Book reading motivation scale: Reliability and validity study

Mehmet Katrancı

Kirikkale University Faculty of Education, Yahişihan, Kirikkale, Turkey.

Received 05 December, 2014; Accepted 28 January, 2015

Book reading enhances the intellectual world of people. It is very important to know the factors that motivate children to read books as it will help to instill book reading habit in them. As such, the present study aims to develop a “Book Reading Motivation Scale” to determine elementary and secondary school students’ reading motivation. First, a draft scale consisting of 25 items was constructed. Reliability and validity study of the scale was conducted on the data collected from 1224 elementary and secondary school students. In the first stage, exploratory factor analysis was carried out and discrimination power of the scale items was detected. As a result of the exploratory factor analysis, it was found that the scale comprised two sub-dimensions called love for reading and reason for reading. Previously, confirmatory factor analysis (CFA) had been run to test the construct validity of the scale. As a result of this analysis conducted through AMOS program, it was found that goodness of fit coefficients were within the acceptable limits. At the end of the study, a scale consisting of 14 items that can explain 46.292 of the total variance was obtained. Internal consistency coefficient sum calculated by means of Cronbach Alpha method to determine the reliability of the scale is α=.85. In order to reveal item discrimination of the scale and the extent to which the items can predict the total score, 27% bottom-top group comparisons were made. As a result, a questionnaire form that has reliability and validity in the analysis of elementary and secondary school students’ book reading motivation was developed. It is hoped that Book Reading Motivation Scale (SMRB) can bring a new dimension to the research in the field of reading, and as a useful tool to teachers wanting to motivate their students to read.

Key words: Motivation, book reading, self-efficacy.

INTRODUCTION

In today’s world, with the increasing popularity of the television, mobile phone and computer, book reading is increasingly becoming a special activity. Book offers its reader incredibly rich worlds of emotions and thoughts during the period of reading. In this regard, the factors leading people to read book gain great importance and deserve to be deeply analyzed. Book reading habit acquired at early ages affects nearly the whole life of an individual. In the instilling of book reading habit, positive motivation to read book is believed to be effective. The
present study is grounded on the self-efficacy theory considering the effect of motivation on reading (Margolis and McCabe, 2004; Schunk, 2003; Zimmerman, 2000; Eccless and Wigfield, 2000; Zimmerman et al., 1992; Bandura, 1994; Bandura and Cervone, 1983). The self-efficacy theory is related to an individual’s beliefs in his/her capacities to control events affecting his/her own life. Self-efficacy is the judgment about how good or bad a person can be at dealing with a single situation considering his/her capabilities and the existing conditions (Bandura, 1993; cited: Reeve, 2009: 233). Self-efficacy affects which behavior will be the starter, how hard people will force themselves to achieve their goals and when they cannot succeed in the first trial, how long they will continue to invest effort (Calp, 2013: 17). Self-efficacy perception is a good source of motivation for an individual to go into action. Self-efficacy perception includes an individual’s beliefs in his/her own efficacy (Bandura, 1977). Reasonable people, who can direct their own behaviors, are optimistic about possible future actions they will perform, predict possible outcomes of their actions and set their goals. Motivation can be described as a drive coming from inside. Capacity of intellectual planning of future events is related to motivation.

Children can make self-efficacy evaluations of their beliefs in their capacities in different fields (Wigfield and Guthrie, 1997). According to Zimmerman (2000), self-efficacy plays a mediating role in the motivation of academic achievement and persistence. High self-efficacy makes the motivation permanent and increases skill development. When students realize that they are progressing in learning, their motivation will increase. Thus, when students work on a subject and improve their performance, their self-efficacy perception also increases (Schunk, 1991: 211). Weak self-efficacy belief leads to low level of motivation. If a student thinks that he/she will be unsuccessful in a subject, this student may avoid taking any initiative in relation to this subject (Schunk, 1994; cited: Scott, 1996: 202).

