

Research Article

Language learning self-efficacy beliefs of German as foreign/second language learners: A scale development study

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Students' self-efficacy is a crucial factor in learning foreign/second language. Although a growing body of literature has drawn attention to the self-efficacy in various fields, very few studies have addressed this issue in the field of foreign language and especially German learning. The purpose of this paper was to develop a reliable and valid tool for measuring self-efficacy beliefs of German learners. A total of 205 students (154 Female and 51 Male) studying in the German language education department participated in the study. After the data collection, exploratory factor analysis and confirmatory factor analysis were performed to determine the validity and reliability of the scale. The Cronbach Alpha value of the developed scale was found to be 0.928, which is quite high. The explained variance value of the factors was found to be 62.943, which indicates a high validity. As a result of the analysis, a 23-item and 3-dimensional scale was developed. In conclusion, the developed scale is a valid and reliable tool for measuring language learning performance, linguistic skills, and learning confidence in the language learning process in the context of self-efficacy belief.

Keywords: Self-efficacy; Language learning; German language; Scale development

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1. Introduction

Learning a foreign language professionally is a long and arduous process that requires dedication and hard work. Both individual and external factors affect the language learning success of students. In this paper, the concept of self-efficacy, which is in the group of individual factors and is believed to affect the success of the student in many works of literature, will be emphasized. The term self-efficacy, which has taken its place in many disciplines, entered the history of literature for the first time when psychologist Albert Bandura published his article "Self-Efficacy: Toward a Unifying Theory of Behavior Change" in 1977. The term *self-efficacy* has been included in hundreds of articles published in the fields of sociology, medicine, kinesiology, and many other fields, especially in psychology and related fields. The most common meaning of self-efficacy is people's beliefs about what they are capable of doing (Maddux, 2002). Bandura (1994) defines the term *self-efficacy* briefly as individuals' personal beliefs about their capabilities that produce performance levels that are effective in their lives. According to the researcher, self-efficacy beliefs have a

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decisive role in people's feelings, thoughts, motivations, and behaviors. However, sometimes the concept of self-efficacy is confused with some other similar concepts. This may cause some inconsistencies in the measurement tools developed especially for self-efficacy. One of the concepts most often confused with self-efficacy is self-concept. Both concepts are related to the motivation, emotions, and performances of the individual (Bong & Sklaavic, 2003). Self-concept is a more complex concept that brings together the cognitive and emotional reactions of the individual towards himself. While self-concept is briefly defined as the individual's perception of himself/herself as a whole, the concept of self-efficacy focuses on the capabilities and represents the perceptions of the individual regarding his/her capabilities (Bandura, 1997; Bong & Clark, 1999). According to Bandura (2006) if a measurement tool for self-efficacy is being developed, the items related to self-efficacy should be expressed with the modal verb "can" instead of "will", since they are about capability. The model "can" is a judgment of capability, while "will" is a statement of intent (Bandura, 2006).

For individuals experiencing psychological stress, self-efficacy is among the most important factors that can help them overcome this stress (Panc et al., 2012). Self-efficacy beliefs affect the individual's functioning quality through cognition, motivation, emotion, and decision mechanisms. People's beliefs about their abilities also affect their way of thinking. Individuals may think pessimistically or optimistically in line with their self-efficacy beliefs. Thus, they can activate themselves in the context of the performance or lower their performance level. The self-efficacy belief of individuals plays a role in how well the individual can motivate himself in reaching the determined goals and expectations. Self-efficacy determines not only the level of motivation but also the individual's level of resistance to difficulties and failures. High belief in one's ability to cope with failures and difficulties has a very important place in one's self-regulation. People with low self-efficacy beliefs easily begin to believe that their efforts are in vain when they encounter difficulties and obstacles, so they give up. On the other hand, people with high self-efficacy belief do not give up in the face of difficulties and try to find ways to overcome them (Bandura, 2011).

