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Research Article

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Adapting the Contextualized Reading Strategies Scale into Turkish Culture and Identifying its Psychometric Features

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Abstract

Reading comprehension is a complex cognitive process that necessitates the employment of various strategies before, during, and after reading. Researchers have developed a number of measurement tools to both identify these strategies and evaluate their extent of use among successful and poor readers. The aim of this study was to adapt the Contextualized Reading Strategies Scale (CReSS) into Turkish. The study data were obtained from two separate samples using a convenience sampling method. The first sample, Group A, was comprised of 435 secondary school students (F=246, M=189). The second sample, Group B, consisted of 384 secondary school students (F=228, M=156). The results of the exploratory factor analysis suggested a five-factor structure for the Turkish version of the CReSS, unlike the original version, which contains four subscales. This proposed new construct was further supported by confirmatory factor analysis, which yielded good fit indices. Furthermore, the reliability values were higher than the established threshold values for each subscale and for the whole scale. These results indicate that the Turkish version of the CReSS, with its robust psychometric properties, can be used as a valid and reliable measurement tool to assess the level of reading strategy utilization among Turkish secondary school students.

Key Words

Reading strategies • Contextualized scale • Scale adaptation • Secondary school students

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Introduction

Reading is a tool to learn most of the information presented at school (Pierangelo & Giuilani, 2008), and the ability to make sense of a text is a very important element that supports or prevents students' academic development (Taylor, 2018). Students need reading skills to be successful not only in language classes but also in other academic fields. Reading skills help students to review what they have learnt at school, using different resources, taking advantage of the information in soft and hardcopy resources (Graham et al., 1993). Considering the components that require specialization, reading is an extraordinary skill (Graesser, 2007). It is necessary to analyse quite many structures even to understand a very short story. These can range from analysing words, sentences, paragraphs, syntax, topic, the desired message, structure of the characters, narrator, place and time, author's attitude, tone and viewpoint of the author to reaching new meanings. A competent reader, capable of reading 250 to 400 words per minute, can interpret and complete all of these processes without significant difficulty (Graesser, 2007). However, quality reading involves continuously adapting multiple cognitive processes (National Institute of Child Health and Human Development [NICHD, 2000]), and as a result, comprehension may not always occur effortlessly. In this process, the reader can have some problems and difficulties in comprehension. Therefore, there are some strategies to ensure that readers solve their problems and have a successful reading process. These are called "reading strategies" in the most general sense. These strategies are actions that readers of all levels can apply when reading various materials. They are called "strategies" because readers can implement them consciously and control how to use them after specialising in them. These are basic strategies used by readers before, during and after the reading process (Blachowicz & Ogle, 2008), and they help the reading process to run smoothly.

Teaching through strategies and working on texts in different ways originated from studies on development psychology, which puts forth that children will develop as they mature and which determines the active and strategic structure of learning, (McKeown et al., 2009). In the light of these studies, teaching strategy started to appear in studies on reading. Especially since 1980s, various reading strategies have been developed, tried and evaluated as it is accepted that strategies are important in improving reading comprehension (Souvignier & Mokhlesgerami, 2006). The studies conducted in the last 40 years also show that teaching reading strategies and using strategies in reading produce effective results (Baydık, 2011; Duke et al., 2011; Fielding & Pearson, 1994; Kırmızı, 2008; Özyılmaz & Alcı, 2011; Pesa & Sommers, 2007).

Reading comprehension is an active process that requires a deep connection with the text, and it is necessary to use certain strategies (Blachowicz & Ogle, 2008; Woolley, 2011). Readers make use of various cognitive and behavioral actions known as reading strategies in order to facilitate comprehension, which is the ultimate goal of reading (Graesser, 2007). These are basic strategies used before, during and after the reading process (Blachowicz & Ogle, 2008). Strategies help readers to complete the reading process successfully. Therefore, they are taught to students for a successful reading process which relies on a mental effort consisting of knowledge and organization about the cognitive process (Taraban et al., 2004). Apart from these, there are some other reasons why teaching strategies are crucial. First of all, the majority of readers do not know if they understand the text sufficiently or not. Using reading strategies helps individuals to evaluate and improve comprehension. Secondly, some of the readers mistakenly believe that they have understood the text; but in fact, they feel that they have understood it although they haven't. This is because they think reading words and

sentences without any difficulty is enough for comprehension. This is a very common misconception. In fact, a good understanding depends on reading the text deeply. Deep reading requires the reader to connect inferences and ideas consistently, evaluate the reality and validity of claims critically, and sometimes understand the basic motive of authors. Because of this reason, reading strategies help especially those who skim (those who are not able to grasp the deep meaning) with deep understanding, and correct their misconception about understanding the text. Finally, understanding technical texts is a problem for most readers. It is even more difficult for them to read a technical text deeply. These informative texts require the reader to have some previous knowledge as well as some ideas about various terms and concepts. Therefore, reading strategies offer an opportunity of intervention in order to enhance readers' understanding at this point (Graesser, 2007). However, it's not always possible to use an appropriate strategy for reading, specifically strategic reading. For example, students may not know the appropriate strategies for their problems; they might not know when to use the strategies they know, or especially young children might be discouraged to use some strategies (Gersten et al., 2001). Therefore, the process of teaching strategies should adopt an approach that focuses on teaching students how and when to use these strategies as well as encouraging them to use the strategies they have learnt. Furthermore, use of strategies depends on not only readers' processing skills but also their area of knowledge and the related tasks (Taraban et al., 2004). As the goal of such a teaching process is to improve students and help them to be a successful reader, students' features should also be considered while teaching the strategies.