Motivation is the source of cognitive energy required for activities related to reading and language (Becker et al., 2010: 2). It should be admitted that motivation has an important role in the development of students’ reading skills and general academic achievement. There is a great amount of research demonstrating the influence of motivation on reading comprehension and general reading achievement (Kraayenoord et al., 2012; Paige, 2011; Logan et al., 2010; Guthrie et al., 2007; Wang and Guthrie, 2004; Baker and Wigfield, 1999). Another issue explored by reading motivation research is the source of motivation. In this line of research (Yildiz, 2013b; Wigfield et al., 2004; Guthrie et al., 2000), the sources of motivation directing students to reading have been investigated under two headings: Intrinsic and extrinsic motivation. Intrinsic motivation means doing an activity not because of any external influence but for the sake of doing it. Because intrinsic motivation results in high-quality learning and creativity, it is important to detail the factors and forces that engender and undermine it (Ryan and Deci, 2000: 55). Being a link between frequent reading and achievement in reading, motivation reinforces the ascending (or descending) spiral structure of success. Intrinsic motivation of reading indicates personal pleasure of reading (Becker et al., 2010: 2). Extrinsic motivation indicates external forces directing an individual’s behaviors (Gambrell and Codling, 1997: 20). Students having high levels of extrinsic motivation usually read to prove themselves to others. Such students gradually internalize the social values externally imposed on them and combine reading with their own values (Wang and Guthrie, 2004: 165).

It is known that many students having low level of achievement in reading posses a low level of motivation and academic sense of self and are poor at using learning strategies (Chapman and Tunmer, 2003). Among the factors distancing students from reading whose academic achievement and motivation levels are low are weak text contents, the state of textbooks, restriction of students’ responses to the text, high degree of teacher control, and emphasis on competition rather than cooperation in reading (Guthrie and Davis, 2003: 59). Problems experienced in relation to students’ book reading motivation actually reflect a simple fact. Unfortunately, research (Durualp et al., 2013; Balci et al., 2012) reports that book reading is not among the leisure-time activities of children. Library membership is not very popular among children. In a study by Arıcı (2008), the adolescents stated that they did not like reading as they were not introduced to books in their childhood. They could not develop reading habit and prefer watching TV to reading. Demire et al. (2011) found that the ratio of the 5th, 6th, 7th and 8th students regularly reading book is 26%. Moreover, it was found that nearly half of the students read book in 2 or 3 days a week and their use of computer and internet more than 1 hour everyday adversely affects their engagement in reading book. Thus, it can be argued that children’s interest in reading book is not very high. In fact, every child starting to attend school is directed to reading book. The child motivated to read during elementary school period is expected to be an individual having a reading habit in the further periods of his/her life. Thus, elementary school students’ interest in books should be cultivated and love of reading needs to be inculcated in them. Determination of the sources of book reading motivation has a key role in the development of reading habit in children. Every child can find a book appealing to his/her interest. What is important here is to introduce the child to good books so that his/her motivation to read will increase.

Purpose

The purpose of the present study is to develop a new
scale to determine elementary and secondary school students’ motivation to read. Considering the importance of book reading in human life in general and in the education of a student in particular, it is thought that determination of the reasons motivating students to read is of vital significance. According to Öztürk and Aydemir (2013: 1112), investigation and evaluation of motivation during reading process may help us to understand the willingness or reluctance of individuals to read and to take measures to positively direct their future literacy processes. Developing “Book Reading Motivation Scale (SMRB)” and submitting it to the use of concerned parties is believed to bring a new dimension to research efforts in the field. The scale developed within the current study is thought to be a valuable aid for teachers and researchers aiming to foster students’ book reading habit.

METHODOLOGY

In this section, information is given about the study group, development process of the scale items and reliability and validity study.

