

Classroom Discussion Scale of Wade: Adaptation to Turkish, Validity and Reliability Study

Bulent ALAGOZ

✉ Gaziantep University, Department of Elementary Education, Nizip Faculty of Education, Gaziantep-Turkey

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Abstract: The aim of this study is to realize the adaptation of “Classroom Discussion Scale” to Turkish accepted after being tested on different samples in terms of their validity and reliability by different researchers and developed by Rahima C. Wade in 1994 and to examine the psychometric features in a sample consisting of social sciences teacher candidates. Totally 494 students from Cumhuriyet University and Karadeniz Technical University participated in the research. Original scale consists of three parts. In order to reveal the construct validity of the first dimensions of the scale in quartet Likert type and second sub dimensions in the triple Likert type, Confirmatory Factor Analysis was used. Cronbach’s Alpha was used for the reliability of the general reliability and sub-dimensions. In the third sub-dimension consisting of the choices of “Agree”, “Disagree”, the percentages of the answers given were tabulated and interpreted. As a result of statistical process, Cronbach’s Alpha value was found as .78. In conclusion of the operation performed for the second sub-dimension, Cronbach’s Alpha value was found to be .73. Obtained findings show that Classroom Discussion Scale have adequate level of validity and reliability to be used for measuring the participation of the students in the classroom discussions.

Key words: Discussion, classroom discussion scale, validity, reliability

Introduction

Narration has been described as the second oldest education and training type known by the human beings and it is said to have been discovered just after human beings learnt speaking. When humanity learnt speaking once, they began to be made spoken by others and so discussion was invented. Although classroom discussion is older than the other education-training forms, it is not used as commonly as the other education approaches. A healthy classroom discussion is possible with the self-recognition of the individuals. Then, classroom discussion can be described as a self-recognition method (Abeasi & Reigeluth, 1985).

Classroom discussion can be related to a problem disturbing whole or a part of the individuals being in a relationship, while it may arise on a thought or any subject. However, no matter what subject it arises on the people discussing (the parties) must be aware of their own emotion, thought and desire or problem solving with the discussion, the question of “what” before the question of “why” must be answered. As a teaching strategy, the basic purpose of making discussion is to facilitate spreading and internalizing the information. So, classroom discussion

is a skill that can be learnt and that must be learnt and it requires to be open to the interpretations of others and willing to develop current understanding level of the individual (Larson & Keiper, 2002). However, the discussion must be evaluated within wider field other than question-answer or role-playing. Extremely complex political and philosophical thought conflict and even reading and writing activities as well as talking have the potential of entering into the discussion (Ur, 1990).

The discussion emerges when the people begin to talk about a subject and to investigate the subject by using logic and reasons. An open-ended question, generally the informal debate and taking over the subject verbal and in writing in a formal way constitutes the basis of the discussion. When the students participate in the answer of the teacher's question with their own expressions and the reaction comes for the starting action of the teacher (asking a question) from the other students, they are deemed to be included in the discussion (Dashwood, 2005).

The Place of Classroom Discussion in Teacher Training Programs

Discussion, conflict and dispute are the main elements of higher education. The teachers must be prepared for the discussion in their own classes and they must plan to use it in a productive way. All the instructors start the discussion generally on the topics of history, left-right ideology and policy. However, all the subject headings are controversial, because the students come to the higher education with a certain social, political, philosophical and religious viewpoint that may conflict with subject matter. It is extremely difficult to teach critical thinking without the conflict (at least without dispute). Knowing how to handle the discussion and conflict in a productive way is a required skill for all the instructors due to this reason.

Wade (1994), especially argued that the faith of the teacher candidates about classroom discussions and being understood of the attitudes related to the discussion in order to develop a critical approach related to education and training are necessary. According to Wade, many students are not reluctant to share their thoughts in a discussion, and they must be left alone for giving them the opportunity to analyze and evaluate them with their friends. To understand which conditions develop their voluntarily participation in the discussion of the students or which of them overshadowed the participation may support the instructors in planning the successful discussion experiences. Newmann (1985) also argued that the researchers must diversify the viewpoints of the students in the classroom in order to reinforce them and stated that more important thing is the contribution to a discussion environment in which the participants will feel confident enough about putting forward their ideas.

The discussion cannot occur if the students are afraid of speaking freely or do not perceive that their thoughts will be respected and accepted by the others (Dillon, 1984). So, distinguishing the conditions where the discussions of teacher candidates are hindered or encouraged is an important step in ensuring the continuance of the expression of their thoughts about education and training. In this way, many educators think that it is vital importance to "open the way" of previous experience and faith to the teacher candidates and to help them in their investigations (Griffiths & Tann, 1992; O'Loughlin, 1988; Ross & Hannay, 1986; Sanders & McCutcheon, 1986; Wade, 1994).

Benefits of Discussion

Classroom discussions help the students to learn discussion skills. At the same time, it provides support for increasing their learning about the matter discussed and it may help to create the environment in which multiple perspectives are discussed. Discussion may also be used as a way of reconciling on a topic or at least of looking for a common base. Johnson & Johnson (1988) stresses that the discussion is a way of helping to create an atmosphere in which the students can look for the reconciling or at least they can try to understand the other viewpoints. Using classroom discussions, at the same time, give opportunity to more than two democratic educations (being related to social sciences in more special way). First of all, it gives opportunity to know more about how the students examine and discuss the topics in more suitable way. Harris (1996) and Singleton & Giese (1996) praised the benefits of classroom discussion in creating better disputer who can use their own voices and discussion skills in analyzing the topics.

Classroom discussion answers many of the education needs because it is an unequalled type of classroom speaking and it is a very special group dynamics. It requires the students and the teachers speaking both among them and with the teacher about the subject matter being discussed at upper level as cognitive and affective way. It is a beneficial teaching technique giving the opportunity to the students manipulating the information by interpreting and analyzing them and about developing upper level of thinking skills. The students explain their own ideas and thoughts other than only narrating or memorizing the mnemonic truths and details. During the discussion, they are not passive receiver of the information given by the teacher, but they are active participants (Larson & Keiper, 2002).

Hollander (2002) expressed that the classroom discussions force the students to find their own answers, offers the opportunity to express their own thoughts to the students, increase the respect of the students to complexity and diversity and develop the listening, cognitive and critical thinking skills of them.

The Disadvantages of Classroom Discussions

For no matter what purposes the classroom discussions are used, they have some advantages as well as the disadvantages. According to Abeasi & Reigeluth (1985), one of the most significant disadvantages is that the classroom activities are not rarely occurred as they are planned since there is a dynamic relationship between the teacher and the learners. At the same time, due to the fact that predicting a discussion is extremely difficult, the teachers consider the assumptions such as being lost of the change in unrelated knowledge areas and in the areas except for work areas, as the worst one, not being included in the scope of important materials or losing the control completely by being far away from the purposes. For this reason, planning and applying discussions very carefully are required.

The Factors Affecting the participation of the Students in the Discussion

There are many factors affecting the participation of the student in the discussion; to be bored, lack of knowledge, general passivity habits, cultural norms, disdaining and the anxiety of being used of their words against themselves. However the most compelling one is the fear of being

ashamed. So, many strategies for encouraging the discussion focus on overcoming the fear (Hollander, 2002; Larson & Keiper, 2002).

Giving written homework, small group discussions and giving mark to the students to the extent of their contributions to the classroom discussions are some ways inciting the students to join the classroom discussions. Despite these, ensuring the participation of all the students is almost impossible. While the problem is continuing, it is almost inevitable that a handful of students take the discussion under their control and begin to direct and the others are lapsing into silence gradually. So, the discussions are based on the teachers as well as the students, if the student does not listen, think or speak, there will not be any discussion (Hollander, 2002).

There is a determination about that there is not enough study about classroom discussion in the international literature (Rasmussen, 1984; Schwingle, 2000). Besides this, there are lots of studies evaluating the relationship between classroom discussion and social sciences lesson. Larson & Keiper (2002) stressed that the discussion has a close relationship with social sciences since it makes the students compulsory to participate in participatory democracy; Harris (1996) stressed that the logic of the teacher in the subject of verbal discussion is to teach much more thing about the content of social sciences and Schwingle (2000) also expressed that the reasons for the emergence of the discussions is in a relationship with social sciences and stressed this importance.

Purpose

This study was planned methodologically after the Classroom Discussion Scale developed by Wade was adapted to Turkish in order to test the validity and reliability on teacher candidates of social sciences since there is no study related to classroom discussion and there is no scale to measure the classroom discussions.

Method

The Introduction of Classroom Discussion Scale of Wade

Classroom Discussion Scale was developed by Wade (1994). The scale consisting of 44 items includes three sub-dimensions. The students expressed certain thought and behavior frequency in the first sub-dimension of the survey (**Participation to the Discussion**) (Always/Generally/Sometimes/Never). The second sub-dimension (**Factors Affecting the Participation**) lists the potential factors affecting the participation of the students (It causes my participation more/ It causes my participation less/ There is not any effect on my participation, etc.) On the third dimension, (**Discussion as a Value**), the students express whether the students agree with the five expressions about the classroom discussion (I agree/I disagree). In the scale application process, the students were requested to consider all the classroom discussion experiences they acquired in the previous education years. Another previous version of the scale was applied to 28 students from pre-school teaching department and the necessary changes were made in the light of written and verbal suggestions taken from them. Scanned scale was applied to 287 students in teacher training lessons by the researcher or the one responsible for the lesson. In the application performed by the researcher developed the scale, an open written instruction was suggested and the students were given a letter in order to gather the scale. Due to false answers (the copies where there are more than one blanks), incorrect pointing or the answers coming from the participants except for the divisions forming

the sample, 60 scale forms were omitted. Data analysis includes frequency distribution of each item and the correlation among the item groups. While an item group is reflecting the interest and like to talk, the other group concentrated on the problems and difficulties related to speaking. A “speaking” point was calculated by scoring 1-21st items. For this purpose, 1, 3, 8, 13, 19 and 20th questions were reverse scored. For these questions, a kind of pointing as Always=4, Generally=3, Sometimes=2 and Never=1 was in question, reverse scoring was conducted for the other questions. The scoring obtained from the study was calculated in the range of 21–84. The received high points show more like and interest towards the participation. In order to evaluate whether there is any difference between the “speaking points” in terms of age, school, program area or gender, ANOVA and t-tests were calculated (Wade, 1994; 235-236).

Before Schwingle (2000) applied the same scale officially, he performed the pilot test in order to control any potential problem with the students younger or at the same age with the participants in the study of Wade (1994) and since he did not encounter any problem, he applied the scale in an original form. In order to calculate the speaking score, he reduced the number of the items from 21 to 13. The items of 6, 8, 11, 13, 16 and 18th were scored by reversing. The possible range for the speaking point in the study was calculated between 13 and 52. Accordingly, average point value was calculated as 36.6 for the entire group. In order to detect whether unreasonable variable amount among the scores and whether the measurement is performed in a reliable way likewise, Cronbach Alpha test (reliability analysis) was used and talking score of the entire group was tested. He assessed 0.8 or any higher Alpha value as acceptable. The value of his study obtained from talking point results was identified as 0.8813. He tested most of the talking point questions (items 6–18) by using correlational analysis. As in his study, Wade used ANOVA and t-tests, and evaluated the results at the level of $p < 0.05$ according to whether being statistically significant or not.

Hess & Posselt (2002) used the same scale and subjected the items obtained from pretest-posttest results of the survey he applied to the students to frequency analysis and then compared the means of each pretest and posttest items in the t-tests for the correlative samples. Wade (1994) and Schwingle (2000) used ANOVA and t-tests to test the correlations among the variables. In three of the studies, the scale was found to be valid and reliable for its own sample.

Working Group

For Social Sciences teacher candidates forming the sample dimension of the research, convenient sampling being one of the improbable sampling methods to be convenient for the structure of the research was preferred. Within this scope, some measurements such as accessibility and ease of application were taken into account by the researcher; Social Sciences sampling method studying at Cumhuriyet and Karadeniz Technical University were included in the sample group of Social Sciences teacher candidates with convenient sampling method. In this scope, 550 Social Sciences teacher candidates were attained as the participants of the study, and the statistical operations were performed over 494 pieces of data by excluding faulty and empty paper.

Operations

Turkish version of Classroom Discussion Scale (2007) Deniz's physiological measurement tool adaptation processes were followed these steps:

1. Decision Process: *It was decided that adopting the existing scale is more convenient than developing a new scale.*

2. Permission Process: *After decided to make adaptation study, it was taken permission from Rahima Wade who developed the scale as the first thing to be made.*

3. Translator Selection: *Good translators were selected. In order to do this, two lecturers speaking fluently both languages, familiar with the cultures (English and Turkish) on which it is studied, having knowledge about the scale structure and the structure measured were identified as translators.*

4. Translation Process: *The translation of the scale was made and passed to the adaptation. The application conducted about translation was made by translating from the source language (English) to the target language (Turkish) and then translating to the source language again. In advanced translation made from the source language to the target language, the translators mentioned in the 3rd item were selected. Two mentioned lecturers made the translation of the scale from the source language to the target language (advanced translation) independent from each other (Harkness, 2010). Following this process, Classroom Discussion Scale Translation Validity Eligibility Degree Form on which the original English items of the scale were written on the left and the Turkish translations were written on the right was formed. With the help of this form, 6 English language experts read the original items of the scale first and then they read their translations and they were requested to determine to what extent the translation meets the original item in terms of meaning and content (on condition to use the range of 10 if it meets fully, to use the range of 0, if it does not meet it). Taking into account the suggestions of the experts, necessary changes were made in Turkish translation. Turkish form kept the order in the original form in terms of some points such as item number and item order. In the next step, 5 Turkish teaching experts graded the eligibility and comprehensibility levels of each items in Turkish form in terms of Turkish language rules by using Classroom Discussion Scale the Eligibility Degree Form of Language and Meaning Validity (on condition to use the range of 10 if it fully meets Turkish in terms of grammar and comprehensibility the range of 10, to use the range of 0, if it does not meet it). By taking into account the suggestions of the experts, the necessary changes were made in Turkish translation and the Turkish form of the scale was finalized. Then, a researcher and a translation expert examined both the translation texts, and agreed on the fact that the texts express the original scale items enough. After the advanced translation, two lecturers who were expert in English teaching made the backward translation made from the target language to the source language independent from each other again. The obtained four translations were detected to be consistent in terms of meaning and concept.*

The data in this study was collected with the forms of Wade's Discussion Scale (Wade, 1994), Classroom Discussion Scale Translation Validity Eligibility Degree prepared and applied by the researcher and Classroom Discussion Scale Language and Meaning Validity Eligibility Degree.

All the statistical operations of the study were performed by using SPSS 17.0 and LISREL 8.51 package programs. While evaluating the working data, descriptive statistical methods were used (Mean, Standard deviation).

5. Review and Linguistic Equivalence Detection Process: *The adapted type of the scale was reviewed and when four translation texts were evaluated together, it was seen that the Turkish text meets enough the original expressions in English text in terms of meaning. Then the measurement tool was applied to 3rd grade students from Mustafa Kemal University Education Faculty (35 students) as Turkish at first and after 3 weeks in English; and then it was applied to 4th grade students (33 students) again in English then Turkish form in an interval of 3 weeks; it was applied to 68 students in total. The first part of the scale consists of four grading, the second part of three and the third part of binary grading. For this reason, the relationships between Turkish-English and English-Turkish forms were identified separately for each sub-dimension. For this operation, Pearson Moments Multiplication Correlation Coefficient (r) was used. According to the findings obtained from the first group for the language equivalence, a high level of positive correlation was found between the Turkish form and English form and at three sub-dimensions ($r = .79, p < .001$). According to the results obtained from these two groups, it can be said that the Turkish form of the scale is equivalent to the original English form.*

6. Pilot Application: *Adapted scale was applied in the experiment group consisting of 25 social sciences In this application, the students were requested to express whether there is a factor disturbing them when they look at the scale text (face validity) and whether the items are understood or not (language validity). The students expressed that the general view of the scale does not negatively affect the answering and they have no difficulty in answering the items. So, the appearance and language validity was seen to be provided (Küçükahmet, 2005).*

7. *The scale in the process of adaptation was applied to a large group composed of 494 students. 494 social sciences teacher candidates studying at the universities of Cumhuriyet and Karadeniz Technical Universities at this process of the study participated in the study. 250 of the participants were girls and 244 of them were boys and their ages range from 20 to 23. In the literature, in the selection of sample size, that different researchers have different suggestions was seen. Büyüköztürk (2006) stated that sample size can be identified according to $n / k > 2$ formula. Here, n describes the participant number, k describes the item number in the scale and the result to be obtained is bigger than 2 was suggested. When the formula was applied to this study, the results of $494/44 = 11.22$ and $11.2 > 2$ were obtained. Şencan (2005) argues that the volume of the sample must be as big as falling to at least five times. When it is considered that the number of total variables (items) in the scale was 44, it is reached to the result of $44 * 5 = 220$ and in this situation, it is understood that 494 participant numbers is enough. Bademci (2011) expressed that the sample size must consist of at least 400 people for measurement validity and reliability estimations or studies. Arsalani, Knoshknab, Ghaffari, Josephson & Lagerstrom (2011); Kuş (2009); Büyüköztürk, Çakmak, Akgün, Karadeniz & Demirel (2008); Kalaycı (2008); Altunışık, Coşkun, Bayraktaroğlu, & Yıldırım (2005) ; Guadagnoli & Velicer (1988) left identifying the sample size to the researchers.*

After this process, the results and interpretations of statistical operations related to identify the validity and reliability of the study is given under the heading of "Findings".

Findings

The sub dimension of participation to the discussion reliability analysis

For the general reliability and the reliability of sub-dimensions, Cronbach's Alpha coefficient was calculated. Reliability is a concept revealing the consistency of all the questions with each other in a measurement tool (test), homogeneity and sufficiency in measuring the discussed formation. The methods developed in order to evaluate the reliability of the tests are called as reliability analysis and examining the questions in this test is called as question analysis (Item Analysis). The most common used method in the investigation of the reliability is Cronbach's Alpha Coefficient. If the assessment measurement in the evaluation of Cronbach's Alpha Coefficient is;

- $0,00 \leq \alpha < 0,40$, the scale is not reliable.
- $0,40 \leq \alpha < 0,60$, the scale is in low reliability.
- $0,60 \leq \alpha < 0,80$, the scale is extremely reliable.
- $0,80 \leq \alpha < 1,00$, the scale is in high level of reliability. (Özdamar, 2004: 633).

The results were evaluated in the reliability range of 95%, and at the significance level of $p < 0,05$ and at advanced significance level of $p < 0,01$ $p < 0,001$.

Validity points out the meanings of test points or the suitability of the inferences related to the results of an experiment (Geisinger, 1992; Tezbaşaran, 2008). Construction validity reveals to what extend a measurement evaluates a structure that a measurement seems to measure (Peter, 1981: 134). In order to reveal the construction validity, the dimensions were evaluated with Confirmatory Factor Analysis. For the general reliability and for the reliability of sub-dimensions, Cronbach's Alpha was used. These operations were made separately for both dimensions of the scale.

Table 1.

Test-Retest Findings for the Participation Sub-Dimension in the Discussion (n=68)

	Test		Re-test		Z	P
	Average	Sd	Average	Sd		
1. I enjoy sharing my ideas.	2,927	0,759	3,029	0,712	-1,095	0,278
2. I am hesitant to talk in discussion.	3,029	0,646	2,912	0,592	1,527	0,132
3. I speak in class discussions.	2,471	0,837	2,529	0,801		0,418
					0,814	
4. I have so much to say that I have difficulty letting others have a chance.	3,471	0,722	3,588	0,525	1,586	0,117
5. I am afraid that the teacher will criticize or judge me based on my comments in discussions	3,088	0,728	3,044	0,818	0,554	0,581
6. I only speak up when I have something I really want to say.	1,809	0,778	1,809	0,697	0,000	1,000
7. I would rather sit back and hear what others have to say.	2,500	0,801	2,529	0,782	0,376	0,708
8. I enjoy a class more when I participate in the discussions.	2,985	0,938	3,279	0,808	2,989	0,004
9. I have difficulty expressing my ideas clearly.	3,074	0,779	3,147	0,778	0,843	0,402

10. I am distracted from participation by thinking about other things.	2,338	0,891	2,574	0,869	1,751	0,084
11. By the time I have decided what I want to say, the rest of the group has moved to something else.	3,265	0,785	3,294	0,648	0,299	0,765
12. I stop listening because I am busy thinking about what I want to say next.	3,338	0,660	3,235	0,672	1,021	0,311
13. I think my ideas make important contributions.	2,750	0,780	2,779	0,709	0,314	0,754
14. I can hardly get a word in edgewise so I keep quiet.	3,206	0,821	3,250	0,677	0,395	0,694
15. When I speak it is brief and to the point.	1,853	0,526	1,941	0,620	1,097	0,277
16. I am afraid that my classmates will think my ideas are unworthy of consideration.	3,324	0,921	3,250	0,870	0,820	0,415
17. Class discussions seem like a waste of time.	3,279	0,730	3,250	0,699	0,363	0,718
18. I enjoy class discussions.	2,897	0,849	3,103	0,672	2,116	0,038
19. I listen to others.	3,427	0,606	3,338	0,683	1,062	0,292
20. I think that participating in discussions helps me to learn more.	3,118	0,744	3,191	0,815	0,727	0,470
21. I like to have some time to think about an issue before discussing it.	3,412	0,604	3,206	0,612	2,575	0,012
Total Score	61,559	5,959	62,279	5,815	1,634	0,107

*p<0,05 **p<0,01 ***p<0,001

As it is seen in the table, a significant difference was found between test-retest participation levels of the items that “8. When I participated in the discussions, I enjoy the lessons more.”, “21. I enjoy thinking on a topic for a while before discussing it”. (p<0,05). These were examined in terms of being understood of the questions and they were omitted from the study to be included in the progressive process.

In the conclusion of the paired group t-test conducted in order to identify whether the test-retest means of the total point of the Participation Sub-Dimension in the discussion show a significant difference, the difference between the arithmetic means was found to be statistically significant (t=-1,634; p=0,107>0,05).

The reliability level of the scale applied in the process of test was found as 0,687 and the reliability level of the scale applied in the process of retest was found as 0,709. According to Cronbach’s alpha value obtained in this part of adaptation study, that the reliability of the study can be said to be extremely high can be said (Kalaycı, 2008).

According to the item total correlation results obtained in the first reliability analysis made over 494 observations for The Participation in the Discussion that is the first sub-dimension of the scale, the items of 4 (-, 140), 6 (,040), 10 (,166), 15. (-,177) were omitted from the study since their item total correlations were low and they lower the reliability. In conclusion of the first analysis, reliability level of the scale (Cronbach’s Alpha value) was found to be ,713. In conclusion of the second reliability analysis made with the remaining 17 items, 12 (,193) and 17. (,225) items were omitted from the study since their item total correlations were low and they lower the reliability. So, in conclusion of the second analysis, the reliability level has

increased to ,776. In the third and last analysis, 19 (,217) and 21. (,213) items were omitted from the scale and so the reliability level of first sub-dimension including 13 items increased to ,779. For this part of the adaptation study of this level, it can be said to be extremely reliable (Özdamar, 2004). Finally, the items of 4, 6, 10, 12, 15, 17, 19, 21 were omitted from the study since their item correlations were low and they lower the reliability.

Sub Dimension of Discussion Participation Confirmatory Factor Analysis: The model belonging to 1 factor consisting of 13 items formed on the corporate basis and in the light of the findings related to validity studies of Discussion Participation Sub Dimension was tested by DFA. In DFA being performed over 13 items, positive factor load was provided for all the items. So, the fit index obtained in conclusion of DFA performed in order to examine the model with latent variable consisting of 13 items, [Goodness of Fit (Goodness of Fit Index = GFI), Adjusted Fit Index (Adjusted Goodness of Fit Index=AGFI), Comparative Fit Index (Comparative Fit Index=CFI), Normed Fit Index (Normed Fit Index=NFI), Non-normed Fit Index (Non-normed Fit Index=NNFI), Root-Mean-Square Error of Approximation (Root-Mean-Square Error of Approximation=RMSEA) Standardized Root Mean Square Residual (Standardized Root Mean Square Residual=S-RMR)] were examined and chi square value in ($\chi^2=422,25$, $N=494$, $sd=85$, $\chi^2/df=4,9$, $p=0,000$) was seen to be significant. The values of fit index was found to be RMSEA=0,075; GFI=0,94; CFI=0,96; AGFI=0,97; NFI=0,96; NNFI=0,92 and SRMR=0,094. Being below .08 of RMSEA indicates the acceptability of the model and being larger than .90 of GFI and AGFI indicate the acceptable fit indexes (Şimşek, 2007).

Table 2.

Discussion Participation Sub Dimension Factor Loads Acquired by DFA and Explained Variances

Dimension	Item	Factor load	R ²
Discussion Participation	1. I enjoy sharing my ideas..	0,48	0,23
	2. I am hesitant to talk in discussion.	0,54	0,29
	3. I speak in class discussions.	0,66	0,43
	5. I am afraid that the teacher will criticize or judge me based on my comments in discussions.	0,35	0,12
	7. I would rather sit back and hear what others have to say.	0,48	0,23
	8. I enjoy a class more when I participate in the discussions.	0,57	0,33
	9. I have difficulty expressing my ideas clearly.	0,45	0,20
	11 By the time I have decided what I want to say, the rest of the group has moved to something else.	0,33	0,11
	13. I think my ideas make important contributions.	0,51	0,26
	14. I can hardly get a word in edgewise so I keep quiet.	0,36	0,13
	16. I am afraid that my classmates will think my ideas are unworthy of consideration.	0,29	0,08
	18. I enjoy class discussions.	0,52	0,27

20. I think that participating in discussions helps me to learn more.	0,46	0,22
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According to DFA result, item factor loads were observed to range from 0,29 to 0,66. Büyüköztürk (2007) argued that if item factor load is above .40, the item is very good, if it is between .30 and .39, the item can be remained in the scale without any correction, being corrected and developed of the items between .20 and .29 and if it is below .20, the item is omitted from the scale. Büyüköztürk et.al (2008) expressed that the items having factor load above the value of .30 are very good. Therefore, the items of 5, 11, 14, and 16 were evaluated within this scope and they were omitted from the scale.

The Factors Affecting the Participation Sub-Dimension Reliability Analysis

Table 3.

The Scale of the Factors Affecting the Participation Test – Retest Findings (n=68)

	Test		Re-test		Z	p
	Average	Sd	Average	Sd		
1. Classmates who are overly talkative	2,133	0,625	1,911	0,763	2,028	0,049
2. A teacher who asks me questions about what I say in discussion	1,467	0,726	1,467	0,726	0,000	1,000
3. Having a lot of knowledge about discussion topic	1,222	0,517	1,133	0,457	0,850	0,400
4. Criticism from classmates	1,800	0,815	2,044	0,737	-	0,020
					2,413	
5. Lack of interest in the topic	1,844	0,475	2,111	0,438	-	0,004
					3,084	
6. Feeling that the teacher cares about me as a person	1,356	0,712	1,378	0,747	-	0,860
					0,178	
7. Male teacher	2,822	0,490	2,844	0,475	-	0,785
					0,274	
8. Feeling tired	1,911	0,288	2,067	0,393	-	0,018
					2,461	
9. Interpersonal conflict with classmate	2,111	0,487	2,111	0,775	0,000	1,000
10. Interest in the discussion topic	1,156	0,367	1,067	0,252	1,274	0,209
11. Preparing a statement or question for homework before the discussion	1,467	0,786	1,444	0,725	0,151	0,881
12. Time to think before speaking	1,422	0,723	1,356	0,679	0,443	0,660
13. Feel that my ideas won't be valued or appreciated	2,356	0,609	2,289	0,626	0,621	0,538
14. Lack of knowledge about the topic	2,022	0,336	1,978	0,452	0,530	0,599
15. Recognition or encouragement from classmates	1,556	0,841	1,378	0,716	1,943	0,058
16. Female teacher	2,800	0,505	2,911	0,358	-	0,133
					1,530	
17. Judgmental or critical teacher	2,000	0,522	2,000	0,564	0,000	1,000
18. Teacher is basing part of my grade on my participation in discussion	2,044	0,852	2,178	0,747	-	0,360
					0,924	
Total Score	33,489	3,035	33,667	3,133	-	0,555
					0,595	

According to the table, a significant difference ($p < 0,05$) was found among the test-retest participation levels of the items of “1. too talkative classmates”, “4. The criticizes of my classmates”, “5. Not being interested in the subject matter discussed”, “8. I feel tired”. These items were omitted in order to be understood of the questions and on being included in afterwards again. In conclusion of paired group t-test conducted in order to identify whether test-retest means of the Total Number of Sub-Dimension of the Factors Affecting the Participation have significant difference, a statistically significant difference between the arithmetic means was found ($t = -0,595$; $p = 0,555 > 0,05$). The reliability level performed at the

test phase was found as 0,789; the reliability level performed at the test phase was found as 0,809. According to Cronbach's Alpha value obtained in this part of adaptation study, the reliability of the study can be said to be extremely high (Kalaycı, 2008; Şencan, 2005; Peterson, 1994).

According to item total correlation results obtained in the analysis of first reliability analysis conducted over 494 observations for the Factors Affecting the Participation that is the second sub-dimension of the scale, the items of 5 (.088), 7 (.092), 8 (.091) and 16. (.059), were omitted from the study due to the low item total correlations and since it lowered the reliability. In conclusion of the first analysis, the reliability level of the scale was found (Cronbach's Alpha value) to be ,704. In conclusion of the second reliability analysis result conducted with the remaining 14 items, 14. (.101) items were omitted from the study due to the low item total correlations and since it lowered the reliability. So at the end of the second analysis, the reliability level increased to ,730. In the third and last analysis, any of the items were not omitted from the scale and the reliability level of the second sub-dimension consisting of 13 items increased to ,731. It can be said to be extremely reliable for this part of the adaptation study of this level (Hertzog, 2008; Özdamar, 2004;). In conclusion, items of 5, 7, 8, 14 and 16 were omitted from the study due to the low item total correlations and since it lowered the reliability.

The Factors Affecting the Participation Sub-Dimension Confirmatory Factor Analysis: The findings related to the validity studies of Factors affecting the Participation were tested by DFA that is a model formed on the corporational basis and consisting of 13 items with 1 factor. In DFA conducted over 13 items, positive factor load was provided in all items. So, in conclusion of DFA applied in order to test a model with latent variance composed of 13 items, obtained convenience indexes Goodness of Fit (Goodness of Fit Index = GFI), Adjusted Fit Index (Adjusted Goodness of Fit Index=AGFI), Comparative Fit Index (Comparative Fit Index=CFI), Normed Fit Index (Normed Fit Index=NFI), Non-normed Fit Index (Non-normed Fit Index=NNFI), Root-Mean-Square Error of Approximation (Root-Mean-Square Error of Approximation=RMSEA) Standardized Root Mean Square Residual (Standardized Root Mean Square Residual=S-RMR)] were examined and chi square value in ($\chi^2=182,31$, $N=494$, $sd=65$, $\chi^2/df=2,8$, $p=0,000$) was seen to be significant. The values of fit index was found to be RMSEA=0,064, GFI=0,94, CFI=0,94, AGFI=0,92, NFI=0,95, NNFI=0,98, SRMR=0,059. Being below .08 of RMSEA indicates the acceptability of the model and being larger than .90 of GFI and AGFI indicate the acceptable fit indexes (Şimşek, 2007).

Table 4.

The Scale of the Factors Affecting the Participation Factor Loads Acquired by DFA and Explained Variances

Dimension	Madde	Faktör yükü	R ²
	1. Classmates who are overly talkative	0,39	0,15
	2. A teacher who asks me questions about what I say in	0,27	0,07

	<i>discussion</i>		
	<i>3. Having a lot of knowledge about discussion topic</i>	0,30	0,09
	<i>4. Criticism from classmates</i>	0,41	0,17
Factors			
Affecting	<i>6. Feeling that the teacher cares about me as a person</i>	0,38	0,14
the			
Participation	<i>9. Interpersonal conflict with classmate</i>	0,26	0,07
	<i>10. Interest in the discussion topic</i>	0,33	0,11
	<i>11. Preparing a statement or question for homework before the discussion</i>	0,45	0,20
	<i>12. Time to think before speaking</i>	0,35	0,12
	<i>13. Feel that my ideas won't be valued or appreciated</i>	0,24	0,06
	<i>15. Recognition or encouragement from classmates</i>	0,56	0,32
	<i>17. Judgmental or critical teacher</i>	0,21	0,05
	<i>18. Teacher is basing part of my grade on my participation in discussion</i>	0,27	0,08

According to DFA result, the item factor load was observed to be ranges from 0,21 to 0,56. The low values in item factor loads were found to be remarkable and the reason of this was asked to the expert group consisting of 3 people two of whom are lecturers having doctorate degree in the field of assessment and evaluation and one of whom was a private sector employee who is expert in the field of statistics. According to Büyüköztürk (2007), an item having factor load above .40 is very good in statistical point of view, while an item having factor load between .30 and .39 can remain in the scale without correction, the items having the factor load between .20-.29 can be improved after being corrected and the items having the factor load below .20 must be omitted from the scale. Büyüköztürk et al, (2008), expressed to be very good of the items having the factor load above the value of .30. Therefore, being three of the item number having the factor load above .40, from 13 items consisting of the second sub-dimension was submitted to the viewpoint of the experts. Three experts expressed their viewpoints that the general low state in item factor loads may result from the fact that this sub-dimension has triple grading, however they suggested to be re-made especially the item analysis of this sub-dimension on condition to be applied different samples by other researchers.

Discussion as a Value that is the third sub-dimension of the scale has only double grading structure contrary to the other two sub-dimension (I agree/I don't agree). It was asked three experts' opinions related to the item factor loads of the second sub-dimension, and they were requested to make a re-assessment and it was taken their opinion about making a study in

terms of only the percentiles of the answers related to double examination structure. So, the other three researchers (Wade, 1994; Schwingle, 2000; Hess & Posselt, 2002) made an association between the questions by making the statistical operations over the percentiles in this part. In conclusion of the evaluation made by considering the expert viewpoints, the table below was acquired and by being based on this table, it was interpreted.