The success of students does not only depend on the knowledge and skills they have, it also depends on the necessity to have a high self-efficacy belief in order to use knowledge and skills effectively. For this reason, students with the same ability and knowledge may not always be equally successful when they have different self-efficacy beliefs (Bandura, 1993). Cognitive theories about learning also emphasize that learners' thoughts, beliefs, attitudes, and value judgments have an important place in the learning process. Students who are unsure of their own capabilities to learn may not be enthusiastic about participating in learning activities and study their lessons reluctantly. As a result, the student's learning action is interrupted. Therefore, teachers should plan their lessons by taking into account the thoughts of the students (Schunk, 2012). Self-efficacy is a strong predictor of improving language skills and learning performance, and various factors affect students' self-efficacy beliefs. For example, encouraging students to learn and providing them with positive feedback contribute to their development of self-efficacy. Students who are encouraged for a task by their superiors, mentors, and teachers develop a high sense of self-efficacy. However, physiological and emotional factors such as fatigue and anxiety during the learning process negatively affect students' self-efficacy beliefs (Raoofi et al., 2012). Learned helplessness syndrome may occur when students' low self-efficacy continues for a long time (Arslan, 2012). In order to prevent this, it is important to continue education and learning activities by determining the factors affecting students' self-efficacy beliefs and their self-efficacy status.

2. Literature Review

Self-efficacy is a potential motivational factor that can improve learning and achievement (Akengin et al., 2014). Since many educational researchers are aware of this, over the years, self-efficacy has started to be investigated intensively in the field of education. Many studies in the field of education reveal that there is a *linear relationship* between academic achievement and self-efficacy (Hayat, et al. 2020; Hwang et al, 2016; Koca & Dadandı, 2019; Köseoğlu, 2015; Motlagh et

al., 2011; Pajares & Miller, 1994; Phan, 2012). Although the fields are different, the importance of self-efficacy has been sufficiently demonstrated when it comes to learning. In the field of education, quantitative studies dealing with especially students' mathematical skills come to the fore. Many scales related to mathematics have been found in the literature (Özcan & Kültür, 2021). Despite their relevance to education and learning, these mathematical scales cannot be used in every field because self-efficacy is a domain-specific factor (Akengin et al., 2014). Therefore, not all self-efficacy scales developed in the language teaching field may be suitable for measuring German learners' self-efficacy. For example, there may be differences between those who learn English and those who learn German. The use of English as the language of international communication and teaching English as the first foreign language in many countries may psychologically change their perspective on language compared to the German language. Therefore, it would be more beneficial to deal with self-efficacy studies for German learners. However, a review of the literature indicates that there is limited research on German language learning and self-efficacy. Related to the subject of the study, these studies in the literature cover university students and aim to measure self-efficacy in the four basic skills of reading, writing, listening, and speaking in general. Some of these studies also try to reveal the relationship between students' motivation and self-efficacy levels (Afifah & Indriwardhani, 2021; Akin & Akpınar Dellal, 2016; Busse, 2013; Hsieh, 2008; National Capital Language Resource Center, 2000).

In the country where this study was conducted, a modest number of studies have been conducted on this issue. Studies in this country are generally aimed at measuring the professional self-efficacy of students studying in German departments and language learning self-efficacy studies are limited to measuring self-efficacy beliefs in four language skills. In addition, the relationship of variables such as age, gender, and grade level with students' self-efficacy beliefs was also examined. Most of the studies aimed at measuring the professional self-efficacy of foreign language teachers in all fields (German-English-Arabic-French). Some studies only aimed at measuring self-efficacy in speaking skills (Akin & Akpınar Dellal, 2016; Aydın, 2013; Can, 2020; Katrançı, 2014; Yeşilyurt, 2013). The most relevant study to this study is Akin and Akpınar Dellal's (2016) study aiming to determine the self-efficacy beliefs of German language students. In their study, students' self-efficacy beliefs were examined according to the type of high school they attended, grade level, and gender. As a result of the study, no significant relationship was found between high school type and self-efficacy. On the other hand, it was determined that the 4th-grade students had the highest self-efficacy and the male students had higher self-efficacy than the female students. On the contrary, Can (2020) did not find a significant relationship between the gender and self-efficacy of students studying German in a similar study. Since there are very few self-efficacy studies on German learners, it is difficult to say that there is a definite conclusion on the variables affecting self-efficacy. Therefore, there is a need for more self-efficacy studies for German learners.