The study design and study group

The present study aiming to develop a book reading motivation scale for elementary and secondary school students was designed as a descriptive study using survey method. The study developed in line with the general survey design was conducted with the participation of 1224 voluntary students attending elementary and secondary schools having low, medium and high socio-economic status. The ages of the students range from 9 to 12. Distribution of the participants according to their gender and grade level is presented in Table 1.

<table>
<thead>
<tr>
<th>Grade level</th>
<th>Gender</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>4th grade</td>
<td>179</td>
<td>14.7</td>
</tr>
<tr>
<td>5th grade</td>
<td>192</td>
<td>15.7</td>
</tr>
<tr>
<td>6th grade</td>
<td>208</td>
<td>16.9</td>
</tr>
<tr>
<td>General total</td>
<td>579</td>
<td>47.3</td>
</tr>
</tbody>
</table>

Stages followed during the process of scale development

SMRB was developed to evaluate book reading motivation. While developing the scale, literature focusing on elementary and secondary school students’ book reading habits, attitudes and states was reviewed. During the interviews conducted with 20 fifth grade students, they were asked the questions “Why do you read book? Explain it.” The students’ responses were sorted out and turned into one-sentence statements. By combining the information obtained from the literature review with the students’ responses, a 25-item draft was developed. In the organization of the scale items, 3-point Likert format ranging from (1) It is not suitable for me at all; (2) It is a bit suitable for me; (3) It is suitable for me was used. A high score taken from the scale shows that the reading motivation is high and a low score shows that the reading motivation is low. Opinion of a language expert was sought about the clarity and wording of the statements in the scale items.

Data analysis

During the validity study of SMRB, content validity and construct validity were evaluated. In the evaluation of content validity, expert opinions were sought. In relation to construct validity, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were conducted to determine the factor structure and sub-dimensions of the scale. For these analyses, the data were divided into two equal parts; for EFA, the data collected from 612 students and for CFA, the data collected from 612 students were used. In the analyses, acceptance point for factor loadings was set to be 0.30. In the determination of the reliability of the scale, Cronbach Alpha reliability coefficient was analyzed. Moreover, in order to calculate the item discrimination, means of the participants involved in 27% bottom-top groups were compared through independent samples t-test. Item-factor structure obtained from EFA was tested with CFA. EFA, reliability coefficient and t-test calculations were made through SPSS 22.0; CFA calculation was made by using AMOS 22.0.

FINDINGS

Content validity of the scale items

In order to determine whether the items in “SMRB” adequately reflect the situation to be evaluated, content reliability determination method based on experts’ opinion was used. In order to calculate content validity, first “Book Reading Motivation Scale Expert Evaluation Form” was constructed. The form was submitted to the scrutiny of 10 academicians specializing on reading and motivation in the fields of classroom teacher education and educational psychology from 8 different universities. While the experts were examining the items in the scale, they were asked to score the items as follows: The item is not suitable (0), The item needs to be revised (1) and The item is suitable (3)

For each item in the test, content validity indices were calculated by using Lawshe Technique. According to this technique, content validity ratio was calculated with this formula; \[CValid Ratio (CVR)= \frac{\text{The number of experts stating that the item is suitable}}{((\text{The number of experts stating their opinions})/2)-1}\] (Yurdugül, 2005; Şencan, 2005: 264). According to Lawshe Technique, when the number of experts is 10, minimum significance level of CVR should be 0.62 at the significance level of 0.05 (Yurdugül, 2005). In this way, CVR was calculated for each item in “SMRB”. The CVR values of the items in the scale are between 0.2 and 1. Content validity index (CVI) calculated for the scale items is 0.84. Six items (1, 2, 3, 6, 8 and 10) stated to be not suitable by the experts and whose content validity ratio is below 0.62 were discarded from the scale.
Construct validity

In order to analyze the construct validity of the scale, EFA and CFA were conducted. In this section, the findings obtained from EFA and CFA are presented.

