

Mathematics Lesson Motivation Scale for Primary School 3th and 4th Grade Students

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Summary

INTRODUCTION

In our developing age, the importance of education in terms of social and individual life is increasing with every passing day. For this reason, various changes are being lived in relation to the learning-teaching process in the field of education. With this change, in recent years, the constructivist approach has been adopted in our country. This approach attaches importance to the student's having an active role in the learning process. The realization of student-centered learning is possible through increasing the motivation level of students at each stage of teaching (Ifrazoglu and Tumkaya, 2008, 62). In this study, it was aimed to develop a scale in order to determine students' motivation levels needed for the realization of the constructive learning approach efficiently.

METHOD

In the study, it was aimed to develop a scale in order to determine primary school 3rd and 4rd grade students' motivation levels in relation to the Math lesson. The research group is composed of 308 3rd and 4th grade students taking education at 3 schools representing different socio-economic levels, located in the city center of Bursa, connected to the Provincial Directorate of National Education and selected through stratified sampling. When preparing the trial version of the scale, some items were taken from the scale developed by Dede and Argün (2004) in order to determine primary school second stage students' motivation levels with respect to the Math lesson. New items were added by the researchers by considering the relevant literature and hence the trial version of the scale composed of 47 items was formed. The trial version was broached to a total of seven teachers, five classroom teachers having taught 3rd and 4th graders before and two mathematics teachers servicing at elementary schools. 41 items about which all the teachers expressed positive opinions were included in the trial version of the scale. In this way, the scale was administered in a third grade composed of 28 students and a fourth grade composed of 27 students. During the administration, corrections were made on two items which the students had difficulty understanding in the direction of the feedback received from the students. By paying attention to these stages, the scale was made ready to use.

FINDINGS

In order to achieve the construct validity of the scale, the factor structure of the data collected from the sample was examined through using the exploratory factor analysis method and the Varimax rotation technique was used. As a result of the factor analysis, it was found that the factor loads of the items took values ranging between .52 and .80. As a result of the factor analysis, the scale composed of 14 items and 3 factors was obtained. The items were analyzed in terms of content and the first factor was named as 'External Motivation' ($\alpha=.78$), the second factor was called 'Lack of Motivation' ($\alpha=.71$) and the third

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factor was named as Internal Motivation ($\alpha=.61$). The 'External Motivation' factor accounts for 19.15% of the whole variance, the 'Lack of Motivation' factor accounts for 17.28% of the whole variance, the 'Internal Motivation' factor accounts for 13.64% of the whole variance and the whole scale accounts for 50.07% of the variance.

In order to determine the test-retest reliability, data was collected from a total of 107 students, 48 3rd graders and 59 4th graders, four weeks after the actual administration. As a result of the test-retest reliability, the correlation value for the External Motivation factor of both administrations was found as .71, the correlation value for the Lack of Motivation factor was calculated as .73 and the correlation value for the Internal Motivation factor was determined as .74. These correlation values were found significant at .000 level for three factors.

Since the scale was prepared in a 5-point Likert form, it was scored as 'Strongly Agree (5) Agree (4) Neutral (3) Disagree (2) Strongly Disagree (1)'. The scale does not include any negative statements. According to this, since the External Motivation and Lack of Motivation factors are composed of five items, one can get at least 5 and at most 25 points from these factors; since the Internal Motivation factor is composed of four items, one can get at least 4 and at most 20 points.

DISCUSSION and SUGGESTIONS

In this study, it was aimed to develop a scale in order to measure motivation levels of primary school 3rd and 4th grade students in the Math lesson. The Cronbach's alpha reliability values of the of the two factors included in the scale developed by Dede and Argün (2004) in the study aiming to measure motivation levels of 205 primary school 7th grade students in the Math lesson were found respectively as 0.77 and 0.75. When the factor load values were examined, it was observed that the items included in the first factor received values ranging from 0.25 and 0.49; the items included in the second factor received values changing between 0.27 and 0.52. When the results of the analyses made for the scale developed in this study are compared with those of similar studies, it can be stated that the validity and reliability results of the scale are at acceptable level. However, use of the scale in further studies and making of its validity and reliability analyses will contribute to the development of the scale. The scale can be used in screening model studies aiming to determine motivation levels in the Math lesson and experimental studies aiming to determine methods, techniques, activities and other instructional factors affecting students' motivation levels towards the Math lesson.