Since self-efficacy studies on foreign language learning in general focus on four language skills, self-efficacy has not been examined in the context of variables such as learning strategies, learning performance, or the student's psychological state (Raofifi et al., 2012). In addition to self-efficacy studies on four language skills, it is necessary to examine German learning self-efficacy from different perspectives because foreign language learning process is complex and multidimensional. With this study, German self-efficacy will be measured from different aspects besides four language skills, and it is thought that the study will contribute to the literature in this respect.

3. The Present Study

Based on the previous research, self-efficacy has been studied in many areas, but there are very few studies, especially in the field of learning German as a second and foreign language. Research on self-efficacy in foreign language learning focuses on learning and particularly teaching the English language (Çankaya, 2018; Huang & Chang, 1996; Karas, 2019; Wang & Pape, 2007; Wyatt &

Dikilitaş, 2021). Since English is the first foreign language taught in schools in many countries, it can be stated that other languages stay in the background. With this study, the primary aim is to develop a valid and reliable measurement tool that will measure the self-efficacy belief status of learners of German language. This study will focus specifically on the answers to the following three research questions:

- Is the developed measurement tool valid and reliable?
- Can the desired features be measured with the developed scale?
- Do the scale items serve the purpose?

4. Methodology

4.1. Research Design

This study is a scale development study that employs survey model. This model is commonly used to describe facts and events by collecting data from certain large groups (Karakaya, 2012).

4.2. Participants

The participants of the study consist of 205 (Female: 154, Male: 51) undergraduate students who are studying in the department of German Language Teaching at a state university in the fall term of the 2021-2022 academic year. Participants are 1st, 2nd, 3rd, and 4th year and German preparatory class students. The widely accepted view regarding the adequacy of the sample size in scale development studies is that the sample should at least cover fivefold of the number of the items in the scale (Şencan, 2005; Tabachnick et al., 2019). Accordingly, at least 115 participants are sufficient for this scale with 23 items. However, more participants participated in the study. As a result, a sufficient number of samples (n=205) was reached in the study. For the transparency of the study, a random sample was used. German is the second language for some students, as they have lived in Germany before (29 Students). Although other students do not live in Germany, German is considered a second language for them, as they currently use German extensively in their education life and their future profession will be German teaching.

According to descriptive statistics, 24.9% of the study participants were males and 75.1% were females. In addition, 19.5% of the participants studied in a German preparatory course, 22.9% in their first year, 22.9% in their second year, 17.1% in their third year, and 17.6% in their fourth/last year. Most of the students took German lessons in high school before, with a rate of 73.2%. However, the rate of students living in Germany is only 14.1%. The most prominent reasons why students prefer the German department are learning a new foreign language with a rate of 33.3% and thinking that this department has good job opportunities with a rate of 17.6%. The rate of students learning German because they like German was 15.6%. The rate of students studying in the department of German language teaching to live abroad was 14.1% and studying German teaching out of necessity because they did not get the necessary score in the university entrance exam to study in another department, was determined as 13.2%.

4.3. Scale Development Process

The scale development process first started with a detailed literature review and an item pool was created. In line with the literature review on the relevant field, 40 items were prepared. The 40 items were submitted to the opinion of 10 different experts. Opinions were requested from assessment and evaluation experts as well as field experts. The Lawshe method was used to calculate the content validity of the items. In line with this method, an expert opinion form was developed. The purpose of the scale was stated in the form, and experts marked the items as *essential*, *useful but not essential* and *not necessary*, and additionally, experts were asked for their suggestions, if any. In order to obtain information about the clarity of the items and to determine the internal validity of the scale, a pilot study of the draft scale was done with 40 students. It is stated that selection between 30 and 50 participants representing the target group for the pilot study is sufficient (Şeker & Gençdoğan, 2014). After the pilot study, the item-total correlations of

the items and the Cronbach's alpha coefficient of the scale were calculated with the SPSS analysis program. After the pilot application, the scale was applied to the larger sample (n=205) and the data was analyzed. After the analysis of the data, the final version of the *German Learning Self-Efficacy Belief Scale* was developed.

