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Cursive handwriting anxiety scale for teachers

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Abstract

In Turkey, according to 2005 Primary Curriculum; handwriting style was changed. Cursive handwriting was replaced by manuscript to teach in the first grade. Students are going to write only with cursive handwriting during their academic education. This change in the curriculum effects teachers because they must write with cursive handwriting in the lessons, too. All teachers in every branch must learn to write with cursive handwriting even if they teach handwriting or not. Class teachers try to teach cursive handwriting but in the lessons of branch teachers problems can be occurred about cursive handwriting. Beside this most of the teacher training programs don't have course about teaching handwriting except primary school teachers' and Turkish teachers training programs'. The aim of this study is to develop a scale to measure handwriting anxiety of teachers. The research is carried out in five steps as literature analysis, forming the item pool, taking the opinions of subject experts, figuring out the application, validity and reliability.

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1. Introduction

Writing, the process of producing essential symbols and signs in a motorial way, which is necessary to be able to express emotions and thoughts, (Akyol, 2009) is a powerful tool (Graham, 2007:2). To accurately form the symbols that constitute writing is starting point. Teaching and learning writing is important. Handwriting is taught at the first grade according to primary education curriculum in Turkey. The curriculum aims at students' using cursive handwriting exclusively throughout their educations.

An important aspect of a teacher's job is the teaching of cursive handwriting and employing cursive by the students continually. The teacher should be a model by writing accurately in cursive. When teacher training curriculums are examined, it appears that there is no training concerning "Handwriting teaching" in the teacher training curriculums except for Primary School Teaching and Turkish Teaching programmes (Kavak, Aydın and Altun, 2007). In the research analyzed, only half or less than half of teachers receive training as to how to teach handwriting in the United States and England (Zaner-Bloser, 1993:in cited Graham and Weintraub, 1996, Barnett, Stainthorp, Henderson and Scheib, 2006, Graham, Haris, Mason, Fink-Chorzempa, Moran and Saddler, 2008).

Teachers experience difficulties with cursive handwriting even though they take "Writing Teaching". Kazu and Ersözülü (2006), Acat and Özsoy (2006), Turan, Gözler and Erdoğan (2007), Turan and Akpınar (2008), Durukan

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and Alver (2008) propose that classroom teachers lack knowledge of cursive handwriting teaching, Arslan and Ilgın (2010) assert that branch teachers lack it. Additionally, Yıldız, Yıldırım and Ateş (2009), in their applied study where they examined teachers' writings they wrote on the board. They discovered that slant in the writings of almost half of the teachers using cursive handwriting is insufficient and writings are, in average, sufficient in terms of space, size, form and line follow-up. In opposition to these studies, Yıldırım and Ateş (2010) determined that classroom teachers find themselves sufficient in cursive handwriting.

A teacher's lack of knowledge of cursive handwriting may cause him/her to avoid writing with cursive handwriting. As a consequence, this situation creates handwriting anxiety in the teacher. Anxiety is an individual considering him/herself in an environment where s/he is threatened and challenged. The individual, in the course of the situation s/he faces, focuses on the undesirable results of his/her personal in competencies. Anxiety is not generated by events, but rather by a person's unreasonable beliefs. That is to say, what is important is the meaning attributed to that situation (Wilde, 1995). In addition, anxiety is also defined as the spiritual condition described by physical symptoms of the tension taking place with powerful negative feelings and the expectation of upcoming danger and disaster. Although anxiety is helpful from time to time, excessive, uncontrollable anxiety makes an individual powerless and also puts him/her in a position where s/he can not do things which s/he can do in normal conditions (Mash and Wolfe, 2002).

Most of the studies which have been conducted in literature are concerned with writing anxiety (Yaman, 2010, Karakaya and Ülper, 2011; Özbay and Zorba, 2011). The focus of this paper, however is cursive handwriting. There are some problems about teaching cursive handwriting (Duran and Akyol, 2010) and that teachers lack knowledge in teaching and using cursive writing, which may cause teachers to develop cursive handwriting anxiety. From this point of view, the purpose of this study is to develop a cursive handwriting anxiety scale for teachers.

2. Method

2.1. Participants

317 teachers from different branches, who are working in elementary schools of Burdur city center in Turkey, constitute the study group of this investigation. Of the teachers participating in the research, 139 (43.8%) are female and 178 (56.2%) are male. The research was applied in the first semester of 2011-2012 academic years.

2.2. Instrument

The teachers working in the elementary schools in Burdur city center in 2010-2011 academic years were asked to write their opinions in regards to writing in cursive. 32 cursive handwriting anxiety statements were constructed from these texts, as well as from the statements in some anxiety scales and literature within a theoretical framework. These statements were sent to three subject experts as to whether they are anxiety statements of cursive handwriting, whether they resemble the other items and whether they are consistent, and a test of the scale was prepared by receiving the opinions of subject experts according to their statements.