Successful readers do comprehension actively by using various comprehension strategies when they read the texts. These readers make use of various strategic cognitive processes in order to choose, organize, connect and evaluate what they have read. These strategies include asking questions, making connections and inferences. Moreover, successful readers use their current knowledge to understand the new ideas they meet in the texts more clearly, to forecast what may happen later and to make reasoning strategically, when they have comprehension barriers (Coiro & Dobler, 2007). Good readers know that they can control the reading process. As they read, they actively work out meaning, and they guide their own comprehension. Additionally, they know what a reading process is like, because they know about sounds, letters and words ("declarative" knowledge), and they also know which strategies to use to help with their comprehension ("procedural knowledge"), and when to use them ("conditional" knowledge) (Blachowicz & Ogle, 2008). The type of the text is also very important at this point. Researchers claim that good readers have a comprehension plan for different text types and different learning tasks (Blachowicz & Ogle, 2008). Especially informative texts require readers to know the structural features of the text, interpret the information that they are expected to reach and evaluate certain sections in the text in terms of their suitability to the text goal (Coiro & Dobler, 2007). Most of the time, reading process occurs in order to get information for academic purposes or for some other personal reasons. In fact, the latest reports on current reading processes by students and adults alike show that not only secondary and high school students but also adults mostly read to get information. To get information in general, people read contents such as newspapers, magazines, leaflets, manuals, user's guides for home appliances, prospectuses for medicines, recipes, travellers' guides, weather forecast, economics, directions, academic studies, homework and much more. As it is now much more common to meet informative texts than before, materials in most programs and exams have started to include reading content at least 50% in many countries (e.g. the USA) in recent years (Blachowicz & Ogle, 2008). Strategic reading has gained more importance due to many cases such as understanding informative texts, remembering them, identifying the important parts, associating with previous

knowledge, critically read and analyse the bulk of information coming from different sources in today's world where flow of information is too much. According to a report issued by National Reading Panel (NRP), there are seven individual strategies supported by strong evidence to enhance comprehension. These strategies include following comprehension, cooperative learning, using graphical and semantic organizers, using the technique of question and answer, asking questions, teaching the structure of a story or text, and making a summary. The report summarizes the studies in all fields and portrays the general success (McKeown et al., 2009). In fact, studies conducted in the last twenty years on reading have created a comprehensive range of reading strategies adopted by readers. These strategies, which are more general, include reviewing, scanning, understanding the stimulant schemas that have been conceptualized more recently, identifying text structure, visualizing, asking a question, following comprehension and evaluating the use of strategies (Madhumathi & Ghosh, 2012).

As many school tasks are performed by reading materials including texts, students should be competent in reading comprehension (Zimmerman et al., 1996). However, it is a known fact that many individuals have difficulty in the reading process which requires the organization of a series of complex transactions (Denton et al., 2015). Teaching reading strategies to help individuals solve their reading problems improves the reading comprehension skills of readers who have various skills. This improvement appears when teachers show and explain students how to understand a text, be a role model for that and have them practice it (NICHD, 2000). This teaching process also provides teachers with some information about their students, because using reading strategies makes it possible for students to know how they visualize the text, how they make sense of it, and what they do when they don't understand (Madhumathi & Ghosh, 2012). Thus, it gets easier to understand the reason underlying students' comprehension problems, which creates the opportunity to teach the necessary strategy. At this point, it's important to decide how to measure and evaluate students' current use of strategies. The literature review shows that there are various measurement tools that have been developed to measure students' use of reading strategies. These measurement tools are Likert-type scales including items about strategies used before, during and after the reading process (e.g. Çöğmen & Saracaloğlu, 2010; Karatay, 2009; Mokhtari & Reichard, 2002; Öztürk, 2012).

Comprehension, the ultimate goal of reading, is a strategic process, and the study findings in the literature support this view (Blachowicz & Ogle, 2008). For instance, according to the report by National Reading Panel (NRP), practices ranging from a few-hour preparation studies to more intense teaching sessions make it possible that use of strategies enhances reading success. These studies also reveal that readers learn reading strategies and use them effectively in the reading process (NICHD, 2000). Although it is widely accepted in the literature that use of strategies has a significant role in the reading process, the focus of the discussions has changed. One of the main reasons is that some study findings contrast with each other about the effect of using strategies on the reading process. This might result from the structure of the scales. In fact, some readers can give responses that do not reflect themselves correctly when scales based on self-evaluation are used. Readers can state that they use some strategies even though they are poor readers and do not actually use any reading strategies in the process. It can be even more difficult to self-evaluate through Likert-type scales for younger children. What is meant here is not that students give false information intentionally, but when they see an item saying something like "I take notes," they may consider themselves as doing this more frequently although they have done this only a few times. Therefore, it is important that measurement tools provide students with the opportunity to evaluate themselves in a more detailed and objective way. Focusing on a measurement tool designed differently from the

ones previously developed in the literature, the current study aims at adapting the "Contextualized Reading Strategies Scale," which provides students with various scenarios in order to identify which strategies they use or whether they use a strategy or not for the created content. Instead of asking students how often they use a strategy, this scale will enable the identification of what they do during a specific reading task, providing more detailed information about the use of strategies. The most important and distinguishing feature of this scale is that students' responses directly focus on life experiences. Students think about the question considering a real case and accordingly give responses. Therefore, this scale also helps participants to overcome the difficulties of making a realistic evaluation faced especially in scales based on self-evaluation.

Method

Study groups

The psychometric features of the Turkish form of CReSS (CReSS-TF) were examined by collecting data from three different sample groups. Study group A was composed of 435 (F=246, 56.6%; M=189, 43.6%) secondary school students. 29.4% (n=128) of the students were 5th graders, 18.6% (n=81) of them were 6th graders, 16.8% (n=73) of them were 7th graders and 35.2% (n=153) of them were 8th graders. The average age of this group was 12,24 (SD= 1,27), while the participants' ages varied between 9 and 15. Study group B was composed of 384 (F=228, 59.4%; M=156, 40.6%) secondary school students. 24.7% (n=95) of the participants were 5th graders, 23.2% (n=89) of the participants were 6th graders, 22.1% (n=85) of the participants were 7th graders and 29.9% (n=115) of them were 8th graders. The average age of this group was 12,08 (SD= 1,18), while the ages of the participants varied between 10 and 15. Study group C was composed of 54 university students studying English Language Teaching at a state university in Türkiye (F=31, 57.41%, M=23, 42.59%). The average age of this group was 21.58 (SD=1.02), while the participants' ages varied between 20 and 25.

The sample groups were formed via convenience sampling method. Convenience sampling is a method that envisages conducting the study with a study group that is easy to reach in order to save time, money and effort (Büyüköztürk et al., 2014). Although this method has some limitations in terms of the representative power of the sample and generalization of the study results; it is one of the most commonly used, and even sometimes the only method of data collection in educational studies (Weathington et al., 2010). In the current study, participants with different demographic features were chosen in order to compensate the limitations of convenience sampling method (Gravetter & Forzano, 2012).

Measures

Contextualized Reading Strategies Scale-Original Form (CReSS-OF)

Contextualized Reading Strategies Scale (CReSS) was developed by Denton et al. (2015). The scale is a 5-point Likert type scale, and it consists of 26 items and four factors related to four cases. These factors are "evaluation and integration", "note-taking", "regulation" and "help-seeking". The scale was developed with the data collected from secondary school students. The reliability coefficient for the whole scale was found to be .90. Reliability coefficient values were .90 for the sub-scale of evaluation and integration, .87 for note-taking, .81 for regulation and .71 for help-seeking. This four-dimensional structure explains 49% of the total variance. In line with the findings, the scale was reported to be a reliable and valid measurement tool (Denton et al., 2015).

The Metacognitive Awareness of Reading Strategies Inventory (MARSI)

The original form of the scale was developed by Mokhtari and Reichard (2002). The scale was developed to evaluate the metacognitive awareness and perceptions of adult and adolescent readers about their use of reading strategies while reading school materials (Mokhtari & Reichard, 2002). The scale was adapted into Turkish culture by Öztürk (2012). The Turkish form of the scale consists of three sub-scales, which are "general reading strategies", "problem solving strategy" and "supporting reading strategies." It is a 5-point Likert type scale including 30 items. The ratings of the items include "Never or hardly ever"= 1, "Rarely"= 2, "Sometimes"=3, "Generally"=4 and "Always or almost always"=5. Therefore, the scale's scores can range from a minimum of 30 to a maximum of 150 (Öztürk, 2012).

The scale was adapted into Turkish culture by Öztürk (2012) with the data collected from 250 students studying at schools in the province of Sakarya. The construct validity of the Turkish form was tested via explanatory and confirmatory factor analysis. The three-factor construct obtained at the end of the explanatory factor analysis was reported to explain 42.6% of the total variance, while item factor loads varied between .36 and .75. After conducting the explanatory factor analysis, the construct was tested via confirmatory factor analysis. The goodness of fit indices were found to be as follows: χ2/df=1.54 RMSEA=0.047, SRMR=0.054, GFI=0.86, AGFI=0.85, CFI=0.98, NFI=0.94, IFI=0.98 and NNFI=0.98. The Cronbach's alpha internal consistency coefficients to test the reliability of the scale were reported as .85 for the sub-scale of "general reading strategies", .76 for "problem solving strategies" and .81 for "supporting reading strategies", and .93 for the whole scale (Öztürk, 2012).

Procedure

Intercultural Adaptation Procedure

First of all, the researcher got in touch with the corresponding author, Carolyn A. Denton in order to adapt CReSS into Turkish culture. In line with the suggestion by Carolyn A. Denton, the researcher decided to conduct the adaptation procedure with the pilot study form of 49 items, not with the final form of CReSS as the items that would work in the Turkish culture might be different. The translation process of CReSS into Turkish language was conducted via the procedure suggested by Gjersing and colleagues (2010) for the intercultural adaptation of study instruments. In this line, first of all, the original item pool of CReSS was translated into Turkish culture by two language experts independently. Then these versions were synthesized in one form by another language expert. Secondly, the synthesized version was back-translated by two other language experts, and these forms were synthesized in one form by a third language expert. The synthesized translated and back-translated forms were examined for linguistic and cultural validity by a committee of 7 members including 2 language experts, 3 field experts, and 2 measurement and evaluation experts. This committee of experts evaluated the items in terms of language, theoretical background and meaning. Some of the items were amended in line with the expert opinions, and an item pool was created for CReSS-TF. The item pool was evaluated via two pilot studies. Firstly, the Turkish and English forms were administered to 54 bilingual university students twice with an interval of two weeks. Secondly, the Turkish form was administered to a group of 43 secondary school students in order to evaluate the understandability of the items. In line with the data obtained from the pilot study, some expressions and words that were identified to have a low level of understandability were changed and sent to the expert committee again. Considering the expert opinions, the draft form of CReSS-TF was created for further analysis.

Study Procedure

The psychometric features of CReSS-TF were examined in two steps. Firstly, the draft form including 49 items was administered to study group A. The data were used to assess the construct validity of the scale through explanatory factor analysis. The form obtained at the end of the explanatory factor analysis was administered to study group B. The data were used to conduct confirmatory factor analysis and create the final form of the scale. The forms were administered by the researcher in class in one session.

Participation in this study was voluntary. Furthermore, the participants were informed about the study purpose, anonymity of the data, rejecting participation and withdrawing from the study any time they wanted. All the procedural steps in this study were conducted in line with Helsinki Declaration, and approved by Yozgat Bozok University Ethical Committee.

Data Analysis

Before starting the main analysis, a data screening procedure was conducted for outliers, systematic responses, and missing data. The responses with a missing value over 5% were removed from the data set. Those with a missing value lower than 5% were completed via the method of series rank (regression replacement in CFA). Then the data input was reviewed to ensure there were no erroneous entries. Data analysis was conducted via statistics package programs of SPSS 26.0 and Amos 22.0.

Construct validity of CReSS was evaluated via explanatory factor analysis. Before starting explanatory factor analysis, the suitability of the data set for the factor analysis was examined via the Bartlett Sphericity Test and Kaiser-Meyer-Olkin (KMO) sampling adequacy criteria. KMO value, which aims to evaluate the adequacy of the sample size, was between 0 and 1. This value is expected to be .70 or higher. Barlett test, which aims to identify if the data set shows multivariate normality or not, is expected to be significant (Seçer, 2015). The reliability of the scale was also tested via the methods of internal consistency, split-half reliability and test-retest.

After the explanatory factor analysis, the factor construct of CReSS was tested via confirmatory factor analysis again. Before the analysis, the responses in the data set were examined in terms of the assumptions of confirmatory factor analysis (outliers, missing value, multivariate normality). Cut-off values for fit indices taken as a reference in CFA are as follows: (1) the ratio of χ^2 to the degree of freedom (χ^2/df) <3, (2) comparative fit index (CFI) >.95, (3) Tucker-Lewis index (TLI) >.90, the root mean square error of approximation (RMSEA) <.08 and the standard root mean square residual (SRMR) <.09 (Hu & Bentler, 1999; Kline, 2011).

Results

Cultural Equivalence and Content Validity

In the pilot study, 54 bilingual university students responded to the Turkish and English forms of CReSS with an interval of two weeks. There was a high level of correlation between the original form of the scale and the Turkish version (r= .82, p< .001). Furthermore, a committee of 7 members who were all experts in language, methodology and the related field rated each item on 4-point scale (1= not appropriate at all, 2= should be improved, 3= appropriate, 4= very appropriate) in terms of linguistic, cultural and conceptual appropriateness. The means for the linguistic appropriateness of the scale varied between 3.28 and 3.86; the values varied

between 3.42 and 3.86 for conceptual appropriateness. These results showed that CReSS had a high level of linguistic-cultural equivalence and content validity.

Results of Explanatory Factor Analysis

When scales are adapted to a new culture, changes in the scale's structure might occur due to cultural differences or factors stemming from item translation. The authors suggest that, to demonstrate structural validity, adaptation studies should begin with exploratory factor analysis (EFA), and subsequently conduct confirmatory factor analysis (CFA) using a different dataset, emphasizing that CFA alone may not identify potential structural changes (Orçan, 2018). In line with this recommendation, a standard EFA procedure, without limiting the number of factors, was first performed on the CReSS-TF in this study, to determine potential structural changes. Explanatory factor analysis was conducted to identify the factor construct of CReSS-TF. First of all, the KMO and Barlett values as well as anti-image correlation matrix were examined in order to test the appropriateness of the data for factor analysis. It was observed that KMO value was .92, Barlett sphericity test was significant (X^2 =6782.03, df=1176, p< .001), and cut-off values in the anti-image correlation matrix were higher than .50 (Can, 2014). These results showed that the study data were appropriate for factor analysis.

Explanatory factor analysis was conducted via the method of principal components factor analysis and without limiting the number of factors. The initial analysis resulted in 11 factors which explained 55.92% of the total variance and had eigenvalue higher than 1. In order to clearly identify the factor construct of the scale, the analysis was repeated by removing the items which (a) were not located under any of the factors, (b) had a factor load lower than .40, (c) were cross-loaded on multiple factors. After the removal of 22 items, the final outcomes were ascertained. Subsequently, a comprehensive analysis yielded a five-factor construct comprising a total of 27 items for the CReSS-TF scale, diverging from its initial configuration. This five-factor construct explained 50.85% of the total variance. The contribution of the first factor to the total variance was 26.78%, while this value was 7.73 for the second factor, 6.87 for the third factor, 4.86 for the fourth factor and 4.61 for the fifth factor. Furthermore, it is noteworthy that all the items demonstrated factor loadings exceeding the threshold of 0.40, and there was an absence of items that exhibited cross-loading tendencies. Figure 1 below shows the Scree Plot as to the factor construct of the scale, and Table 1 below shows the results of the factor analysis.

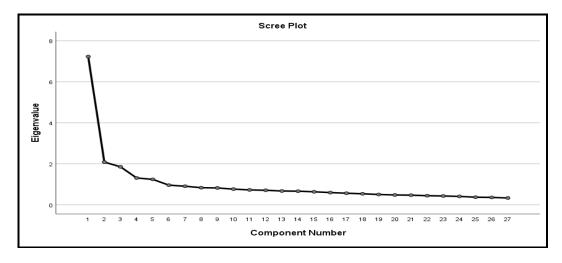


Figure 1. Scree Plot

Table 1

Results of Factor Analysis for CReSS-TF

Factor	Eigenvalue	Explained	Items		Factor loadings			
	Ü	Variance		1	2	3	4	5
			4	.48				
			18	.54				
			19	.46				
			20	.65				
			21	.71				
Integration	7.43	26.78	24	.49				
integration	7.13	20.70	38	.64				
			43	.43				
			44	.55				
			45	.63				
			46	.54				
			15		.79			
II-1- C1	2.00	7.72	29		.78			
Help Seeking	2.09 7.73	1.13	42		.76			
			5			.67		
			7			.55		
Note Taking	1.78	6.87	9			.64		
			25			.53		
			28				.68	
			30				.68	
Regulation	1.28	4.86	32				.77	
			39				.74	
			17					.62
			22					.67
Evaluation	1.23	4.61	23					.77
Lvaluation	1.23	01	26					.53
			37					.67

In the original form of CReSS, the factor "Evaluation and Knowledge Integration (Integration)" includes 14 items (17, 21, 22, 23, 24, 34, 37, 38, 43, 44, 45, 46, 47 and 49). However, in the current study, the factor analysis showed that these items were divided into two factors in CReSS-TF: Factor 1 included 11 items (4, 18, 19, 20, 21, 24, 38, 43, 44, 45 and 46), Factor 5 included 5 items (17, 22, 23, 26 and 37). Considering the loads and contents of the items in the original form, Factor 1 was called "Knowledge Integration (Integration)", and Factor 5 was called "Evaluation" in CReSS-TF.

In the original form of CReSS, the factor "Help-Seeking" includes 3 items (15, 29 and 42). Similarly, within the context of CReSS-TF, items numbered 15, 29, and 42 were observed to load onto Factor 2. Consequently, Factor 2 retained its designation as "Help-Seeking," mirroring the nomenclature employed in the original iteration of the scale. In the original manifestation of CReSS, the factor denoted as "Note-Taking" encompassed a triad of items, specifically, items 5, 7, and 9. However, in CReSS-TF, items number 5, 7, 9 and 25 were loaded on Factor 3. Considering the original form of the scale and the fact that item number 25 highlights a theme similar to other three items, Factor 3 was called "Note-Taking". In the original form of CReSS, the factor "Regulation" includes 6 items (8,14,28,30,32 and 39). The results of the factor analysis in the current study showed that items number 28, 30, 32 and 39 were loaded on Factor 4 in CReSS-TF. Therefore, this factor was called "Regulation".

Results of Confirmatory Factor Analysis

Confirmatory factor analysis was conducted with the data gathered from the study group B in order to evaluate the five-factor model fit of CReSS-TF. The first analysis showed that model data fit was acceptable. $X^2 = 597.55_{(df=314, N=384)}$, p<.05; $x^2/df=1.90$; CFI= .91; TLI= .90; RMSEA= .049, p> .05, %90CI (.043, .054); SRMR= .049. However, factor loads of items 4 and 19 were lower than .40. Subsequently, these two items were excised from the assessment instrument, and a repetition of the analytical procedures ensued. This way, model data fit got better ($X^2 = 475.74_{(df=265, N=384)}$, p<.05; $x^2/df=1.80$; CFI= .93; TLI= .92; RMSEA= .046, p> .05, %90CI [.039, .052]; SRMR= .047). In structural equation modelling (SEM), researchers are recommended to evaluate the suggested modification indices considering the theoretical appropriateness in order to enhance the model data fit (Byrne, 2010). In the current study, modification indices were examined, and it was found out that there were measurement errors as to the relationship between the items as follows: items 20 and 21, items 20 and 46, items 43 and 44, items 7 and 9. Therefore, the model was amended by adding covariance between these errors. The analysis of the modified model showed very good fit indices: $(X^2 = 430.19) (df = 261, N = 384)$, p<.05; $x^2/df = 261$ 1.64; CFI= .94; TLI= .95; RMSEA= .041, p> .05, %90CI [.034, .048]; SRMR= .044). Moreover, factor loads of all items were higher than .40 and statistically significant. Consequently, the CFA results suggest that the 5dimensional structure with 25 items offers a better fit to the data compared to the 27-item structure. Hence, the 5dimension, 25-item structure suggested by the CFA was adopted as the final form of CReSS-TF. The subdimensions and items encompassed in the final form can be seen in Figure 1, which provides the CFA results.

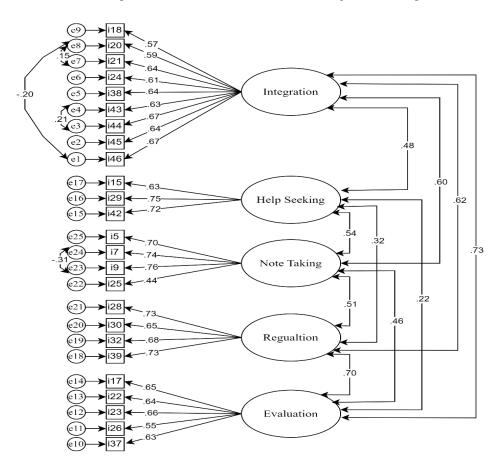


Figure 2. Results of confirmatory factor analysis

Criterion Related Validity

In the current study, Pearson correlation was calculated with MARSI scale in order to examine the criterion related validity of CReSS. Table 2 below shows the related results. As is seen in Table 2, MARSI is significantly related to Integration ($r_{(433)}$ = .61, p < .001), Help Seeking ($r_{(433)}$ = .26, p< .001), Note Taking ($r_{(433)}$ = .42, p< .001), Regulation ($r_{(433)}$ = .40, p< .001), and Evaluation ($r_{(433)}$ = .51, p< .001). Moreover, there was a medium level statistically significant relationship between CReSS and MARSI ($r_{(433)}$ = .60, p< .001).

Table 2

Pearson correlations between CReSS-TF and MARSI

	1	2	3	4	5	6	7
1.Integration							
2. Help Seeking	.22*						
3. Note Taking	.44**	.48**					
4. Regulation	.42**	.08	.24**				
5. Evaluation	.55**	28	.31**	.51**			
6. CReSS Total	.62**	.50**	.74**	.71**	.72**		
7. MARSI Scale	.61**	.26**	.42**	.40**	.51**	.60**	

^{**} p < .001

Results Regarding Reliability Analysis

Reliability analysis of CReSS was conducted with the data gathered from the Study Group A. In this context, Cronbach alpha, McDonald Omega and split half reliability coefficients were calculated. Table 3 below shows the related results.

Table 3

Results of Reliability Analysis

Factor	Cronbach alfa	McDonald Omega	Split half reliability
Integration	.82	.83	.77
Help Seeking	.71	.73	.68
Note Taking	.70	.71	.65
Regulation	.74	.75	.62
Evaluation	.72	.72	.70
CReSS Total	.88	.88	.76

As depicted in Table 5, the calculated Cronbach's alpha coefficients manifest values of .82 for the Integration subscale, .71 for Help Seeking, .70 for Note-Taking, .74 for Regulation, .72 for Evaluation, and an overarching .88 for the entirety of the scale. Correspondingly, the McDonald's Omega coefficients are reported as .83, .73, .71, .75, .72, and .88 for the respective sub-scales of Integration, Help Seeking, Note-Taking, Regulation, and Evaluation, along with an aggregate coefficient of .88 for the overall scale. Additionally, the split-half reliability coefficients are established at .77, .68, .65, .62, .70, and .76 for the Integration, Help Seeking, Note Taking, Regulation, Evaluation subscales, and the composite scale, respectively.

Discussion, Conclusion & Suggestions

The current study aims at adapting the "Contextualized Reading Strategies Scale", which intends to identify students' use of reading strategies through various contextual scenarios, into Turkish culture. For that purpose,

the original draft form of CReSS was translated into Turkish, and then its psychometric features were examined. The results show that CReSS has a good linguistic-cultural equivalence as well as validity and reliability.

The results of factor analysis put forth a five-factor model with 27 items for CReSS-TF, and this explained 50.85% of the total variance. The contribution of the first factor to the total variance was 26.78%, while this value was 7.73 for the second factor, 6.87 for the third factor, 4.86 for the fourth factor and 4.61 for the fifth factor. One of the criteria evaluated in explanatory factor analysis is the value of factor load. Factor load value refers to standardized regression coefficients that explain the relationship between the items and factors, and it implies how much the variable measures the factor. In this respect, load values of the items in the factors they belong to are expected to be significant and high statistically (Çokluk et al., 2014). There is a disagreement in the literature about the lowest factor load values of items. Although generally accepted value is .50 and higher (George & Mallery, 2016), it is stated that this value can go down up to .30 (Costello & Osborne, 2005; Tabachnick & Fidell, 2007). In the current study, this value was not lower than the critical value of .30. Factor loads were higher than .40 for all items, and there were no cross-loaded items.

In a scale development or adaptation scale, it is suggested that the construct explained via explanatory factor analysis should be tested via confirmatory factor analysis (Evci & Aylar, 2017). In this line, the five-factor construct suggested by the explanatory factor analysis was tested via confirmatory factor analysis in the current study. Confirmatory factor analysis produced a very good model-data fit ($x^2 = 430.19$ ($d_f = 261$, N = 384), p< .05; $x^2/df = 1.64$; CFI= .94; TLI= .95; RMSEA= .041, p> .05, %90CI [.034, .048]; SRMR= .044). As a result of this analysis, two items (4 and 19) were removed from the assessment tool, resulting in the final form of the CReSS-TF consisting of 25 items. Additionally, it is noteworthy that the factor loadings for all items surpassed the threshold of 0.40, and their statistical significance was duly established. In conjunction with the fit indices, these findings substantiate the validation of the five-factor model proposed by the explanatory factor analysis.

A scale is accepted to be reliable when reliability coefficients are over .70 (George & Mallery, 2016). According to the reliability values of the original CReSS and CReSS-TF, Cronbach alpha for the whole scale of the original form was .90, while it was .88 in the Turkish form. This result shows that both scales have a similar reliability value, and the Turkish form is at an acceptable level. Moreover, the original form explained 49% of the total variance, while the Turkish form explained 50.85% of it. Criterion related validity of CReSS was tested by calculating Pearson correlations with MARSI, a scale used in Türkiye, and it was found out that both scales were correlated at a statistically significant medium level.

Psychometric analysis revealed some differences in the construct of CReSS from the original scale. While CReSS consists of 26 items and 4 factors (Evaluation and Knowledge Integration (Integration)", "Help-Seeking", "Note-Taking" and "Regulation), CReSS-TF includes 25 items and 5 factors. Specifically, CReSS's sub-scale of Evaluation and Knowledge Integration (Integration) was divided into two different sub-scales as "Knowledge Integration" and "Evaluation" depending on item contents in CReSS-TF. In CReSS, the sub-scale "Evaluation and Knowledge Integration" has 14 items, 7 of which (21, 24, 38, 43, 44, 45 and 46) are included in the sub-scale of "Knowledge Integration" and 3 of which (17, 22 and 23) are included in the sub-scale of "Evaluation" in CReSS-TF includes 2 more items from the item pool (18 and 20), the sub-scale of "Evaluation" included 2 new items (26 and 37). Additionally, the sub-scale "Note taking" includes 1 more item (item 25), while the number of items decreased

from 6 to 4 in the sub-scale of "Regulation" in CReSS-TF (item number 8 and 14 were removed). Lastly, the sub-scale "Help-Seeking" is consistent with the original form of the scale.

Considering the final form of CReSS-TF, one of the important differences is that 4 items added to Factor 1, which is "Knowledge Integration" and one item added to the sub-scale "note taking" did not fall under any subscales in the original scale. When the contents of the items are considered, this can be about the reading program implemented. In Türkiye, learning objectives of secondary school reading skill include activities and practices about these four items (Ministry of National Education [MoNE], 2019). Therefore, these items might have a counterpart in the Turkish culture in line with the educational programs. However, two items included in the subscale of "Regulation" in the original scale do not appear in the Turkish form. This might also be about the teaching process that affects students' behaviours. Given that instructional activities within Turkish language classes predominantly hinge upon post-reading vocabulary exercises, it is conceivable that such pedagogical practices may exert an influence on students' inclination to interrogate the semantic connotations of words in the course of their reading endeavours. In Türkiye, exercises about dictionary meaning are preferred instead of context-based activities in teaching vocabulary. Therefore, it is possible to state that the two items not included in the Turkish form are about practices with which Turkish students are not familiar culturally. Capik et al. (2018) point out that the disparities in language and culture influence outcomes of scale adaptation studies; the broader these disparities, the greater the impact on outcomes. Furthermore, they argue that the psychometric properties of an adapted scale can differ from its original form, even when two cultures share similar characteristics. For that reason, due to the dynamic nature of culture, items can be added, removed, or altered on the scale in scale adaptation studies (Akbaş & Korkmaz, 2007). Therefore, the differences between the original and the Turkish versions of CReSS may stem from the cultural and language differences between the country where the original form was developed and Turkey. In fact, reading skills develop not only through school life and curriculum but also through cultural influences. The family and the surrounding environment play crucial roles in shaping children's reading abilities and habits. Given that reading habits and the values attributed to reading might differ between the two communities, such variations could have influenced the adaptation study. While the original scale was derived from a multicultural cohort, the adaptation was based on a culturally more homogenous sample. Consequently, there might be differences between the two versions.

The sub-scales "Knowledge Integration" and "Evaluation", which are one sub-scale in the original form of CReSS, have become two different sub-scales with newly-added items in the Turkish form. The construct which is only one factor in the original scale has been divided into two factors in the Turkish form, which is one of the most important findings of cultural and linguistic adaptation process. This difference might result from the educational system, learning periods during the grades, teaching process or activities about reading skill of the two cultures. For instance, primary school education lasts longer in the USA, where the original scale was developed, than Türkiye, and its structure is different, as well. While educational system has a 4+4+4 structure in Türkiye, there are different structures like 6+6, 6+3+3, 4+4+4 or 8+4. Besides, a centralist management perspective is dominant in Türkiye, whereas a local perspective is preferred in the USA (Baş, 2013). Also, the newly-added items might have contributed to make a clear distinction between these two dimensions. The sub-scale of "help-seeking" in the original scale is the same in the Turkish form. All three items under this factor include a demand for the reading process, and these items seem to represent the same construct in the two cultures.

Explaining what the dimensions of the scale mean in the context of reading strategies will contribute to a better understanding of the scale. The first dimension, "Evaluation" includes items on the process of comprehension and deduction. In the dimension called "Evaluation", students getting a high score are strategic readers who can evaluate the pieces of information in different parts of the text as a whole and organize the ideas in the text and own reading goals together (Denton et al., 2015). Students who use this strategy explain the content themselves, create analogies, prepare hypothesis, make predictions, ask questions and make evaluations according to the internal consistency of the text and what they know about the text (Kintsch & Kintsch, 1996, as cited in Kintsch & Kintsch, 2005).

The second dimension, "Knowledge Integration (Integration)" includes items that focus on integrating prior knowledge with the information in the text, comparing them, making deduction and monitoring the comprehension process. Students who get a high score in this dimension are strategic readers who try to integrate their prior knowledge with the information in narrative and informative texts (Denton et al., 2015). The act of associating a given text with pre-existing knowledge entails the cognitive process of conjoining antecedent knowledge with the concepts and content encapsulated within the text. This cognitive operation encompasses the discernment of similarities, the identification of illustrative examples, the incorporation of supplementary information, and the drawing of comparative parallels (Zimmerman et al., 1996).

The third dimension, "Note-Taking" is about defining, organizing and recording the information in the text. Taking notes improves students' skills to choose the important information while reading and explain it as well as reviewing, organizing and evaluating the notes that have been taken (Denton et al., 2015).

The fourth dimension, "Regulation" includes performing goal-oriented activities such as monitoring the process of comprehension while reading, re-reading or deep reading when it is difficult or impossible to comprehend the text (Denton, et al., 2015). Regulation involves processes that are often highlighted in the literature within the framework of reading strategies such as monitoring the comprehension process consciously, identifying the source of comprehension failure, and solving the problem instead of reading passively (Kintsch & Kintsch, 1996, as cited in Kintsch & Kintsch, 2005).

The fifth dimension, "Help-Seeking" includes items on seeking help from peers, teachers or any other adult during the reading process. Students who get a high score in this dimension get or seek help from people around them to better understand the text or solve the problems they face in the text when they have a difficulty during the reading process.

Limitations and Implications

The current study has some limitations. Firstly, the number of female students was higher than the number of male students in the study group. As previous studies show that gender affects reading performance, the number of male and female participants can be more homogenous in the future studies. Secondly, the study group is composed of 5th, 6th, 7th and 8th grade students. However, the number of the 5th and 8th graders was higher than the others. The level of using reading strategies can vary according to the class level in Türkiye, because students learn different reading strategies in each grade according to the Turkish curriculum. The number of students can be more homogenous in terms of grade in the future studies.

Conclusion

This scale adaptation study provides an opportunity to evaluate students' level of using reading strategies through contextualized cases in different languages and cultures. CReSS-TF, which has 5 factors and 25 items, is a measurement tool having reliable values in order to identify students' level of using reading strategies in the Turkish culture. Turkish educators and scholars can employ the aforementioned scale as a diagnostic tool to ascertain the proficiency of students in the employment of reading strategies. The attainment of a heightened score on the scale is indicative of a proclivity for strategic reading, denoting the active utilization of various reading strategies. Conversely, a lower score on the scale conveys a lower degree of engagement with reading strategies, implying a comparatively limited utilization thereof by the students.

Ethic

This study was approved by the Yozgat Bozok University Ethics Committee (Date: 20/04/2022, Approval Number: 32/27).

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Appendix

Bağlamsallaştırılmış Okuma Stratejileri Ölçeği (Madde Havuzu)

A. Sosyal bilgiler öğretmeniniz sizden ödev olarak kitabınızdaki bir bölümü okumanızı istedi. Yarın, okuduğunuz bölümdeki önemli noktaları küçük gruplar şeklinde arkadaşlarınızla tartışacaksınız. Sonra, grubunuz sınıfın geri kalanına okuduğunuz bölüm hakkında bir sunum yapacak.

Böyle ödevlerde, öğrenciler <u>okumaya başlamadan önce</u> farklı şeyler yapabilirler. <u>Okumaya başlamadan</u> önce <u>siz</u> <u>bunlardan hangisini ne kadar</u> yapıyorsunuz?

		Hiçbir zaman	Nadiren	Bazen	Genellikle	Her zaman
1	Okumaya başlamadan önce metne göz gezdirip, başlıklar ve resimlere bakarak metnin ne ile ilgili olacağını tahmin etmeye çalışırım.					
2	Boşa vakit kaybetmemek için hemen okumaya başlarım.					
3	Okumaya başlamadan önce metinde cevaplamak istediğim (cevabını arayacağım) soruları belirlerim.					
4	Okumaya başlamadan önce, bu metni neden okuyacağımı düşünürüm.					
5	(Okumaya başlamadan önce) Altını çizmeye, belirginleştirmeye ve not almaya hazır olduğumdan emin olurum.					

Öğrenciler okumaya başlamadan önce olduğu gibi <u>okurken</u> de farklı şeyler yapabilirler. <u>Okurken</u>, metindeki önemli noktaları bulmanıza, anlamanıza ve hatırlamanıza yardımcı olması için bunlardan <u>hangilerini yapıyorsunuz</u>?

		Hiçbir	Nadiren	Bazen	Genellikle	Her
		zaman				zaman
6	Metindeki önemli fikirleri kendi kelimelerimle söylemeye çalışırım.					
7	Okurken notlar alırım.					
8	Hatırlamama yardımcı olması için metnin bazı bölümlerini tekrar tekrar okurum.					
9	Yapabilirsem, metindeki önemli fikirleri belirginleştirir veya altını çizerim.					

10	Metni anlamama yardımcı olması için grafikler, çizimler ve haritalar kullanırım.			
11	Önemli bilgileri bulmak için kalın veya italik olarak yazılmış kelimeler veya cümleler ararım.			

B. Türkçe dersinde sizden ev ödevi olarak kitabınızdaki bir öyküyü okumanız istendi. Yarın öğretmeniniz okuduğunuz öykü hakkında bir test yapacak. Bir öyküyü okurken <u>bilmediğiniz bir kelimeye rastladığınızda</u> aşağıdakilerden hangisini ne kadar sıklıkta yapıyorsunuz?