4.4. Measurement Tool and Data Collection

In the study, a 5-point Likert-type draft scale with 28-items was used to measure the self-efficacy beliefs of students learning German as a foreign/second language. The answers in the scale were prepared as strongly disagree (1), disagree (2), undecided (3), agree (4) and strongly agree (5). Items 11 and 12 are reverse items on the scale. In the scale form, demographic and background information of the participants were also asked by asking variables such as gender, age, type of high school, duration of living and being in Germany, and the reasons for studying in the German department. Obtaining information about these variables helps to analyze possible relationships with the variables and scale items.

The scale was applied face-to-face to all students who could be reached in a 4-week period by the researcher. The students were informed about the content of the study and volunteer consent forms were given to students. The scale was applied only to the volunteer students. Students were asked to mark the most appropriate option for them on the scale form.

4.5. Data Analysis

After the scale was applied to the large sample, SPSS 25 and AMOS statistical programs were used in the analysis of the data. Exploratory factor analysis (EFA) was performed to determine the construct validity of the scale. EFA was performed using principal components analysis and direct oblimin methods to examine the factor structure of the scale. Since the factors are correlated, the direct oblimin rotation method, which is one of the oblique methods, was preferred. The suitability of the data for factor analysis was evaluated with the Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity. To evaluate the collected data, item-total correlation coefficients were calculated again. Item discrimination index was calculated by the 27% lower and upper groups. Cronbach's alpha was calculated for the reliability. Confirmatory factor analysis (CFA) was used to confirm the sub-dimensions revealed by EFA. In addition to CFA, convergent and discriminant validity analyzes were used to examine the construct validity. A t-test for independent samples is used to test if there is a statistically significant difference between two independent groups.

5. Results

5.1. Findings about Content Validity in Line with Expert Opinions

Using the Lawshe technique, the content validity rate was calculated in line with the opinions of 10 experts. The content validity index is calculated by dividing the number of experts who marked the essential option for each item by the number of experts (Gilbert & Prion, 2016; Lawshe, 1975). The acceptable content validity rate for each item was found to be 0.62, and it was decided to exclude 12 items, which were below the value from the scale. The content validity ratios of all remaining items were calculated as 0.907. Adjustments were made in the items in line with the suggestions of the experts, and then the draft scale was formed as 28 items.

5.2. Findings about Face Validity in Line with the Pilot Study

As a result of the analyses made in the pilot study carried out with 40 students, the Cronbach's alpha value was found to be quite high as 0.949. With the pilot study, it was determined that all draft scale items were understandable.

5.3. Findings about the Validity and Reliability Analyses

As illustrated in Table 1, the scale aiming to measure the self-efficacy belief in learning German was developed based on three sub dimensions. The sub dimensions are shown in Table 1 as F1 (Language Learning Performance), F2 (Language Skills), and F3 (Language Learning Confidence).

Before the EFA, the KMO test was performed to determine whether the sample was suitable or not. The KMO value was found to be 0.901. According to Kaiser values over 0.90 are marvelous. The analysis result shows that the sample size is perfectly sufficient to perform factor analysis (Field, 2009; Kaiser & Rice, 1974). The results from Bartlett's test show that the obtained chi-square value is normal ($\chi^2(253) = 3093.152; p = 0.00$). This result indicates that the data were obtained in the direction of multivariate normal distribution.

Table 1

EFA and reliability results of the German learning self-efficacy belief scale

<i>Factors and items</i>	<i>α^*</i>	<i>FL</i>
F1: Language Learning Performance ($\alpha=0.912$)		
19. I can use different methods to remember what I learned in classroom	0.924	0.800
18. I can use different methods to keep my newly learned German words in my mind	0.923	0.808
11. I can't make an effort to improve my German outside of the classroom	0.926	0.796
14. I can make learning process of German fun	0.924	0.784
20. I can study German hard enough and regularly	0.925	0.718
4. I can use different learning methods to learn German	0.923	0.685
9. I can use different materials (music, movies, etc.) to improve my German	0.923	0.764
5. I can follow my lessons regularly	0.925	0.727
F2: Language Skills ($\alpha=0.921$)		
7. I can easily answer questions in German	0.925	0.862
6. I can easily communicate with someone in German	0.926	0.897
13. I can easily understand what I read in German	0.926	0.845
17. I can write texts in German without any difficulties	0.926	0.783
24. I can understand what I hear in German without any difficulties	0.926	0.829
1. I can easily participate in any German activity in the classroom	0.925	0.755
F3: Language Learning Confidence ($\alpha=0.893$)		
21. I can overcome the mistakes I made while learning German	0.925	0.786
22. I can use the principles and methods of learning German without any difficulties	0.925	0.702
23. I can discover my shortcomings in learning German	0.925	0.705
8. I can do my homework in German without anyone's help	0.925	0.705
28. I can describe myself as competent in learning German	0.925	0.710
3. I can be successful in learning German	0.923	0.629
10. I can learn German on my own without the need for a special course	0.925	0.715
27. I can find solutions to the learning problems I have while learning German	0.924	0.707
12. No matter how hard I try; I may not be able to learn German very well	0.926	0.665
Total ($\alpha=0.928$)		
Explained Variance = 62.943%		
Eigenvalue= 9.069		
KMO =0.901; χ^2 (253) =3093.152; Bartlett's Test (p) = 0.000		

Note. α^* : α if item deleted; FL: Factor Load

In line with the factor analysis, 5 items (15, 16, 26, 25, 2) were removed from the 28-item draft scale because items 15, 26 and 25 did not have sufficient factor loading. In addition, items 16 and 2 were not included in the theoretically appropriate sub-dimensions. There were no items with cross loading. In the factor analysis performed with the remaining 23 items, 3 components with an eigenvalue above 1 were observed. The total variance of the components is 62.943%. The explained variance between 50% and 75% indicates that the analysis is valid and sufficiently exploratory (Pallant, 2020; Şencan, 2005). In the repeated analysis for the three factors, the total variance was 39.429% for the first factor *F1*, 14.361% for the second factor *F2*, and 9.153% for the third factor *F3*.

According to the EFA, the acceptance level of the factor loads was determined as 0.400. As seen in Table 1, the Cronbach's alpha value was calculated as 0.912 for factor 1, 0.921 for factor 2, 0.893 for factor 3, and 0.928 for the whole scale (23 items). For reliability, a Cronbach's alpha value of

≥ 0.70 is acceptable, ≥ 0.80 is good, and ≥ 0.90 is excellent (George & Mallery, 2003). Accordingly, the reliability of the scale is excellent.

Table 2

Item analysis results of sub-dimensions of the German learning self-efficacy belief scale for participants

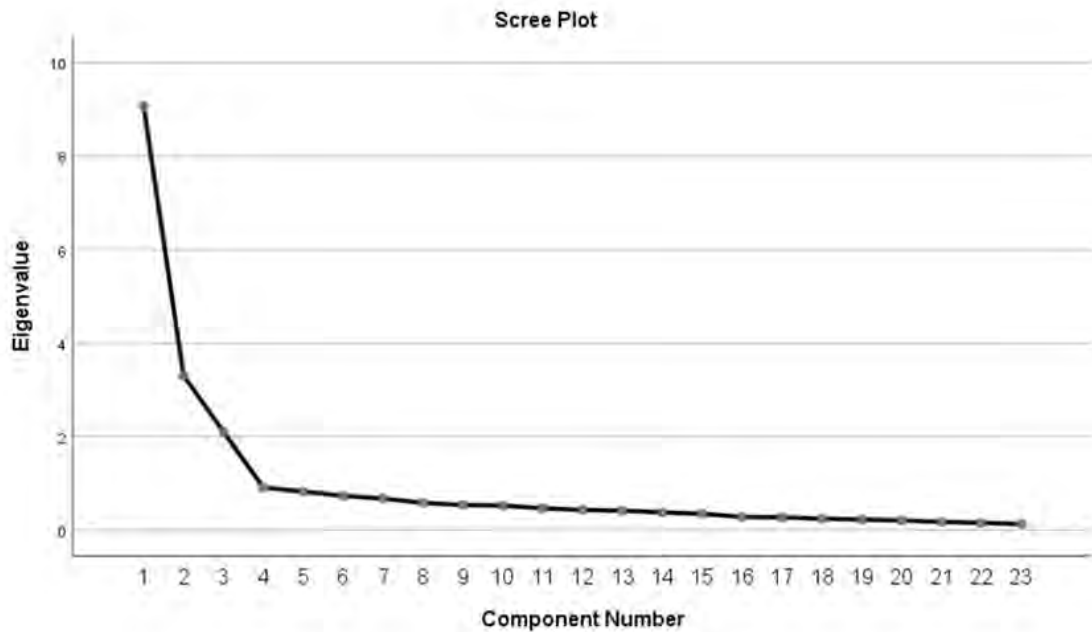
Items	Total Item Correlation	t (Lower 27%**-Upper 27% **)	p value (Lower 27%**-Upper 27% **)
Item 19	0.616	-8.501	<0.01***
Item 18	0.685	-10.394	<0.01***
Item 11	0.495	-5.397	<0.01***
Item 14	0.630	-6.049	<0.01***
Item 20	0.581	-8.147	<0.01***
Item 4	0.688	-8.488	<0.01***
Item 9	0.694	-7.292	<0.01***
Item 5	0.585	-6.811	<0.01***
Item 7	0.560	-11.001	<0.01***
Item 6	0.506	-9.436	<0.01***
Item 13	0.533	-9.050	<0.01***
Item 17	0.527	-10.239	<0.01***
Item 24	0.536	-9.996	<0.01***
Item 1	0.568	9.951	<0.01***
Item 22	0.570	-8.920	<0.01***
Item 21	0.533	-5.411	<0.01***
Item 28	0.560	-9.672	<0.01***
Item 12	0.487	-7.831	<0.01***
Item 10	0.538	-8.912	<0.01***
Item 23	0.567	-5.973	<0.01***
Item 8	0.578	-7.023	<0.01***
Item 27	0.613	-7.718	<0.01***
Item 3	0.672	-8.364	<0.01***

Note. n = 205; ** $n_1 = n_2 = 55$; *** $p < 0.05$ for significant values.

It is stated that the sufficient value for the item-total test correlation should be at least 0.30 (Kline, 2000). Item correlations of the scale were examined and the scale items were above 0.30. The t-test results showing the discrimination power of all items of the scale and the item-total correlation values are given in Table 2. The item-total test correlation values of the items vary between 0.487 and 0.694, and all items are related to each other. Comparing the mean scores of the groups in the lower 27% and upper 27% with the t-test helps to reveal the distinctiveness of the scale items. No statistically significant difference was observed in line with this comparison. This result shows that the scale has a distinctive feature in measurement.

Figure 1

Scree plot obtained from explanatory factor analysis



In the graph above, the slope of the descents seen from the first point shows the degree of contribution to the variance (Çokluk et al., 2012). After the third point, the contribution of each factor to the variance decreases, and it is seen that the contributions of the variances to be added are very close to each other. It was decided that there should be three factors in line with the eigenvalues and percentages of variance and the data obtained from the graph, in line with the EFA.

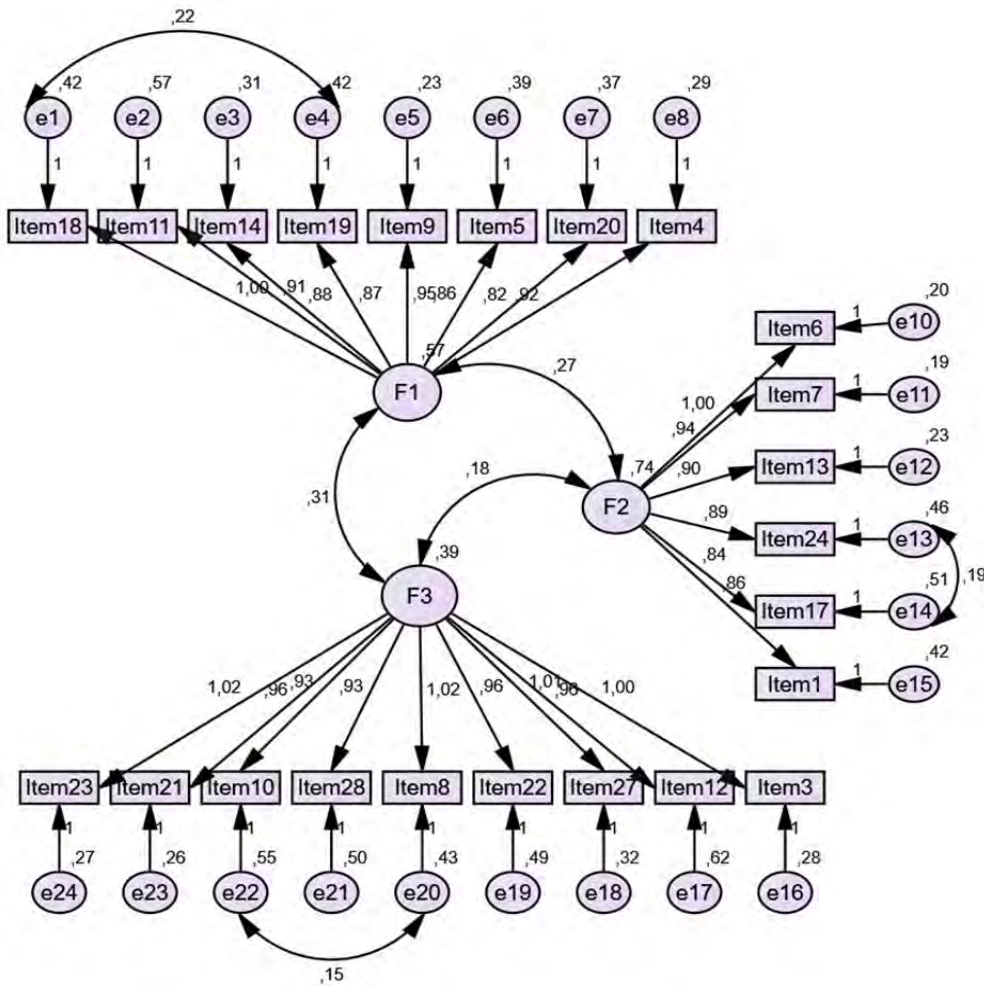
Table 3

CFA results of German learning self-efficacy belief scale

RMSEA	CFI	IFI	GFI	TLI	RMR	CMIN	CMIN/df
0.076	0.912	0.913	0.832	0.900	0.056	486,532	2.172