Table 5.
Discussion as a Value

Items	Agree		Disagree		Total	
	f	%	f	%	f	%
40	346	70,04	148	29,96	494	100
41	467	94,53	27	5,47	494	100
42	288	58,3	206	41,7	494	100
43	445	90,08	49	9,92	494	100
44	172	34,81	322	65,19	494	100

The data obtained from the sub-dimension of “ Discussion as a Value” designed to enlighten the frequency of the conflict between personal option and responsibility to the group in the scale in terms of the participation indicates that the faith that the person has at least the responsibility of making a contribution frequency is stronger than (item 40, 70,04%; Hess & Posselt, 80%; Schwingle, 65%; Wade, 56%) the faith that the faith to the classroom discussions is a personal option (item 42, 58,3%; Hess & Posselt, 54%; Schwingle, 71%; Wade, 66%). The students strongly support the faith that speaking in the group of the peer is an important skill that an individual has (item 41, 94,53%; Hess & Posselt, 96%; Schwingle, 92%; Wade, 90%). The participants agree the requirement of the education to be given to the students related to discussion participation (item 43, 90,08%; Hess & Posselt, 85%; Wade, %). That the lecturer determines the success of the student in the course based on a part of the pass mark was not found fair by the students (item 44, 65,19%; Hess & Posselt, 54; Schwingle, 50; Wade, %).

Discussion and Interpretation

In this study, the validity and reliability of Classroom Discussion Scale designed by Wade (1994) was conducted on a group consisting of social sciences teacher candidates. The scale consisting of 44 items, is divided into three divisions. In the first sub-dimension of the scale (Participation in the Discussion), the students expressed certain thought and behavior frequency. The second sub-dimension (**The Factors Affecting the Participation**), listed the potential factors affecting the participation of the students. The third sub-dimension (**Discussion as a Value**) stated whether the students agree with the five expressions about the classroom discussion. In conclusion of the application conducted for language equivalence of the scale, it was seen to be a positive and significant correlation between the points obtained from English and Turkish forms ($r = .79, p < .001$; $r = .78, p < .001$). This result indicates that the individuals answered the test in Turkish can understand the similar content of the scale in English.

For general reliability and the reliability of sub-dimensions, Cronbach’s Alpha coefficient was calculated. The results was assessed in the reliability range of 95%, at the significance level of $p < 0,05$ and advanced significance level of $p < 0,01$ $p < 0,001$. In order to reveal the construction

validity of the scale, the dimensions was evaluated with Confirmatory Factor Analysis. For general reliability and the reliability of the sub-dimensions, Cronbach's Alpha was used. For both of the sub-dimensions of the scale, these operations were made separately.

In conclusion of paired group t-test conducted to determine whether test-retest means of total point of Discussion participation Sub-Dimension have significance difference, the difference between the arithmetic means was not found to be significant ($t=-1,634$; $p=0,107>0,05$). The reliability level of the scale applied at the phase of test was found to be 0,687, and the reliability level of the scale applied at the phase of retest was found to be 0,709. In conclusion of the reliability studies of Discussion Participation Sub-Dimension, 8 items were omitted from the scale.

The model belonging to 1 factor consisting of 13 items formed on the corporate basis and in the light of the findings related to validity studies of Discussion Participation Sub Dimension was tested by DFA. In DFA being performed over 13 items, positive factor load was provided for all the items. So, the fit index obtained in conclusion of DFA performed in order to examine the model with latent variable consisting of 13 items were examined and chi square value in ($\chi^2=422,25$, $N=494$, $sd=85$, $\chi^2/df=4,9$, $p=0,000$) was seen to be significant and the values of fit index was found to be $RMSEA=0,075$; $GFI=0,94$; $CFI=0,96$; $AGFI=0,97$; $NFI=0,96$; $NNFI=0,92$ ve $SRMR=0,094$ (Şimşek, 2007).

In conclusion of paired group t-test conducted to determine whether test-retest means of total point of Discussion participation Sub-Dimension have significance difference, the difference between the arithmetic means was not found to be significant ($t=-0,595$; $p=0,555>0,05$). The reliability level of the scale applied at the phase of test was found to be 0,789, and the reliability level of the scale applied at the phase of retest was found to be 0,809. In conclusion of the reliability studies of Discussion Participation Sub-Dimension, 5 items were omitted from the scale.

The model belonging to 1 factor consisting of 13 items formed on the corporate basis and in the light of the findings related to validity studies of Discussion Participation Sub Dimension was tested by DFA. In DFA being performed over 13 items, positive factor load was provided for all the items. So, the fit index obtained in conclusion of DFA performed in order to examine the model with latent variable consisting of 13 items were examined and chi square value in ($\chi^2=182,31$, $N=494$, $sd=65$, $\chi^2/df=2,8$, $p=0,000$) was seen to be significant and the values of fit index was found to be $RMSEA=0,064$, $GFI=0,94$, $CFI=0,94$, $AGFI=0,92$, $NFI=0,95$, $NNFI=0,98$, $SRMR=0,059$ (Şimşek, 2007). These values are the indicators of the compliance.

Discussion as a Value that is the third sub-dimension of the scale has only double grading structure contrary to the other two sub-dimension (I agree/I don't agree). In this sub-dimension, only the percentiles of the answers were considered. So, Wade (1994), Schwingle (2000) and Hess & Posselt (2002) made the statistical operations only with the percentiles.

The reliability and validity results conducted for Discussion Participation Scale indicate that the scale is an extremely valid and reliable measurement tool. This scale adapted to Turkish may be an efficient tool for measuring the attitudes of the students related to classroom participation. This tool can be used by teachers, academicians and researchers whose profession is to serve people. As a conclusion, it could be reached to a tool each sub-dimension of which is valid and reliable.

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