20 teachers were subjected to the pilot study to control whether the statements in the testing scale were understandable. In addition, they were asked to state the confusing items. The testing form of the scale was constructed according to the study of these items and reformulated based on the results. In this form are the statements, three of which are indirectly planned and 29 of which are directly planned. Five point Likert-type scale of 32 items, which was developed for the measurement of teachers' cursive handwriting anxiety was applied in different schools in the city of Burdur in central district in the 2011-2012 academic year.

2.3. Analysis of the Data

2.3.1. Organization of Data

The data were entered to SPSS 15.0 packaged software by giving number each of the scale form. While entering the data, ten forms were excluded from the assessment on the grounds of missing and erroneous filling. Later, extreme values were eliminated by examining z points of each of the scale items.

2.3.2. Grading of the scale

In the Likert-type scale developed, there are three indirect and 29 direct statements. Adverse statements are graded as adverse of direct statements. High scale points show high anxiety. Point value of a statement in the direct statement was determined as; 1- Not appropriate, 2- A little bit appropriate, 3- Reasonably appropriate, 4- Mostly appropriate, 5- Fully appropriate.

2.3.3. Factor analysis

This statistic aims to find and discover the limited number of unrelated and conceptually significant new variables (factors, dimensions) by gathering p item variable related with one another. It is a statistical technique that aims to explain, with a limited number of factors, the variables measuring the same structures or qualifications by gathering them (Büyüköztürk, 2009).

In the study, exploratory factor analysis was carried out within the scope of validity of cursive handwriting anxiety developed for teachers. Before starting the exploratory factor analysis, the suitability of the data structure was assessed by Kaiser-Meyer-Olkin (KMO) and Barlett's sphericity test results. It was concluded that the data structure is suitable for factorialization. As the result of factor analysis, 25 final items with 4 factors were determined. Cronbach alpha coefficient, item total correlation coefficients and split half test techniques were applied in order to educe reliability of the scale.

3. Findings

Factor analysis is a statistical method which aims to gauge, with limited number of factors, the variables measuring the same structure (Büyüköztürk, 2009). In validity and reliability analyses, the factor analysis process is performed primarily to evaluate the structure validity of the test scale. On the other hand, after the processes of factor analysis, the reliability analyses of scale items remaining in each dimension were separately carried out. After the process of reliability analysis, a factor analysis was made again.

In the first part of the factor analysis, KMO coefficient was determined as 0.92. Barlett value proved to be significant as χ^2 : 5728.210, $p < .05$. The fact that KMO value is, on the other hand, high (Büyüköztürk, 2009) points out that the data are suitable for factor analysis. The Eigenvalues belonging to the factor loads obtained as a result of the factor analysis of Teacher's Form of Cursive Handwriting Scale of 32 items, the variances that the factors accounted for, and the total variances explained are shown in Table 1.

Table 1. The Eigenvalues Results to the Teacher's Form of Cursive Handwriting Scale and the Percentages of Explained Variance

| Factors | Eigenvalues | % of Variance | Cumulative % |
|----------|-------------|---------------|--------------|
| Factor 1 | 11.454 | 13.739 | 13.739 |
| Factor 2 | 2.640 | 11.128 | 24.867 |
| Factor 3 | 2.282 | 10.425 | 35.292 |
| Factor 4 | 1.543 | 10.198 | 45.490 |
| Factor 5 | 1.194 | 8.988 | 54.479 |
| Factor 6 | 1.073 | 8.603 | 63.082 |

As a result of Varimax rotation process, six factors Eigenvalues were greater than 1.00. The variance of these 6 factors explained in reference to the scale is 63.082%. In the consequence of the Anti-image correlation process performed together with varimax rotation technique, the 16th item was excluded from the scale, as it produced close load to two separate factors. The re-rotation process was performed with the remaining scale items.

As a result of the second varimax rotation process, KMO coefficient was found to be .92. In consequence of rotation process, five factor's an Eigenvalue of which was greater than 1.00 were produced. The variance between these five factors on the scale was, on the other hand, 56.42%. As a result of the rotation, the 11th, 12th and 19th items were concluded to be at a high value in two separate factors. Therefore, the 11th, 12th and 19th items were excluded from the scale. The re-rotation process was carried out with the remaining scale items.

In consequence of the third varimax rotation process, KMO coefficient was found to be .92. As a result of rotation process, five factor's an Eigenvalue of which was greater than 1.00 were produced. The variance between these five factors on the scale was, on the other hand, 58.26%. In the consequence of rotation, the 31st item was excluded from the scale since it gave close load to the other factors. The re-rotation process was carried out with the remaining scale items.