According to the CFA (see Table 3), the structural equation modelling result of the scale was found to be significant at the $p < 0.01$ level. It was determined that 23 scale items and three sub-dimensions were related to the scale structure. The model has 3 modifications. CMIN/df shows excellent fit, while RMSEA, CFI, IFI, TLI and RMR have an acceptable fit index. RMSEA value between 0.06 and 0.1 corresponds to an acceptable fit. GFI, IFI, TLI, and CFI indices take values between 0-1, and the validity increases as they get closer to 1. Values above 0.90 are expected for these fit indices (Byrne, 2011; Harrington, 2009; Şencan, 2005; Simon et al. 2010). However, in some studies, it is stated that GFI values in the range of 0.80-0.89 can be considered as an appropriate value (Segars & Grover 1993; Doll et al., 1994; Okur & Yalçın-Özdilek 2012). Each fit index represents another aspect of the fit of the proposed model and constitutes a limited source of information for model fit. Therefore, it is recommended that the decision to reject or accept a model should always be based on more than one fit indices (Raykov & Marcoulides, 2006).

Figure 2
Model of the German learning self-efficacy belief scale



The accuracy of the dimensions was checked by performing DFA on the 3 sub-dimensional scales obtained as a result of EFA. The diagram of the first model established for the scale is shown in Figure 2. Structural equation model was established with a scale diagram since multiple normal distribution, multicollinearity, and reliability conditions were met in the study.

Table 4
Results of the Convergent and Discriminant Validity

	CR	AVE	MSV	MaxR(H)	F2	F1	F3
F2	0.918	0.653	0.173	0.930	0.808		
F1	0.910	0.560	0.442	0.915	0.416	0.748	
F3	0.894	0.486	0.442	0.901	0.327	0.665	0.697