Exploratory factor analysis

In order to see whether the data set is suitable for conducting EFA, Kaiser-Meyer-Olkin (KMO) coefficient was calculated and Bartlett’s Sphericity test was administered. KMO value shows whether the sampling size is enough to conduct factor analysis. This value should not be lower than 0.50 and even should be higher than 0.70. When Bartlett’s Sphericity test is found to be significant, this means that variables exhibit a correlation high enough to conduct factor analysis (Leech et al., 2005). The KMO and Bartlett Test values obtained from the analyses conducted are presented in Table 2.

As can be seen in Table 2, KMO value (0.885) and Bartlett test (p = 0.000) were found to be significant. These results show that the data set is suitable for conducting factor analysis. Then, factor analysis was conducted. Conducted by using Varimax vertical rotation technique, EFA revealed that the scale is subsumed under 2 factors having Eigen value higher than 1. However, 5 items overlapping in these two factors or having loading value lower than 0.30 were discarded from the scale and factor analysis was repeated for the remaining 14 items. Variance explanation percentages of SMRB consisting of two factors are presented in Table 3.

When Table 3 is examined, it is seen that the first factor Eigen-value is 4.908 and the variance it explains is 35.060% and the second factor Eigen-value is 1.572 and the variance it explains is 11.232%. The total variance explained by these two factors was found to be 46.292%. In multi-factor scales, when the total variance explained is between 40 and 60%, it is considered to be sufficient (Büyüköztürk, 2007). Thus, the total variance explained by the scale is enough. The factor loadings found as a result of Varimax vertical rotation are presented in Table 4.

The analysis results presented in Table 4 reveal that factor loading values of the items in the first factor are between 0.700 and 0.474 and the factor loading values of the items in the second factor vary between 0.693 and 0.570. EFA results show that there are 8 items in the first factor and there are 6 items in the second factor. The items in the sub-dimensions of the scale were examined and the first factor was named as “Love for Reading”. As examples of the items in this factor, “Books are indispensable friends for me”, “I feel bad when I do not read a book” can be given. The second factor was named as “Reason for Reading”. In this factor, there are items indicating reading motivation according to reasons for students’ reading book. As example items, “I read book to be successful”, “I read book as it helps me to learn new information.” can be given.

Confirmatory factor analysis

In the second stage of the study, in order to test whether the factor structure of the model determined through EFA is confirmed, CFA was conducted. On a different sampling, CFA was constructed and latent factors in the structure of the scale and dependent impacts between these factors were tested with AMOS 22.0 program. For CFA, conducted in the present study, Chi-square goodness of fit test, GFI, RMSEA, CFI and AGFI goodness of fit coefficients were examined. For GFI, AGFI, CFI, NNFI and RFI coefficients, acceptable goodness of fit value should be 0.90 and perfect goodness of fit value should be 0.95 (Marsh et al., 2006; Bentler and Bonett, 1980; Bentler, 1980). For RMSEA, 0.08 is considered to be acceptable goodness of fit value and 0.05 is considered to be perfect goodness of fit value (Hooper et al., 2008; Byrne and Campbell, 1999). Goodness of fit coefficients related to the CFA is presented in Table 5.

For the model to be acceptable, the degree of freedom ratio of the Chi-square goodness of fit coefficient value needs to be lower than 5 (Marsh and Hocevar, 1988). As can be seen in Table 5, this value is \( \chi^2/df = 2.357 \). When the goodness of fit coefficients related to the model were examined, it was found that RMSEA=0.047, NNFI=0.946, CFI=0.954, GFI=0.958 and AGFI=0.942. When these values are examined, it can be argued that the scale shows a good fit to bi-factor structure. Factor loadings from CFA in relation to two-dimensional model are presented in Figure 1.

As can be seen in Figure 1, the factor loadings for the dimension of “Love for Reading” range from 0.74 to 0.48; for the dimension of “Reason for Reading” varies between 0.65 and 0.48.

Reliability

One of the methods employed for reliability analysis is the calculation of Cronbach Alpha internal consistency. Cronbach Alpha reliability coefficients calculated for the sub-dimensions of SMRB and for the whole of the scale are presented in Table 6.

As can be seen in Table 6, the Cronbach Alpha

| Table 2. KMO and Bartlett Test Results of the Book Reading Motivation Scale. |
|-----------------------------|-----------------|
| KMO                        | .885            |
| Chi-Square                 | 3787.365        |
| Bartlett’s sphericity test |                |
| Sd                          | 171             |
| P                           | .000            |
Table 3. Factor variance explanation percentages of book reading motivation scale.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Eigen-value</th>
<th>Variance explanation percentages (Total)</th>
<th>Variance explanation percentages (Cumulative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.908</td>
<td>35.060</td>
<td>35.060</td>
</tr>
<tr>
<td>2</td>
<td>1.572</td>
<td>11.232</td>
<td>46.292</td>
</tr>
</tbody>
</table>

Table 4. Factor loading values of the book reading motivation scale.

<table>
<thead>
<tr>
<th>Item no</th>
<th>Common factor variance</th>
<th>Factor-1</th>
<th>Factor-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>.494</td>
<td>.700</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>.578</td>
<td>.695</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>.495</td>
<td>.685</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>.409</td>
<td>.639</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>.551</td>
<td>.639</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>.504</td>
<td>.625</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>.411</td>
<td>.586</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>.335</td>
<td>.474</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>.537</td>
<td></td>
<td>.693</td>
</tr>
<tr>
<td>18</td>
<td>.481</td>
<td></td>
<td>.687</td>
</tr>
<tr>
<td>6</td>
<td>.444</td>
<td></td>
<td>.652</td>
</tr>
<tr>
<td>15</td>
<td>.417</td>
<td></td>
<td>.645</td>
</tr>
<tr>
<td>3</td>
<td>.457</td>
<td></td>
<td>.626</td>
</tr>
<tr>
<td>2</td>
<td>.367</td>
<td></td>
<td>.570</td>
</tr>
</tbody>
</table>

Table 5. Confirmatory factor analysis.

<table>
<thead>
<tr>
<th>Model</th>
<th>χ²</th>
<th>df</th>
<th>χ²/df</th>
<th>CFI</th>
<th>TLI (NNFI)</th>
<th>GFI</th>
<th>AGFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two dimensions</td>
<td>179.083</td>
<td>76</td>
<td>2.357</td>
<td>.954</td>
<td>.946</td>
<td>.958</td>
<td>.942</td>
<td>.047</td>
</tr>
</tbody>
</table>

Table 6. Internal consistency coefficients of the book reading motivation scale.

<table>
<thead>
<tr>
<th>Factor</th>
<th>The number of Items</th>
<th>Internal consistency coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Love for Reading</td>
<td>8</td>
<td>.82</td>
</tr>
<tr>
<td>Reason for Reading</td>
<td>6</td>
<td>.75</td>
</tr>
<tr>
<td>Whole Scale</td>
<td>14</td>
<td>.85</td>
</tr>
</tbody>
</table>

Internal consistency coefficient of “Love for Reading” sub-dimension of SMRB is 0.82 and Cronbach Alpha internal consistency coefficient of “Reason for Reading” sub-dimension is 0.75. Reliability coefficient of the whole scale was found to be 0.85. Based on these values, the scale can be argued to be reliable enough. Another method used for the reliability analysis of the scale is the comparison of bottom-top 27% groups determined according to total scale score. In order to test whether there is a significant difference between the mean scores of the groups, the scores of the bottom 27% (n=330) and top 27% (n=330) groups taken from the sampling was analyzed through independent samples t-test. At the end of this analysis, it was found that the mean scores of the items are between 1.51 and 2.99 and t values related to differences between the item scores of 27% bottom and top groups were found to be ranging from 15.19 to 25.26 and that these differences are significant for all the items (p < 0.01). Based on these values, it can be argued that the items are discriminatory enough.

DISCUSSION AND CONCLUSION

SMRB was designed for the purpose of developing an instrument to be employed to determine and evaluate
elementary and secondary school students’ book reading motivation levels. There are totally 14 items in SMRB. As the items 6, 15 and 18 are negatively stated, they are scored reversely. As the scale was developed in the format of a 3-point Likert scale, the lowest score to be taken from the scale is 14 and the highest score to be taken is 42. In the calculation of the score intervals used to evaluate the score taken from SMRB, “Range Width (a)= Series Width/Number of Groups” (Tekin, 2000) formula was employed. In this way it was determined that scores in the interval of 14-23.3 show low motivation level, in the interval of 23.4-32.7 show medium motivation level and in the interval of 32.8-42 show high motivation level. As a bottom cut-off point for EFA value, 0.30 was determined, 5 items under this value were discarded from the scale. As a result of the re-administered EFA, it was found that the scale consists of 2 factors being “Love for Reading” and “Reason for Reading”. By testing the bifactor structure of the scale through CFA, the fit of the model was confirmed. Chi-square goodness of fit coefficient is $\chi^2/df = 2.357$. The goodness of fit coefficients for the model are RMSEA=0.047, NNFI=0.946, CFI=0.954, GFI=0.958 and AGFI=0.942. These values show that the scale has a good fit for two-factor structure.

The internal consistency coefficient calculated through Cronbach Alpha method to determine the reliability of SMRB was found to be 0.85 for the whole scale. In order to reveal item discrimination of the scale and the extent to which the items can predict the total score, 27% bottom-top group comparisons were made. The results obtained from these comparisons show that items are discriminatory enough. There is more than one scale developed by different researchers at different times to determine reading motivation level. The 21-item reading motivation scale developed by Yıldız (2010), Guthrie and Wigfield (1997) was adapted to Turkish. The study was conducted with 5th grade students. McKenna et al. (1995) developed a 20-item scale to measure reading attitudes of children. The scale developed to elicit children’s in-school and out-of-school reading attitudes was revised by Gambrell et al. (1996) with the name of “Reading Motivation Profile”. Yıldız adapted this revised version to Turkish (2013b). In the study, conducted with the participation of 3rd, 4th and 5th grade students, reading motivation was investigated under two dimensions being value of reading and self-conception of the reader.
“Reading Motivation Scale for Texts” was developed by Aydemir and Öztürk (2013) for 5th graders. The 22-item scale consists of four factors: “Perception of Reading Difficulty”, “Reading Self-efficacy”, “Effort invested for reading/being appreciated” and “Social Aspect of Reading”. “Adult Reading Motivation Scale” developed by Schutte and Malouff (2007) was adapted to Turkish by Yıldız et al. (2013). This 19-item scale consists of four dimensions: “Self”, “Efficacy”, “Recognition” and “Others”.

In conclusion, SMRB developed within the current study, aims primarily to determine reasons directing students to book and book reading. SMRB can also be utilized by research to develop projects to encourage students to read books.

The first skill taught to students in their education life is reading. It is emphasized that reading is important in every field of life particularly in education life and great importance is attached to developing book reading habit. Book reading needs to be internalized by the individual and for reading to be more functional in human life; the role of motivation in reading should be properly comprehended. The number of studies aiming to determine the factors affecting book reading motivation should be increased. Moreover, by analyzing the findings of this research, activities to enhance interest in reading should be developed. Use of SMRB in other research may contribute to the development of its evaluation power.

Conflict of Interests
The author has not declared any conflict of interest.

REFERENCES


Yurdugül H (2005). The use of content validity index for the content validity of the scale development study. XIV. National Educational Sciences Congress, Pamukkale University Faculty of Education, Denizli.


