding the following expressions as negative: ‘’I get anxious if I speak English with someone whose native language is English.’’, "I get anxious about my English exams at school.", "I get anxious about national English exams.", and "I get anxious about trying not to make grammar mistakes while I speak English." After this process was completed, the principal components factor analysis was applied to the scores obtained from the answers of 593 persons to the measurement tool in order to determine the factor structure. Kaiser - Meyer - Olkin (KMO) sample adequacy test and Bartlett sphericity test were applied to test the suitability of the dataset for factor analysis. The dataset was found to be as appropriate for the factor analysis since the KMO value was found to be 0.87 above the acceptable limit of 0.60, and the Bartlett sphericity test was above 0.50 and significant at 0.05 significance level. The KMO coefficient value indicates that data are appropriate for analysis. The items were analyzed using the principal component method and the Varimax rotation method. It was determined that the measurement tool was composed of 17 items under 4 factors. The curve graph obtained as a result of explanatory factor analysis is shown in the figure.

**Figure 4.3. Graph of the eigen-values of the factors related to the second preliminary implementation.**

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The scale consists of four components. There are 5 items measuring the dimension of "metacognition" (example item I question myself and evaluate my studies for a better performance while learning English.), 4 items measuring the dimension of "motivation" (EI: I believe that learning English will provide opportunities for me in the future), 4 items measuring the dimension of "endeavor" (EI: To improve my English, I read the books and publications in the target language (English) and 4 items that measure the size of the "anxiety" (EI: I get anxious about trying not to make grammar mistakes when I speak English.). The load values for the explanatory factor analysis are shown in the table.

**Table 4.2. Factor Load Values of the Second Preliminary Implementation**

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| **Items** | **Load values after conversion** |
| **F1** | **F2** | **F3** | **F4** |
|  **Dimension 1: Metacognition**1. I study in a planned way to learn English effectively.2. If I have difficulties while learning English, I review the subject.3. I try to find out why I have difficulty in learning English.4. I question myself and evaluate my studies for a better performance while learning English.5. I can find the reasons for my mistakes when I evaluate myself in learning English  | .759.728.623.747.687 |  |  |  |
| **Dimension 2: Motivation**6. I believe that learning English will provide opportunities for me in the future.7. I would like to learn English for my professional development and career.8. I would like to acquire four language skills (speaking, reading, writing, listening) in English accurately.9. I am determined to learn English accurately. |  | .796.775.833.635 |  |  |
| **Dimension 3: Endeavor**10. To improve my English, I watch movies and programs, etc. in target language (English)11. To improve my English, I listen to the songs, radio programs, etc. in the target language (English) 12. To improve my English, I read the books and publications in the target language (English).13. I speak English with my friends or acquaintances. |  |  | .815.729.626.551 |  |
| **Dimension 4: Anxiety**14. I get anxious if I speak English with someone whose native language is English.15. I get anxious about my English exams at school.16. I get anxious about national English exams. 17. I get anxious about trying not to make grammar mistakes when I speak English. |  |  |  | .677.791.747.674 |

Four factors were identified after EFA analysis of the second preliminary implementation data. The total variance of the scale is composed of 19% of metacognitive dimension, 17% of motivation dimension, 13% of anxiety dimension and 12% of endeavor dimension. These four factors were found to be 61% of the variance contribution.

**Table 4.3. Rotated Factor Loads of Self-Knowledge Scale for Learning English**

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| Factor | Eigen-values | Variance (%) | Cumulative (%) |
| Metacognition | 3.281 | 19.301 | 19.301 |
| Motivation | 2.958 | 17.398 | 36.699 |
| Anxiety  | 2.152 | 12.661 | 49.360 |
| Endeavor | 2.087 | 12.274 | 61.634 |

In order to determine the reliability of the scale, the Cronbach Alpha reliability coefficient was determined. Cronbach Alpha values as a result of the analyzes; .84 for the dimension of metacognition, .85 for the motivational dimension, .72 for the endeavor dimension, .70 for the anxiety dimension, and .81 for the whole scale.