Convergent validity and discriminant validity are important analyzes that are frequently used in proving the construct confirmed by confirmatory factor analysis. Convergent validity indicates how theoretically a measure relates to other measures designed to measure the same construct. When the construct is evaluated in terms of different and unrelated variables, distinctiveness analysis comes to the fore (de Vet et al., 2011; Streiner et al., 2015). Fornell-Larcker criterion is frequently used for these analyses. In line with this criterion, convergent validity can be evaluated with average variance extracted (AVE) and composite reliability (CR). The recommended value of CR is 0.70 and above. AVE values ranged within acceptable value are 0.50 and above. Also, the CR value should be higher than the AVE value. The maximum shared variance (MSV) value is used for discriminant validity. MSV and maximum H reliability [MaxR(H)] values are used to

determine discriminant validity. In order to ensure discriminant validity, AVE values should have higher values than MSV values, MaxR(H) values should be greater than CR, and the square root of the AVE value should be higher than the correlation values of that variable with other variables (Byrne, 2010). When the convergent and discriminant validity results of the German learning self-efficacy scale are examined in Table 4, the CR values of the scale are over 0.70. Thus, it can be said that the factors of the scale have high internal reliability. AVE values show that only factor 3 does not exceed 0.50 with a slight difference. However, if the AVE value is lower than 0.50 and the CR value is higher than 0.60, the convergent validity of the construct is still sufficient (Fornell & Larcker, 1981; Lam, 2012; Peterson, 2000). The very high CR values of this scale indicate that convergent validity is provided. As seen in Table 4, the AVE values of the scale are higher than the MSV values, and the MaxR(H) values are higher than the CR values. Apart from these, the square roots of the AVE values are higher than the correlation values between the variables. All these show that the scale has discriminant validity.

6. Discussion

This study was conducted to develop a measurement tool specifically to measure the self-efficacy beliefs of students learning German. Although there are very limited studies (Akın & Akpınar Dellal, 2016; Can, 2020) showing similarity in the literature, no scale has been found to measure the self-efficacy beliefs of individuals learning German from different perspectives, except for four language skills. This scale, which was developed for learners of German as a second/foreign language, is expected to fill the gap in the literature and guide further studies.

The developed *German Learning Self-Efficacy Belief Scale* has 23 items and consists of three sub-dimensions. These three sub-dimensions include self-efficacy from different perspectives. The first sub-dimension is performance, the second sub-dimension is skill, and the third sub-dimension is psychological/confidence. High Cronbach Alpha coefficients for the sub-dimensions of the scale (performance=0.91, skill=0.92 and confidence=0.89) indicates that the items in the sub-dimensions are consistent with each other. According to EFA, 3 sub-dimensions explain 23 scale items quite well at the level of 62.9%. According to DFA, CFI=0.91, RMSEA=0.076 and cmin/df were found as 2.172. The values of the goodness-of-fit indices show that the model explains the obtained data well. Thus, it can be said that the proposed model/ structure is acceptable. Since the validity of the scale was not intended to be based only on confirmatory factor analysis, its validity was proved more than once by performing convergent and discriminant analyzes as well.

When the self-efficacy scales used for German learners and most closely related to the subject of this study are examined, only one self-efficacy scale for German was observed. Akın and Akpınar Dellal (2016) used the self-efficacy scale developed for English by adapting it to German for learners of German. Can (2020) also used the same scale adapted into German in her research. The German Self-Efficacy Belief Scale is a 5-point Likert-type scale with 34 items consisting of reading, writing, listening and speaking sub-dimensions. Cronbach's alpha of the scale adapted by Akın and Akpınar Dellal (2016) was found to be 0.94, while the factor loads of the scale items varied between 0.42 and 0.69. On the other hand, in Can's study (2020), Cronbach's alpha of the self-efficacy scale was found to be 0.925. Similar results were obtained in this study, the internal consistency coefficient of the scale was found to be 0.928, and the factor loads were found to be between 0.629 and 0.897, which are higher values compared to other scale.

The both mentioned scales are valid and reliable measurement tools. The most important limitation of this study was that not all students could be reached due to the principle of volunteering. The most important contribution of this scale to the literature and the important point where it differs from other scales is that it includes the effort and psychological state of the student as well as linguistic skills in the measurement.

7. Conclusion

German Learning Self-Efficacy Belief Scale developed and validated in this study is a reliable scale that has a very high internal consistency. In line with the results of the validity and reliability analyses of the scale, it was determined that the items of the scale represented the area to be measured and measured the researched structure. The scale can be associated with the demographic variables of the participants and re-applied to different and larger sample. In addition, studies can be conducted on the factors affecting the language learning self-efficacy beliefs of German learners. In addition, findings to be obtained with this scale can be supported by qualitative studies on the same subject.

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