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Development of self-efficacy scale of differentiated instruction for teachers

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ABSTRACT

The purpose of this research is to develop a scale to determine teachers' self-efficacy levels regarding differentiated instruction. To create the item pool, the first 61 item draft form was prepared. This draft form was submitted to the opinion of experts from different fields and necessary corrections were made. Before starting the analysis process, the data were numbered and transferred to the computer environment. Persons to participate in the study were selected by simple random sampling. The sample of the research consists of 572 teachers. During the analysis of the data, exploratory factor analysis and confirmatory factor analysis were performed. As a result of the exploratory factor analysis, it was seen that the scale consisted of 27 items and six factors. The factors of the scale are named "Teaching Process, Content, Learning Profile, Readiness, Assessment and Learning Environment". The fit indices obtained from the confirmatory analysis showed that the model was sufficient. The Cronbach Alpha internal consistency coefficient of the scale was found to be .92. From these results, it was concluded that the differentiated instruction self-efficacy scale for teachers is a valid and reliable measurement tool.

INTRODUCTION

From the past to the 21st century we are in, many changes have occurred and continue to be experienced. These changes take place in all areas and affect people's thinking styles, needs, desires, and expectations of societies. Education has a very important place in order to be able to direct these effects well and to adapt to changes. One of the main goals of education is to make students ready for the conditions of the age they live in (Aydogdu, Erkan, & Serbest, 2013). In order to raise individuals who are ready for the conditions of the age, outdated teaching methods will be insufficient. For this reason, teaching methods should be followed and adopted in education systems. One of these teaching methods is the differentiated teaching method.

It is a known fact that the learning style of each individual is unique and the learning levels and learning rates of individuals differ from each other (Coban, 2019). Differentiated instruction is a method in which these individual differences are taken into account, students' interests, readiness, learning profiles, attitudes, and academic achievements are accepted to be different, and the teaching environment is created by taking all these differences into account (Anderson, 2007). In other words, differentiated instruction; recognizing students' individual characteristics such as their knowledge level, comprehension, reading speed, language acquisition, and learning styles and interests; using learning and teaching approaches appropriate for students of different abilities in the same classroom; It can be defined as planning activities that will maximize the individual success and

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learning of each student (Asiroglu, 2016). Powers (2008), on the other hand, defined differentiated instruction as a match between the content, process, and product, and the student's readiness level, interests, and learning profile.

In differentiated instruction, which is based on students' readiness levels, interests, and learning profiles, content, process, product, learning environment, and assessment can be differentiated so that they can respond to these principles and are suitable for the structure of the course (Chapman & King, 2011; Tomlinson, 2015). Accordingly, differentiation by content means changing what we teach and how students can access content consisting of ideas, concepts, and explanations. The same content can also be mentioned, but in this content, strategies such as reorganization, pacing, and complexity are adjusted according to students'interestst, readiness, or learning profile (Tomlinson, 2014). Differentiation by process refers to how a student understands and assimilates concepts and skills. The learning process can be shaped and modified according to students' readiness and intellectual background, taking into account Bloom's Taxonomy of Learning Spaces or other models based on thinking skills (Anderson, 2007). Differentiation by product allows students to have various opportunities to show what they have learned. The product allows students to show the information they have learned in different ways, present this information in various ways, and improve their cognitive development and ability to express themselves in the process. (Anderson, 2007). To differentiate according to the learning environment, to encourage students to transfer knowledge and skills appropriate to individual differences, instead of a shallow area. Teachers are expected to provide learning environments depending on the content of the curriculum and the materials to be used, and students' needs, learning profiles, and readiness (Smeets, 2005). Differentiation in evaluation emphasizes the importance of formative evaluation rather than summative evaluation (Wan, 2017). The idea of "assessment for learning" should not be adopted in differentiated instruction (Black, Harrison, Lee, Marshall, & William, 2003). In other words, the teacher should give feedback according to whether meaningful learning takes place or not, instead of evaluating the student just to give grades. Differentiated instruction is currently being adopted by many educational institutions in many countries (Suprayogi, Valcke & Godwin, 2017).