*Confirmatory Factor Analysis:*

Confirmatory Factor Analysis (CFA) is a testing method of assessing factor structures determined after the exploratory factor analysis (EFA), also assessing factor structures that are determined by using the sources and assessing factor structures pre-determined generally accepted / defined for the original scales, or assessing the estimated factor structures (Özdamar, 2016). The confirmatory factor analysis of Self-Knowledge Scale for Learning English which was determined to consist of 4 factors with explanatory factor analysis, was evaluated by using confirmatory factor analysis and paying attention to theoretical implications.

**Figure 4.4. CFA Diagram of the Scale**

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The reported values for model fit are usually x2 / df (CMIN / DF), GFI, NFI, CFI, and RMSEA, although there are many values. The general model fit indices x2 / df (CMIN / DF), absolute fit index GFI, comparative fit indexes CFI, NFI and RMSEA were used to evaluate the analysis results. The values obtained as a result of the analysis are given in Table 2.

**Table 4. 4. Model Fit Indices of the Scale**

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| Fit Measurements | Good Fit | Acceptable Fit | Measurement  |
| RMSEA | 0<RMSEA<0.05 | 0.05≤RMSEA≤0.10 | 0.078 |
| NFI | 0.95≤NFI≤1 | 0.90≤NFI≤0.95 | 0.938 |
| CFI | 0.97≤CFI≤1 | 0.95≤CFI≤0.97 | 0.952 |
| GFI | 0.95≤GFI≤1 | 0.90≤GFI≤0.95 | 0.905 |
| AGFI | 0.90≤AGFI≤1 | 0.85≤AGFI≤0.90 | 0.872 |

 x2: 469.207 df: 113, Measurement: 4.152

Hooper, Coughlan, and Mullen (2008) state that a statistical norm that minimizes the effect of sample size in the chi-square model is the normalized square (χ2 / df) of Wheaton et al. adding that no compromise has been reached for the ratio that is acceptable for this statistic. Recommended values may vary from a high value of 5.0 (Wheaton et al., 1977; cited by Hooper et al., 2008) to a low value of 2.0 (Tabachnick & Fidell, 2007; cited by Hooper at al.,2008). The value obtained by dividing the value of χ2 by the degree of freedom should be two or less. It is acceptable if it is five or less (Hooper & Mullen 2008; Munro 2005; Şimşek 2007). While Chi-square / df ratio shows good fit between 2.0 and 5.0, ratio; less than 2.0 indicates extreme fit (Kelloway, 1998). When the fit measures are evaluated together, it is determined that the fit values of the developed scale are within the acceptable limits.

*The Reliability of the Self-Knowledge Scale for Learning English:*

The Cronbach Alpha reliability coefficient for the whole scale was found to be 0.81 in the analysis to determine the internal consistency coefficient of the self-knowledge scale for learning English. It has been determined that the items forming the scale are consistent with each other. Internal consistency reliability coefficients for the sub-dimensions are; 0.84 for the metacognition subdimension, 0.85 for the motivation subdimension, 0.72 for the endeavor subdimension, and 0.70 for the anxiety, the fourth subdimension. Büyüköztürk (2017) stated that the correlation coefficient is high between 0.70 and 1.00 as an absolute value, moderate between 0.70 and 0.30, and between 0.30 and 0.00 can be defined as a low correlation. In this context, it can be said that the reliability coefficients of sub-dimensions are high.