In consequence of the fourth varimax rotation process, KMO coefficient was found to be .92. In the consequence of rotation process, five factor's an Eigenvalue of which was greater than 1.00 were produced. The variance that these five factors accounted related to the scale is 59.63%. Then, the 1st item was excluded from the scale since it gave close load to the other factors, and re-rotation process was performed with the remaining scale items.

As a result of the fifth varimax rotation process, KMO coefficient was found to be .92. In the consequence of rotation process, 4 factor's Eigenvalue of which was greater than 1.00 were produced. The variance that these 4 factors explained related to the scale is 60.57%. The 32nd item was excluded from the scale since it produced close load to the other factors. Then, re-rotation process was carried out with the remaining scale items.

In the consequence of the sixth varimax rotation process, KMO coefficient was found to be .92. As a result of rotation process, 4 factor's Eigenvalue of which was greater than 1.00 was produced. The variance that these 4 factors explained related to the scale is 61.25%.

After this stage, reliability analysis was carried out for the items in the each factor. In this context, "alpha if item deleted" values were checked. It was observed that "if item deleted" results under these factors were not higher than cronbach alpha values and they supported the internal consistency. As a result of the reliability analysis, of the 1st, 2nd, 3rd and 4th factors, none of them was excluded. In the consequence of the analyses, it was determined that while 14., 18., 25., 26., 27., 29. and 30. items exist in the first factor; 7., 8., 9., 10. and 17. items exist in the second factor; 2., 3., 4., 22., 23., 24. items in the third factor, and 6., 13., 15., 20., 21. and 28. items in the fourth factor.

In reliability analysis, cronbach alpha coefficient was determined as .93 for all scale items, as .87 for the first factor, .91 for the second factor, .85 for the third factor and .82 for the fourth factor. A new factor analysis was carried out to Final Cursive Handwriting Anxiety Scale of 25 items. The Eigenvalues of factor loads obtained as a result of the factor analysis of Cursive Handwriting Anxiety Scale of 25 items, the variances that the factors accounted for and the total variances explained have been shown in Table 2.

Table 2. The Eigenvalues Results Of The Teacher's Form Of Final Cursive Handwriting Scale And The Percentages Of Explained Variance

| Factors | Eigenvalues | % of Variance | Cumulative % |
|----------|-------------|---------------|--------------|
| Factor 1 | 9.138 | 17.338 | 17.338 |
| Factor 2 | 2.429 | 16.280 | 33.618 |
| Factor 3 | 2.112 | 14.970 | 48.588 |
| Factor 4 | 1.452 | 12.659 | 61.247 |

According to Table 2, it is noticed that 25 items gather under the four factors whose Eigenvalues are higher than 1. The variance for which these four factors altogether accounted about the scale is 61.25 %. 17.34 % of the variance regarding the scale can be accounted for with the first factor; 16.28 % of the variance with the second factor; 14.97 % of the variance with the third factor; and 12.66 % of the variance with the fourth factor. The effective loads belonging to these four factors are shown in Table 3.

Table 3. Factor Loads Results to Final Cursive Handwriting Anxiety Scale

| Item No | | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
|---------|---|----------|----------|----------|----------|
| 27. | I forget what I'm going to write, distracted I must write in cursive. | .807 | | | |
| 26 | I get excited while writing in cursive. | .798 | | | |
| 25. | I quickly erase the cursive text I wrote on the board lest the others should see them. | .765 | | | |
| 30. | I am concerned that the students will not like my cursive handwriting. | .752 | | | |
| 29. | I invent various excuses so as not to use cursive writing. | .614 | | | |
| 14. | When I write cursive text on the board, I become concerned that the students will find mistake in my writing. | .608 | | | |
| 18. | I cannot put my thoughts together with the concern of writing correctly while writing cursive. | .532 | | | |
| 9. | I'm disturbed by the warning of educational inspectors to "use cursive handwriting". | | .851 | | |
| 8. | I'm disturbed by the educational inspectors' asking questions about the use of cursive handwriting. | | .849 | | |
| 10. | I'm disturbed by the warnings of inspectors to "learn cursive handwriting". | | .813 | | |
| 7. | I'm disturbed by the warning of school administrators to "use cursive handwriting".. | | .764 | | |
| 17. | I'm concerned about the educational inspectors' evaluations of cursive handwriting being negative. | | .571 | | |
| 23. | I get a cramp in my stomach while reading students' homework. | | | .768 | |
| 22. | I get stomachache while reading students' exam papers. | | | .732 | |
| 3. | I'm concerned about students' getting low marks because I cannot read their exam papers. | | | .673 | |
| 24. | I become tense when I cannot read the students' handwriting. | | | .669 | |
| 2. | I become tense when students cannot read their own handwriting. | | | .665 | |
| 5. | I become concerned about falling behind schedule as a result of students writing cursive slowly. | | | .598 | |
| 4. | I become concerned that students will not be able to write quickly enough in dictation studies. | | | .568 | |
| 20. | I do not have any difficulties with cursive handwriting. | | | | .750 |
| 21. | I feel comfortable when I use cursive writing. | | | | .723 |
| 15. | I enjoy writing in cursive. | | | | .688 |
| 6. | I'm not good at cursive handwriting. | | | | .589 |
| 13. | I avoid writing cursive on the board. | | | | .557 |
| 28. | I avoid writing in cursive unless I'm stuck in a difficult classroom situation. | | | | .557 |