		Hiçbir zaman	Nadiren	Bazen	Genellikle	Her zaman
12	Bilmediğim kelimenin anlamını öğrenmek için sözlüğe ya da internete bakarım.					
13	Bilmediğim kelimeleri atlayıp okumaya devam ederim.					
14	Tekrar okuyarak ve cümledeki ipuçlarına bakarak kelimenin ne anlama geldiğini kavramaya çalışırım.					
15	Birinden yardım isterim.					
16	Kelimeyi yakından incelerim ve onu anladığım parçalara ayırırım.					

Daha iyi anlamak için bir hikâyeyi okurken veya okuduktan sonra aşağıdakilerken hangisini yapıyorsunuz?

		Hiçbir	Nadiren	Bazen	Genellikle	Her
		zaman				zaman
17	Okurken hikâyedeki bilgileri zihnimde canlandırmaya çalışırım.					
18	Hikâyede olanları kendi kelimelerimle anlatmak için hikâyenin farklı yerlerinde dururum.					
19	Okurken kendime hikâye ile ilgili sorular sorarım.					
20	Hikâyeyi niçin okuduğum hakkında düşünürüm.					
21	Okurken hikâyenin parçalarının nasıl birleştiğini (bir araya geldiğini) düşünürüm.					
22	Hikâyedeki karakterlerin neler yaptıklarını ve neden o şekilde davrandıklarını (davranışlarının					

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	nedenlerini) düşünürüm			
23	Hikâyenin devamında neler olacağını tahmin ederim.			
24	Bu hikâyenin okuduğum diğer hikâyelerle nasıl örtüştüğünü (benzediğini) düşünürüm			
25	Okumayı bitirince, anladığımdan emin olmak için bütün hikâyeyi (hikâyeyi baştan sona) özetlerim.			

Hikâyenin anlaşılması çok zor olan bir bölümüne geldiğinizde bunlardan hangisini yaparsınız?

		Hiçbir zaman	Nadiren	Bazen	Genellikle	Her zaman
26	Hikâye ilerledikçe daha iyi anlayabileceğimi umarak okumaya devam ederim.					
27	Okuduklarımı anlamama yardımcı olması için (daha iyi anlamak için) zor kısımları yüksek sesle okurum.					
28	Metnin anlaşılması zor ise, okuduklarıma daha çok dikkat gösteririm (daha dikkatli bir şekilde okurum).					
29	Okuduklarımı, anlamama yardımcı olacak bir arkadaşımla kontrol ederim.					
30	Metnin anlaşılması zor ise daha yavaş okurum.					
31	Anlaşılması zor bir bölüme gelirsem daha kolay görünen bir bölüme gelene kadar hızlıca okurum.					
32	Anladığımı hissedene kadar zor bölümü tekrar tekrar okurum.					

C. Sosyal bilgiler öğretmeniniz kütüphaneden seçtiğiniz bir kitabı okumanızı ve kitap hakkında kısa bir rapor (ödev/özet) yazmanızı istedi. Okuldaki derslerinizle ilgili (hikâye ya da roman olmayan) bilgilendirici türde herhangi bir kitabı seçebilirsiniz. Kitabı seçtikten sonra bilgilendirici türde olan bu kitabı okurken anlamanıza yardımcı olması için aşağıdakilerden hangisini yaparsınız?

		Hiçbir zaman	Nadiren	Bazen	Genellikle	Her zaman
33	Okuduklarımı anlamama yardımcı olması için konu hakkında hâlihazırda neler bildiğimi düşünürüm.					
34	Kitaptaki fikirler (bilgiler) ile sınıfta öğrendiklerim arasında bağlantı kurmaya çalışırım					
35	Tamamen okuduğum metne konsantre olurum (yoğunlaşırım-dikkatimi veririm) ve başka şeyler düşünmem. (Başka şeyler düşünmeden tamamen okuduklarıma konsantre olurum).					
36	Kitaptaki fikirlerin nasıl birleştiğini/bağdaştığını anlamak için okurken metnin geride kalan veya ileriki bölümlerine bakarım.					
37	Okurken, metnin sonraki bölümünün ne hakkında olacağını tahmin ederim.					
38	Kitaptaki bilgilere (kitapta anlatılanlara) katılıp katılmadığım hakkında düşünürüm.					

Böyle bir okuma sırasında, öğrenciler metnin bir bölümünün kendilerine mantıklı gelmediğini fark edebilirler. Böyle bir durumda aşağıdakileri ne sıklıkla yaparsınız?

		Hiçbir zaman	Nadiren	Bazen	Genellikle	Her zaman
39	Okuduklarımın mantıklı gelmediğini fark edersem geri dönüp o kısmı tekrar okurum.					
40	Metnin sonunda muhtemelen daha mantıklı hale geleceğini düşünerek okumaya devam ederim.					
41	Metinde düşündüğümden farklı şeyler olduğunda neyin yanlış olduğunu bulmaya çalışırım.					
42	Bir öğretmenimden ya da arkadaşımdan yardım isterim.					

D. Öğretmenlerinizden biri, sınıfta işlediğiniz konularla ilgili <u>internetten iki makale</u> okumanızı istedi. Makalelerden öğrendiklerinizi sınıfta kısaca anlatacaksınız.

Böyle bir durumda, metni okurken bunlardan hangisini ne sıklıkla yaparsınız?

		Hiçbir zaman	Nadiren	Bazen	Genellikle	Her zaman
43	Okuduğum makalenin amacıma (okuma amacıma) uygun olup olmadığını düşünürüm.					
44	Okuduklarıma katılıp katılmadığıma karar vermek için okuduklarımı sorgularım.					
45	İki makaledeki bilgileri nasıl bir araya geldiğini düşünürüm.					
46	Okurken, metnin konu ile ilgili bilgilerime ve düşüncelerime katkı sağlayıp sağlamadığına karar veririm.					
47	Makalelerden edindiğim bilgileri nasıl kullanabileceğimi düşünürüm.					
48	Eğer makaleler iyi web sitelerinde yer alıyorsa, diğer şeyler hakkında fazla düşünmeden okurum.					
49	Makalelerde, sınıfın ilgisini çekecek bilgiler bulmaya çalışırım.					