Differentiated instruction aims to provide all students with the best opportunities for learning and to cope with learning differences (Coubergs, Struyven, Vanthournout, & Engels, 2017). Teachers have important duties to create the best opportunities for students to learn and to use differentiated instruction appropriately and correctly. The teacher who adopts the differentiated teaching method should first examine the curriculum before starting the teaching process. Then he should get to know his students and make a preliminary assessment about them. The teacher who adopts differentiated instruction accepts students as they are unconditionally (Tomlinson, 2014). After evaluating the students' prior knowledge, interests and how they learn, the teacher teaches them with the most appropriate techniques in order to enable them to learn in a meaningful way. The teacher should center the student in this process, guide them, encourage them to think critically, assign tasks for their active participation in the process and follow the process. They should evaluate students in the process and monitor their progress. After teaching, the teacher should reevaluate, check whether there is meaningful learning, and give students supportive tasks so that their learning is permanent.

Self-confidence is the judgment of an individual to feel valued (Bandura, 1997). Karamoy, Wibowo, and Jafar (2018) also stated that self-confidence has an important place in human life and it is a driving force for people to behave as they want. On the other hand, self-efficacy is an important indicator used to predict an individual's behavior (Schunk, 1991); at the same time, it is the belief that an individual will succeed in a task or responsibility in a particular field (Bandura, 1997). In this regard, Carpenter (2011) also suggested that an individual's confidence in his ability to complete a difficult task will increase the likelihood of such behavior in the future.

Literature review

When the literature on the subject is examined, it has been revealed that most of the studies on differentiated teaching have been carried out to examine the effects of this approach on students' academic achievement and metacognitive skills (Prast, Van de Weijer-Bergsma, Kroesbergen, and Van Luit, 2018; Salar and Turgut, 2019; San and Türegün Coban, 2021; Tas and Sirmaci, 2018). A limited number of studies (Mutlu, Öztürk, & Aytekin, 2019; Roy, Guay, & Valois 2013; Whitley, Gooderham, Duquette, Orders, & Cousins, 2019) investigate teacher self-efficacy on teachers' use of

differentiated teaching strategies and approaches have been reached. Whitley et al. (2019) investigated the relationships between individual and contextual variables regarding teachers' use of differentiated teaching practices, and concluded that beliefs, self-efficacy, and organizational support were associated with differentiated teaching practices. Roy, Guay, and Valois (2013) developed a 12-item scale to determine the thoughts of classroom teachers about differentiated instruction. While the first factor of the developed scale consists of items for the planning and implementation process, the second dimension includes items for evaluation. Mutlu, Öztürk, and Aytekin (2019) developed a 26 item scale consisting of planning, implementation and evaluation dimensions to measure pre-service teachers' self-efficacy for differentiated instruction in their study.

Sub problems

As can be clearly seen from the studies mentioned above, a limited number of studies (Mutlu et al., 2019) stand out in the context of the differentiated teaching self-efficacy scale for teachers. Based on this phenomenon, the main purpose of this study is to develop a differentiated instructional self-efficacy scale for teachers with a valid and reliable quality. For this purpose, the following questions were examined.

1) Is the differentiated instruction self-efficacy scale simple and stable in terms of construct validity?
2) Are the values related to the reliability of the differentiated instruction self-efficacy scale sufficient?

METHODS

This research is an effort to develop a valid and reliable scale to determine teachers' self-efficacy in differentiated instruction. The study group of the research consists of 572 mathematics teachers working in the schools affiliated with the Ministry of National Education in a large province in the south of Turkey in the 2020-2021 academic year. The sample consists of mathematics teachers with at least five years of professional seniority working in high school and secondary schools, who volunteered to participate in the study. Accordingly, 66 women and 23% of the participants are additional teachers. The study group of the research consists of teachers working in schools affiliated with the Ministry of National Education in Adana in the 2020-2021 academic year. Of the 572 teachers who participated in the study, 66% were female and 34% were male. Examining the type of faculty from which the teachers in the study group graduated, 91% graduated from the faculty of education and 8% from the faculty of science and literature. 19% of the mathematics teachers in the study group have seniority of 5-10 years, 20% of them 11-15 years, 25% of them 16-20 years, 28% of them 21-25 years and 8% of them have more than 26 years of professional seniority. Finally, 52% of the teachers work at secondary school and 48% at the high school level.

Data collection tool

The following steps were followed during the preparation of the data collection tool (Devellis, 2022). In this context, first of all, the process steps consisting of creating the item pool, content validity, pilot application, construct validity, reliability studies, and finalizing the scale are summarized as in Figure 1. When Figure 1 is examined, firstly, a literature review was conducted in the process of creating the item pool. In this context, the definition of differentiated instruction and the dimensions that make up differentiated instruction have been comprehensively examined (Conklin, 2018; Coubergs, et al., 2017; Heacox, 2012, 2017; Heacox & Cash, 2013; Kozikoglu & Bekler, 2018; Santangelo & Tomlinson, 2012; Tomlinson, 2014). The conceptual development dimension of differentiated instruction and its dimensions in the process were taken into consideration. In addition, the concept of self-efficacy and the factors affecting self-efficacy were also taken into account in the creation of the items. The basis of the concept of Self-Efficacy lies in the high probability of performing the behaviors that the individual feels competent, and the low probability of performing the behaviors that he/she does not feel adequate. According to Bandura (1986, 1991), the concept of self-efficacy changes according to the individual's direct experiences, indirect experiences, verbal persuasion, and psychological states. In this context, a draft scale was created by taking into account the expressions for measuring self-efficacy in the preparation of the items. During this process, interviews were held with five teachers who were continuing their postgraduate

education,n and their views on differentiated education were also consulted. These teachers were asked questions about whether they use differentiated instruction in the classroom, the characteristics of differentiated instruction and how they evaluate it, and their opinions were received. In this context, an item pool of 61 items was created with the results obtained from the interviews with the teachers and the relevant literature review

At the stage of content validity, the draft form with 61 items was consulted to the expert opinion and the content validity of the form in question was examined. The content validity measurement tool should be able to measure the feature to be measured without confusing it with other features (Balci, 2021). In this context, first of all, the items in the item pool were presented to the opinion of two experts in the field of assessment and evaluation, one in the field of curriculum development in education, and one expert in the field of language education. Experts evaluated each item in the draft form as “appropriate”, “corrected” and “not appropriate” according to whether the scale serves the purpose. Afterwards, changes were made in 3 items in line with the opinions of the experts. Corrections made, for example "12. Students' attitudes towards the course differ.'', instead of 'attitudes' in the sentence, 'attitudes', '7. Students' basic academic skills change in their 'skills' and '2. There is a strong relationship between the learning methods of students and their course performances.'' instead of 'learning methods' in the item 'learning styles'.

In order to check the comprehensibility of the prepared draft scale, it was piloted to thirty-five primary school teacher candidates outside the scope of the study, and no problems were encountered in understanding the questions. In the next stage, exploratory and confirmatory factor analyzes were applied to the form in question during the construct validity process. In the next step, Cronbach Alpha, Guttman Split Half analysi,s and 27% lower-upper group averages were compared for the reliability study in the data collection tool. At the last stage, the final version of the scale with 6 factors and 27 items was created.

Data collection and analysis

During the data collection process, permission was obtained from the ethics committee of the university. Then, before proceeding to the analysis process, the data were numbered and transferred to the computer environment and a questionnaire form was created via Google form. This questionnaire form was delivered to teachers via the internet and data were collected. In order to calculate the construct validity of the scale, Exploratory Factor Analysis (EFA) was applied to 263 of the data received from the teachers and Confirmatory Factor Analysis (CFA) was applied to the other 309 data. In the last stage, Cronbach Alpha analysis and Guttman Split Half tests were applied to the scale in order to calculate the reliability of all data. Again, the data obtained in the research were analyzed using IBM SPSS 22.0 and Lisrel 8.7 programs.

FINDINGS

In this section, there are findings related to the validity and reliability of the form applied during the development of the "Differentiated Instruction Self-Efficacy Scale".

Findings regarding the construct validity of the differentiated instruction self-efficacy scale

In order to establish the construct validity of the differentiated instruction self-efficacy scale, first of all, in order to obtain information about the number of factors measured by the data collection tool, exploratory (Johnson, 2015) factor analysis was applied to the form, and then CFA was applied to test the hypothesis developed in line with the compatibility of the obtained factors with the theoretical theory (Tabachnick & Fidell, 2019).

For the EFA applied to the differentiated instruction self-efficacy scale, first of all, the suitability of the data obtained from the scale for factor analysis and the adequacy of the sample size were tested with the Kaiser-Meyer-Olkin (KMO) test and the Bartlett Sphericity test (Büyüköztürk 2018). The results are shown in Table 1. When Table 1 is examined, the KMO value was determined as .89. In line with this result, it was concluded that the sample fit was “very good” for EFA (Sharma et al., 2006). On the other hand, the result of the Bartlett sphericity test was calculated as x^2=3657.88. Accordingly, it can be said that the data obtained from the sample are suitable for factor analysis.

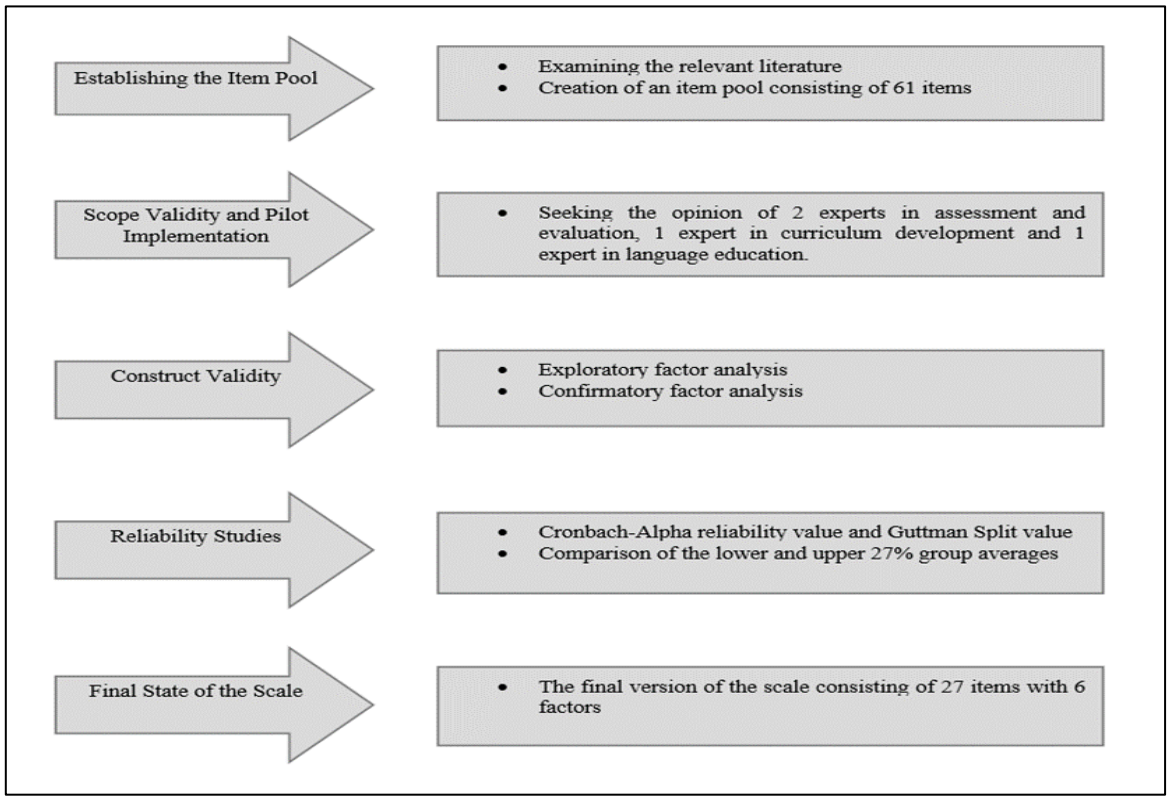

Figure 1. Developing the differentiated instruction self-efficacy scale

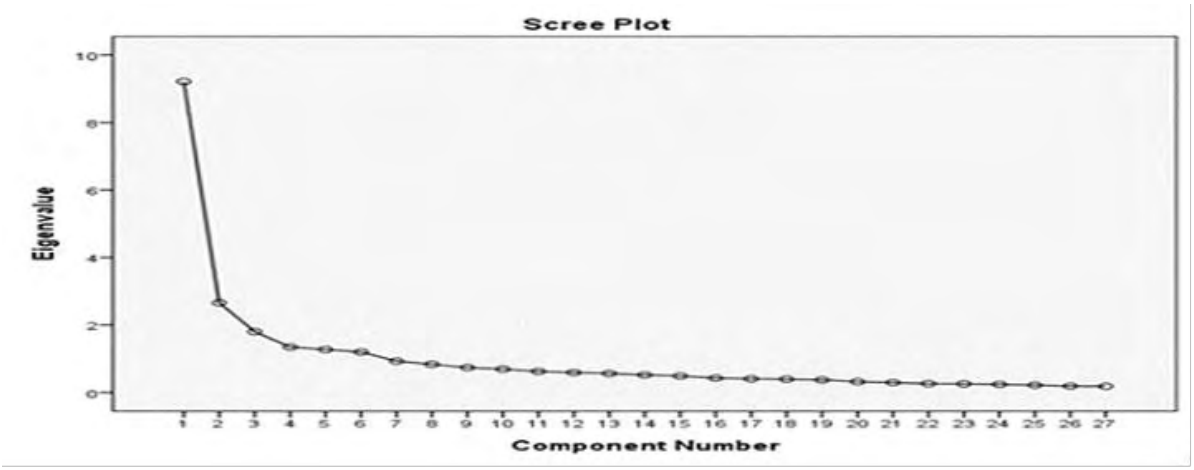

Figure 2. Scree plot

While applying EFA to the differentiated instruction self-efficacy scale, varimax maximum variability rotation was applied from the Principal components analysis (Tabachnick & Fidell, 2019). According to this analysis, six factors with eigenvalues above 1 were obtained for 27 items. The structure of factors with an eigenvalue of one or more is considered to be stable (Tabachnick & Fidell, 2019). The scree plot (De Vellis, 2022), which is one of the most frequently used criteria when deciding on the number of factors, is shown in Figure 2. When Figure 2 is examined, after the sixth factor, the slope and accumulation graph takes a horizontal form. Therefore, it is accepted that the factors forming the scale consist of six dimensions. In addition, as a result of the analysis, a six-factor structure was reached as a result of seven iterations. As a result of the analysis obtained, item factor loads, eigenvalues and variance values are given in Table 2.

Table 1
Kaiser-Meyer-Olkin and Bartlett sphericity test values

Kaiser- Meyer-Olkin		0.89
Bartlett Sphericity Test	x^2	3657.88
	p	.00

Table 2
Factor analysis results of differentiated teaching self-efficacy scale

Item No	Teaching Process	Content	Learning Profile	Readiness	Assessment	Learning Environment	$\bar{X}$	S
I47	.76						4.22	.76
I46	.72						4.21	.77
I44	.71						4.28	.64
I45	.68						4.33	.67
I48	.66						4.27	.67
I43	.65						4.27	.68
I42	.51						4.29	.70
I36		.84					4.29	.82
I39		.77					4.23	.72
I34		.73					4.16	.68
I32		.72					4.16	.78
I40		.70					4.21	.68
I19			.79				4.49	.54
I7			.73				4.46	.61
I6			.71				4.38	.67
I20			.70				4.50	.58
I10			.70				4.53	.58
I4				.76			4.06	.76
I5				.70			4.16	.65
I8				.69			4.21	.77
I11				.59			4.30	.75
I57					.84		4.17	.75
I58					.73		4.33	.61
I56					.68		4.20	.71
I28						.79	4.25	.76
I27						.77	4.30	.72
I29						.66	4.36	.65
Eigenvalue	9.21	2.66	1.80	1.35	1.27	1.20		
Variance Percentage	34.12	9.84	6.67	4.99	4.71	4.44		
Range	51-.76	70-.84	.70-.79	.59-.76	.68-.84	.66-.79		
Number of Iten	7	5	5	4	3	3		

Note. The factor loadings of the items below .32 were not written F1: Teaching Process; F2: Content; F3:Learning Profile; F4:Readiness; F5: Assessment; F6:Learning Environment

In Table 2, it is seen that the percentage of total variance explained for the scale, which consists of 27 items and six factors, is 64.76%. Of this variance, 34.12% is the teaching process sub-factor, 9.84% is the content sub-factor, 6.67% is the learning profile sub-factor, 4.98% is the readiness sub-factor, and 4.71% is the evaluation sub-factor. factor and 4.44% of it was explained by the learning environment sub-factor. The factor loadings of the scale ranged from .51 to .84. In addition, it was taken into account that the item factor loads were at least .32 (Secer et al., 2013; Kline, 2016; Tabachnick & Fidell, 2019). It is seen that the arithmetic averages of the items constituting the differentiated instruction self-efficacy scale vary between 4.06 and 4.53.

The correlation values, arithmetic mean and standard deviation values of the differentiated instruction self-efficacy scale are shown in Table 3. When Table 3 is examined, it is concluded that

there is a statistically significant relationship between the total score of the differentiated instruction self-efficacy scale and the sub-factor scores. Teaching process sub-factor with other sub-factors was .52, .44, .43, .52, .52 and total scores were .73; the content sub-factor was .29, .21, .41, .43 with other sub-factors, and .70 with a total score; readiness sub-factor was .44, .34, .30 with other sub-factors, and .63 with total score; evaluation sub-factor was .45 with other sub-factors and .75 with total score; learning environment showed a significant positive correlation of .73 in terms of total score. According to Büyüköztürk (2018) the correlation value is between .30 and .70, there is a moderate relationship. Accordingly, it can be said that while the sub-factors of the scale are statistically significant at positive low and moderate levels, there is a common and high level, positive and statistically significant relationship between the sub-factors and the total score. In addition, it is seen in Table 4 that the arithmetic mean of the sub-factor and the total score ranged between 4.19 and 4.48, and the standard deviations between .40 and .61.

In the process of naming the sub-factors of the differentiated instruction self-efficacy scale, both the item contents and the relevant literature were taken into account. Accordingly, the names of the factors were determined as "Teaching Process", "Content", "Learning Profile", "Readiness", "Assessment", "Learning Environment". First of all, the first factor was named as the "teaching process" dimension because it included seven items that included the teaching process. The sample items in this dimension are "I adjust the teaching speed in line with the needs of the students.", "I prepare activities that will bring multiple perspectives on the subjects." format. As the second factor, it was named as the "content" dimension because it consisted of five items and statements related to the content. Sample items related to this dimension are as follows; “I prepare different activities by taking into account the readiness level of the students.”, “I prepare materials in different ways to cover the subject. (Concept maps, posters, videos, etc.)”. As the third factor, it was named "learning profile" because it consisted of five items related to the learning profile characteristics of the students. The sample items in this factor are "Students differ in terms of problem solving skills", "There are differences in my class students in terms of reading comprehension skills." is in the form. As the fourth factor, it was named “readiness” because it consisted of four items belonging to readiness skills. The sample items in this factor are "The academically basic skills of the students and their course performance are significantly related." is in the form. As the fifth factor, it was named as “evaluation” because it consisted of statements related to evaluation consisting of three items. The sample items in this factor are “I make a preliminary assessment before starting a subject”, “I evaluate students throughout the process to determine their learning.” is in the form. As the last factor, it was named "learning environment" because it consisted of three items related to the learning environment. The sample item in this factor is “I take care to resolve disagreements between students.”

CFA was applied to determine whether the six-factor structure obtained as a result of the EFA applied to the differentiated instruction self-efficacy scale was appropriate. The fit index values and limit values obtained during the analysis process are shown in Table 4. When Table 4 is examined, the fit indices are $\chi 2/df=1.16$; RMSEA=0.04; SRMR=0.08; GFI=0.77; CFI=1; It is set to IFI=1. According to the results obtained, it is observed that these values are between good fit and perfect fit. In other words, it can be said that the factor structure of the differentiated instruction self-efficacy scale, which consists of 27 items and six factors, was confirmed. The t values of the six-factor model as a result of CFA are shown in Table 5. When Table 5 is examined, it is seen that the t-test values of differentiated instruction self-efficacy scale items ranged from 3.33 to 6.39. If these t values are greater than 1.96, at the level of .05; If it is greater than 2.58, it is interpreted as significant at the level of .01 (Kline, 2016; Cokluk, Sekercioglu, & Büyüköztürk, 2021). Accordingly, as a result of the analysis, when the t values for all items are examined, it is seen that the level of significance is .01. These findings confirm the factor structure of the differentiated instruction self-efficacy scale. The standardized values of the proposed differentiated instruction self-efficacy scale are given in Figure 3. When Figure 3 is examined, it is seen that the factor loads of the proposed model are between .24 and .83. Accordingly, it is seen that the values between the latent and observed variables are less than ,90. Accordingly, it can be said that the correlation values between the observed variables are appropriate. (Cokluk et al., 2021).

Table 3
Correlation coefficients, arithmetic mean and standard deviation values of total score and sub-factors of differentiated instruction self-efficacy scale

Sub-factors	F1	F2	F3	F4	F5	F6	$\bar{X}$	S
Teaching Process (F1)	1						4.27	.54
Content (F2)	.52**	1					4.21	.61
Learning Profile (F3)	.44**	.29**	1				4.48	.46
Readiness (F4)	.43**	.21**	.44**	1			4.19	.55
Assessment (F5)	.52**	.41**	.34**	.44**	1		4.24	.59
Learning Environment (F6)	.52**	.43**	.30**	.37**	.45**	1	4.31	.59
Total	.73**	.70**	.63**	.66**	.75**	.73**	4.28	.40

**p< .01

Table 4
Calculated values and threshold values of differentiated teaching self-efficacy scale

Goodness of Fit indices	Calculated Value	Limit Values	References
χ2/sd	359.36/309=1.16	≤ 2.5=perfect fit	Kline (2016)
RMSEA	.04	≤.05= perfect fit	Brown (2015)
SRMR	.08	≤.08= perfect fit	Brown (2015)
GFI	.77	≤.90= good fit	Marsh et al. (2006)
AGFI	.72	≤.90= acceptable fit	Marsh et al. (2006)
NNFI	1.00	≥.95= perfect fit	Hwang & Takane (2014)
CFI	1.00	≥.95= perfect fit	Hwang & Takane (2014)
IFI	1.00	≥.95= perfect fit	Hwang & Takane (2014)

Table 5
T-test results obtained in confirmatory factor analysis for differentiated instruction self-efficacy scale

Item No	t	Item No	t
I47	6.07**	I6	5.57**
I46	5.86**	I20	4.75**
I44	5.62**	I10	5.49**
I45	5.59**	I4	6.06**
I48	6.25**	I5	5.62**
I43	6.02**	I8	5.68**
I42	5.51**	I11	5.73**
I36	6.39**	I57	4.87**
I39	6.34**	I58	5.41**
I34	5.13**	I56	5.42**
I32	5.48**	I28	5.66**
I40	5.17**	I27	3.33**
I19	5.54**	I29	4.68**
I7	6.10**		

**p< .01

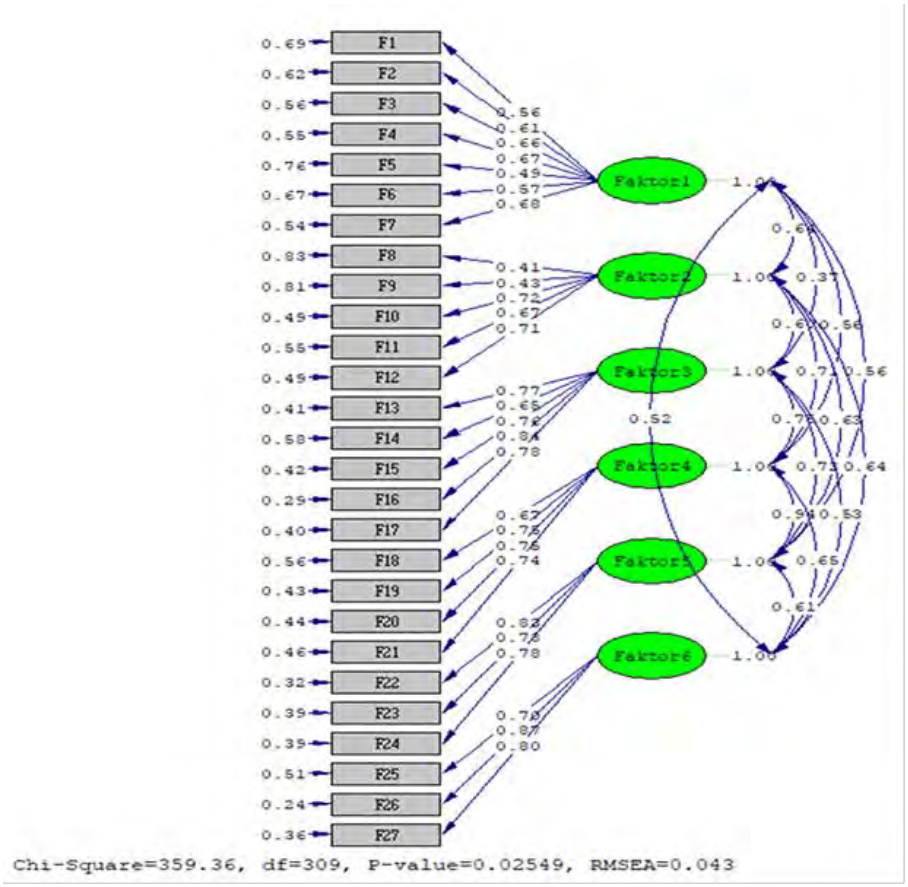

Figure 3. Standardized values of the proposed model as a result of confirmatory factor analysis

Findings related to reliability of differentiated instruction self-efficacy scale

In order to determine the reliability of the differentiated instruction self-efficacy scale, the Cronbach Alpha internal consistency value and the Guttman Split Half test were calculated. Analysis results are presented in Table 6. As seen in Table 6, when the Cronbach Alpha internal consistency coefficients were examined, .89 in the teaching process sub-factor; .88 in the content sub-factor; ,82 in the learning profile sub-factor; .84 in the readiness sub-factor; It was calculated as .90 in the assessment sub-factor and .89 in the learning environment sub-factor. The internal consistency value for the entire scale is .92. In addition, the Guttman Split Half test was calculated to determine the consistency of the scale. Accordingly, .86 for the teaching process sub-factor and .81 for the content sub-factor; .73 for the learning profile sub-factor; .83 in the readiness sub-factor; .90 for the assessment sub-factor, .89 for the learning environment sub-factor, and .78 for the whole scale. The fact that the obtained values are greater than .70 indicates that the scale is reliable (Fraenkel, Wallen, & Hyun, 2018). In addition, the corrected item total correlation values and Cronbach Alpha values when the item was discarded as a result of the analysis performed to determine the reliability of the differentiated instruction self-efficacy scale are given in Table 7.

When Table 7 is examined, it is seen that the item-total correlation coefficient varies between .32 and .71 according to the results of the applied item analysis. It is expected that these values are not negative and take a value of at least .30 and above (Büyüköztürk, 2018). Accordingly, it can be said that the scale meets these criteria. In addition, it is seen that the Cronbach Alpha value obtained when the items are discarded is .92. This value being .70 and above is sufficient for the reliability of the test scores (Fraenkel et al., 2018).

Table 6
Cronbach Alpha and Guttman Split Half values of total scores and sub-factor scores of differentiated instruction self-efficacy scale

Sub-factors	Cronbach Alpha	Guttman Split Half
Teaching Process	.89	.86
Content	.88	.81
Learning Profile	.82	.73
Readiness	.84	.83
Assessment	.90	.90
Learning Environment	.89	.89
Total	.92	.78

Table 7
Corrected item total correlations of differentiated instruction self-efficacy scale and Cronbach Alpha value when item excluded

Number of Items	Adjusted Item Total Correlation Value	Cronbach Alpha Value When Item Is Thrown
Item 1	.61	.92
Item 2	.64	.92
Item 3	.58	.92
Item 4	.63	.92
Item 5	.68	.92
Item 6	.61	.92
Item 7	.71	.92
Item 8	.59	.92
Item 9	.48	.92
Item 10	.52	.92
Item 11	.63	.92
Item 12	.58	.92
Item 13	.46	.92
Item 14	.48	.92
Item 15	.42	.92
Item 16	.41	.92
Item 17	.46	.92
Item 18	.39	.92
Item 19	.48	.92
Item 20	.32	.92
Item 21	.50	.92
Item 22	.52	.92
Item 23	.56	.92
Item 24	.58	.92
Item 25	.52	.92
Item 26	.49	.92
Item 27	.54	.92

DISCUSSION

With the aim of developing a differentiated instructional self-efficacy scale for valid and reliable teachers, the "Differentiated Teaching Self-Efficacy Scale" was developed in a five-point Likert structure. The scores that can be obtained from the five-point Likert scale range from 27 to 135 (27*5=135). Within the scope of the scale, the first factor is the teaching process, the second factor is the content, the third factor is the learning profile, the fourth factor is readiness, the fifth factor is the evaluation, and the last factor is the learning environment. As a result of the EFA applied to the scale, the factor loads of the scale items were between .51 and .84. Considering the fit coefficients of the DFA result applied to the scale, it was concluded that the factor structure of the scale was appropriate ($\chi 2/sd = 1.16$; CFI = 1.00; GFI = .77; NNFI = 1.00; RMSEA = .04). On the other hand, according to the Cronbach Alpha internal consistency coefficients applied for the reliability of

the scale and the Guttman Split Half test results, the values obtained for the sub-factors and the whole scale are greater than .70, indicating that the scale is reliable (Fraenkel et al., 2018; Tavsancıl, 2019).

CONCLUSIONS

As a result of these values emphasized above, it can be said that the differentiated teaching self-efficacy scale has a valid and reliable structure. This study was carried out with a certain number of teachers, and the validity and reliability of the measurement tool can be tested by repeating it with a larger sample group. In addition, the statistical difference between the obtained measurement tool and the opinions of teachers on differentiated education according to different variables (such as professional seniority, institution they work for, class size, type of graduated school) can also be examined.results section presents the findings of research in the form of tables, charts, diagrams, or narratives were then given meaning or description of any research results. It also presents the discussion contains a description of the researchers on the study results either as expected or not as expected. Then compare the findings by previous studies mainly had been published in reputable scientific journals or use the literature. Furthermore, the paper should provide deductions or generalizations that are how research results can be applied to the more general situation.

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