Even though it was seen that the scale is of a structure with four factors, Eigenvalue of the first factor was found as 9.138. In the screen plot line chart drawn according to the Eigenvalues, a decrease of high acceleration is observed after the first factor. This situation shows that the scale may have a general factor (Büyüköztürk, 2009). Therefore, a total point can be derived from the scale. Determined factors of the scale are named as follows;

1st factor: cursive writing anxiety,

2nd factor: anxiety of being inspected,

3rd factor: anxiety resulting from the students, and

4th factor: inner anxiety.

The analysis results of reliability made regarding the final scale was first examined through Cronbach alpha analysis. For all items on the scale, Cronbach alpha coefficient was found as .93; for the first factor, it was found as .87; for the second factor, .91; for the third factor, .85; and for the fourth factor, .82. These values are considered as a high coefficient of reliability. As a consequence, it can be said that the items constituting the scale are consistent with each other. In other words, inner consistency of the scale is high.

Reliability analysis of half- finished test was applied to the scale because total grade can be derived from the scale. As a result of the split half reliability analysis carried out, the values were found as .91 for the first half of the scale, and .83 for the second half of it. Pearson correlation process was conducted and the results are presented in Table 4.

Table 4. Correlation Between the Factors of the Scale

| | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Total |
|----------|----------|----------|----------|----------|-------|
| Factor 1 | - | .53** | .44** | .56** | .78** |
| Factor 2 | .53** | - | .60** | .53** | .84** |
| Factor 3 | .44** | .60** | - | .41** | .78** |
| Factor 4 | .57** | .53** | .41** | - | .79** |
| Total | .78** | .84** | .78** | .79** | - |

**p<.001

Correlation values between the factors are seen in Table 4. Accordingly, the correlation value of the first factor with the second factor is .53, with the third factor .44, with the fourth factor .56, and .78 in total. The correlation value of the second factor with the first factor is .53, with the third factor .60, with the fourth factor .53, and .84 in total. The correlation value of the third factor with the first factor is .44, with the second factor .60, with the fourth factor .41, and .78 in total. The correlation value of the fourth factor with the first factor is .57, with the second factor .53, with the third factor .41, and .79 in total. The correlation value of the total scale with the first factor is .78, with the second factor .84, with the third factor .78 and with the fourth factor .79. When these correlation values are examined, it is observed that there is a relationship among the factors at medium level, and the factors have a high level of relationship with the total scale (Büyüköztürk, 2009).

4. Result

In this study, development of a scale was aimed to measure the teachers' state of cursive handwriting anxiety. While the scale was being developed, four stages were analyzed, including the formation of item pool, taking subject experts' opinions, application, calculation of validity and reliability. In conclusion, a cursive handwriting anxiety scale teacher form was composed with 25 items, consisting of 3 indirect and 22 direct statements. Cronbach alpha coefficient of the scale consisting of four factors was calculated as .93. The fact that Cronbach alpha coefficient is close to 1.00 (Turgut, 1983) demonstrates that reliability of the scale is at very high level. In the five point Likert-type scale developed regarding teachers' anxieties about cursive handwriting, the first factors was named as cursive handwriting anxiety, the second factor as concern about being inspected, the third factor as the anxiety stemming from their students, and the fourth factor as inner anxiety. As a consequence, it can be said that the scale developed is capable of measuring teachers' anxiety of cursive handwriting with sufficient validity and reliability.

Teachers' anxieties about cursive handwriting can be determined by using Cursive Handwriting Anxiety Scale Teacher's Form. One can come to a conclusion as to the effects of anxiety on teachers' teaching cursive handwriting. A number of investigations can be performed aiming at reducing cursive handwriting anxiety in teachers and thus at improving the teaching of cursive handwriting.

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