**5. Results**

In this study, a scale was developed to determine the self-knowledge of Anatolian high school students of the ninth grade for learning English. This scale called "self-knowledge scale for learning English", consists of 17 items. The scale item pool was composed of 50 items in the first stage. When the data were analyzed after the first preliminary implementation, it was found that the scale was composed of 32 items and gathered in the sub-dimensions of metacognition, motivation, anxiety, memory, and endeavor. As a result of the analysis, a second preliminary implementation was carried out with the revised form composed of 32 items and with a different sampling. The explanatory and confirmatory factor analyses of the second preliminary data were performed on 593 participants. The scale was determined to be of 17 items and four factors as a result of explanatory factor analysis of the second preliminary data. As a result of confirmatory factor analysis of the second preliminary data, when the fit indices were evaluated together, it was determined that the developed scale model fit indices were within acceptable limits. The first preliminary data was subjected to factor analysis again after the second preliminary data analysis and it was determined that the three items collected in the memory sub-dimension were insufficient to measure that subdivision so those items were excluded from the analysis. Subsequent to all the analyses carried out, it was determined that, the scale developed consists of a total of 17 items and those items were grouped under the four factors identically in both analyses. Those factors were identified as metacognition, motivation, endeavor, and anxiety. The total variance of the scale consists of 19% of metacognitive dimension, 17% of motivation dimension, 13% of anxiety dimension and 12% of endeavor dimension. These four factors altogether contributed to the total variance with a percentage of 61%. The Cronbach Alpha reliability coefficient for the whole scale was found to be 0.81 in the analysis. It has been determined that the items forming the scale are consistent with each other. Internal consistency reliability coefficients for the sub-dimensions are; 0.84 for the metacognition subscale, 0.85 for the motivation subscale, 0.72 for the endeavor subscale, and 0.70 for the anxiety which is the fourth subscale. It was determined that the scale developed according to the results obtained in the research was valid and reliable to measure the self-knowledge perceptions of 9th-grade students of Anatolian High School to learn English. In this context, it was determined that the scale developed in this research in Turkish language, which is valid and reliable, will contribute to the studies related to this topic. This scale can also be implemented on different sample groups to perform validity and reliability studies. Besides, to use the scale in English form, linguistic equivalence reliability and validity studies should be performed. In this research paper, the scale items were written in English just for comprehension. Further studies that will contribute to enhance the understanding of self-knowledge for learning English should be conducted.

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*Appendix: Self-knowledge scale for learning English*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **İNGİLİZCE ÖĞRENMEYE YÖNELİK ÖZ-BİLGİ ÖLÇEĞİ** | **EN AZ UYGUN** |  |  |  |  |  | **EN ÇOKUYGUN** |
|  |
| **1** | **İngilizceyi etkili öğrenmek için planlı çalışırım.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **2** | **İngilizce öğrenirken zorluk yaşarsam konu tekrarı yaparım.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **3** | **İngilizce öğrenirken neden zorluk yaşadığımı bulmaya çalışırım.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **4** | **İngilizce öğrenirken daha iyi bir performans için kendimi sorgular ve çalışmalarımı değerlendiririm.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **5** | **İngilizce öğrenirken kendimi değerlendirdiğimde hatalarımın sebeplerini bulabilirim.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **6** | **İngilizce öğrenmenin gelecekte bana fırsatlar sunacağına inanırım.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **7** | **İngilizceyi profesyonel gelişimim ve kariyerim için öğrenmek isterim.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **8** | **İngilizcede dört dil becerisini (konuşma, okuma yazma, dinleme) tam olarak kazanmak isterim.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **9** | **İngilizceyi tam olarak öğrenmeye kararlıyım.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **10** | **İngilizcemi geliştirmek için hedef dilde (İngilizce) filmler, programlar vb. izlerim.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **11** | **İngilizcemi geliştirmek için hedef dilde (İngilizce) şarkılar, radyo programları vb. dinlerim.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **12** | **İngilizcemi geliştirmek için hedef dilde (İngilizce) kitap ve yayınları okurum.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **13** | **Arkadaşlarım veya tanıdıklarımla İngilizce konuşurum** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **14** | **Ana dili İngilizce olan biriyle İngilizce konuşursam kaygılanırım.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **15** | **Okulda girdiğim İngilizce sınavlarında kaygılanırım.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **16** | **Ulusal İngilizce sınavlarında kaygılanırım.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **17** | **İngilizce konuşurken gramer hatası yapmamaya çalışmak beni kaygılandırır.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |