

Examination of Science Teacher Candidates' Book Reading Attitude Scale Scores: The Case of Nevşehir Province

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Abstract— *Teaching is accepted among the professions in which there are many mental and cultural activities. In this context, it is important to determine the attitude scores of the members of this profession regarding book reading and to analyse these scores. Therefore, the purpose of this study was determined as examining the book reading attitude scale scores of science teacher candidates according to the determined variables. The study was carried out with the case study method, which is one of the qualitative research designs. The participant group consists of 93 (76 female-17 male) teacher candidates who are continuing their education in the 2nd, 3rd and 4th grades of science teaching. The data of the study were collected through the Book Reading Attitude Scale-BRAS (38 items) and the Survey Form (open-ended questions) developed by the researcher. According to the results obtained from the study, it can be said that the BRAS scores of the participants (N: 54) are generally at a medium level (101-155 points). BRAS scores showed a statistically significant change according to the variables of academic success, daily book reading time and the number of books read annually. According to the findings obtained from the open-ended questions; it was observed that the participants expressed that not reading enough books in time was a great regret (N: 43), and the biggest obstacles to reading books were KPSS-ÖABT (exams held in Türkiye for teacher candidates)/ factors such as appointment (N: 56).*

I. INTRODUCTION

The introduction of the paper should explain the nature of the problem, previous work, purpose, and the contribution of the paper. The contents of each section may be provided to understand easily about the paper.

One of the factors that affect the success of a student in any educational system is their command of the language they use. As individuals' command of the language they use in the educational system increases, their success is positively affected (Kaya, 2017). Because the richness of concepts and words they possess allows them to use their

cognitive characteristics more actively. Language is the most important communication tool that enables understanding between people, a system of symbols that people use to convey their feelings and thoughts to others. This system of symbols allows people to reveal their feelings, thoughts and desires with all their subtleties. (Aksan 2007: 11; Özbay 2006)

Language, which provides a person's connection with the world and life, is also their best means of information, and the ways people reach information are based on reading and listening. A person can gain information either by listening to someone or by reading what someone else

has written. It is possible to say that reading in these two ways is less costly and more useful than listening (Topuzkanamış and Maltepe, 2010). According to Onan (2015), the most important dimension of reading, which has physical and mental processes as in other skills, is the stage of establishing meaning. This stage occurs from the surface structure to the deep structure. The relationship between the reading skill in the deep structure (abstract structure) and the surface structure (concrete structure) occurs with elements such as word recognition, word discrimination, prior knowledge, fluency, vocabulary and consistency-cohesion.

The activity of reading is certainly not only for the purpose of gaining information. Individuals can read for pleasure or to have a good time, in addition to being informed. As a result, they develop cognitively and emotionally, whether they are aware of it or not (Topuzkanamış and Maltepe, 2010). People who develop cognitively and emotionally also become people who contribute to society. Lyman (1990), who conducted research on this subject, states that the basis of unemployment, hunger, homelessness, illness, pregnancy out of wedlock, imprisonment, failure to get a promotion at work and many other problems is the problem of literacy, and that those who overcome this problem can benefit from the blessings of the economy and contribute to the healthy functioning of democracy in their countries (Quoted from Savaş 2006: 3). As a result, reading is an area that has both personal and social consequences. Uzun (2009) also states that reading is an activity that individuals perform cognitively. He states that the information obtained through reading can answer many questions in human life. In particular, he says that reading directly contributes to psychology, pedagogy, linguistics and creative intelligence studies (Aytan, 2015).

It is understood that the Science and Technology Program (MEB, 2005), one of the science programs in our country, was developed with awareness of the importance of the relationship between Turkish and science education (Kaya, 2017). Because, as stated in the program in question, while new concepts, principles and theories related to science were presented, emphasis was placed on understanding the semantic shifts of science concepts in everyday language according to their scientific context. Because reading should include not only the decoding of letters as sounds and sounds, but also the perception and comprehension of the emotions, thoughts and messages in the text. If nothing is understood after reading the text, it cannot be said that the reading was fully completed at the desired level (Karatay, 2007; Aytan, 2015). These and similar situations inevitably bring to light the key role of students' reading comprehension skills.

Reading habit is a skill that keeps critical thinking alive and is an activity that an individual will use throughout their life. As it is known, reading is, in a narrow sense, deciphering the code of a written text or a graphically coded statement (Aytan, 2016). The act of reading, which essentially takes place on the author-text-reader plane, requires the interpretation and meaning of a literary text in a broader context. However, in professions such as teaching, where there are many mental and cultural activities, it is important to determine the attitude scores of the members of that profession towards reading books and to analyze these scores.

Science education aims not only to transfer knowledge but also to ensure that students develop cognitively and emotionally, and that they have the ability to combat the problems they encounter in daily life. In order to raise individuals with these abilities, the importance of relationships between experimental and observational data and abstract concepts in education is becoming increasingly prominent, especially in the field of science education. The main purpose of science education programs in Turkey has been determined as raising scientifically literate individuals (MEB 2005, MEB 2018). Scientific literacy is a combination of science-related skills, attitudes, values, understandings and knowledge necessary for individuals to develop their research-questioning, critical thinking, problem-solving and decision-making skills, to become lifelong learners, and to maintain their sense of curiosity about their environment and the world. Kaya (2017) revealed in his study the close relationship between the concept of scientific literacy and the reading skills included in exams such as PISA.

Due to the many different courses taken by science teacher candidates during their training process, it becomes necessary for them to have certain habits. Especially courses such as physics, chemistry, biology, which include a lot of abstract and concrete concepts, are prominent in the curriculum of these participants. Therefore, in this study, the examination of teacher candidates' reading habits and attitude scores towards reading books according to certain variables was examined in a holistic manner with the case study method. Because of students are accepted to this program with a central exam. In this exam, only multiple-choice type questions are presented to students. In particular, using different methods to determine high-level cognitive skills of teacher candidates such as understanding what they read, interpreting, making inferences, transferring, transforming and decision-making may be more appropriate in terms of determining their suitability for the program they study. Based on the previously presented justifications, the research questions

of the current study were determined as follows using the book reading attitude scale (BRAS) scores:

RsQ 1. Do participants' average BRAS scores change according to their grade levels?

RsQ 2. Do participants' average BRAS scores change according to the time allocated for daily book reading?

RsQ 3. Do participants' average BRAS scores changes according to the number of books read per year?

RsQ 4. Do participants' average BRAS scores change according to academic achievement scores?

RsQ 5. What are the meanings that participants attribute to reading books in the context of the teaching profession?

RsQ 6. What are the participants' thoughts on their book reading habits?

II. METHOD

2.1. Design of the Research

The aim of this study is to examine the book reading attitude scores of science teacher candidates at different grade levels according to the determined variables (daily book reading hours, number of books read annually, academic success score, etc.). In order to obtain more detailed and comprehensive data from the participants in accordance with the purpose of the study, the research was conducted with a case study design, one of the qualitative research methods. Since it is thought that the evaluation of the current situation in educational institutions will

contribute to the elimination of deficiencies and mistakes in the teaching processes there, and to increasing the effectiveness of the institution and the quality of teaching, it is possible to say that the case study is an important qualitative research method design in educational research (Yeşilbaş Özenç, 2022). A situation is a phenomenon observed within a certain period of time (Gerring, 2007). In other words, a situation can be expressed as a phenomenon that occurs in a limited context (Miles and Huberman, 1994). In the case study, each situation that is the subject of the study is evaluated from a detailed and holistic perspective, and the differences that arise in this context and their underlying reasons are explained (Akar, 2016).

2.2. Participants

The participants of the study consisted of 93 (76 female-17 male) prospective teachers who were studying in the 2nd, 3rd and 4th grades of science teaching at a university located in the city center of Nevşehir. The participants were selected from different grade levels and it was aimed to collect comprehensive data appropriate to the purpose of the research. In this context, it can be said that the participants of the study were determined by the appropriate sampling method. The appropriate sampling method is the selection of the sample from easily accessible and applicable segments due to some limitations in terms of time, cost and labor (Büyüköztürk et al. 2021). The distribution of the participants by grade and gender is given in Table 1.

Table 1. Distribution of Participants by Grade and Gender

	2 nd grade	3 rd grade	4 th grade	Total
Female	28	32	16	76
Male	3	7	7	17
Total	31	39	23	93

As can be seen in Table 1, the number of senior students is relatively less than other groups. The main reason for this is that teacher candidates at this grade spend most of their time doing internships in secondary schools outside the faculty.

2.3. Data Collection Tools and Process

2.3.1 Book Reading Attitude Scale

This study used the Book Reading Attitude Scale (BRAS), which was developed by Sarar Kuzu and Doğan (2015) and consists of 38 propositions in a five-point Likert type. The scale consists of three sub-dimensions. These dimensions are; contribution to personal and social development dimension (19 propositions), interest and

love dimension (14 propositions), and finding important and valuable dimension (5 propositions). Cronbach Alpha values obtained for the entire scale and sub-dimensions vary between 0.65 and 0.94. In other words, it was observed that the entire scale and its sub-dimensions have an acceptable level of reliability (Sarar Kuzu and Doğan, 2015).

The Book Reading Attitude Scale (BRAS) has been made ready to be used in studies that aim to reliably measure the attitudes of university students towards reading; in other words, to examine the attitudes of students towards reading. The minimum and maximum

scores that can be obtained from this scale are 38 and 190 points, respectively.

During the study process, the data belonging to this scale were collected in a single session at each grade level by the researcher who attended different courses of the participants. The attitude scale was applied to the participants in March 2024.

2.3.2 Book Reading Habits Survey Form

In the study, a survey form created by the researcher was used to collect information such as daily book reading times, number of books read annually, gender, academic success score, etc. of teacher candidates. The survey form also included open-ended questions such as “What does reading books mean to you as a teacher candidate?” and “What do you think is the importance of book reading habits in terms of your profession?” Thus, it was attempted to reveal the participants' opinions on this situation. Expert opinions were consulted for the validity of the Survey Form. In the reliability study, the survey form was applied to teacher candidates in different branches at one-month intervals. The main data of the study were collected in March 2024 in the faculty environment where the researcher worked for a period of fifteen days.

2.4. Data Analysis

In order to obtain qualified findings in a scientific study, it is necessary to work with a quality data set. In order for the data set of quantitative findings obtained in

this study to be subjected to certain statistical analyses, some of its parameters must first be revealed. Therefore, before proceeding to the analysis of quantitative data, the data set was examined in terms of missing values, extreme values and normality assumptions. The normality assumptions regarding each measurement taken from the participant group were examined through skewness and kurtosis coefficients. As a result of the examination, since it was determined that the skewness and kurtosis coefficients of the data obtained from the Book Reading Attitude Scale were between +2 and -2 (George and Mallery 2010), it was accepted that the variables had a normal distribution. Therefore, it was decided to use parametric analysis tests in the analysis of the data set. The quantitative data obtained were obtained using appropriate statistical techniques (unrelated t test, single-factor analysis of variance, descriptive statistics, etc.). In the analysis of the qualitative data obtained from the Survey Form, the descriptive analysis method was used and care was taken to present the quantitative and qualitative data for each sub-problem in an integrated manner.

III. FINDINGS

In this section, the findings related to the research questions will be given in order. However, in order for the data to be more meaningful to the reader, the general descriptive findings of the scores obtained from the BRAS scale are presented in the table below.

Table 2. Descriptive Statistics of BRAS Scores

BRAS Scores	Mean	N	Std. Deviation	Minimum	Maximum
Between 38-100 scores	87,5000	4	8,10350	77,00	96,00
Between 101-155 scores	137,6667	54	12,11112	106,00	155,00
Between 156-190 scores	170,0571	35	8,98346	157,00	188,00
Total	147,6989	93	22,87527	77,00	188,00

According to the findings given in Table 2, it can be said that the majority of the participants (approximately fifty-four people) had generally moderate BRAS scores (101-155 scores). It can be said that the number of people

with high reading attitude scores (thirty-five) was relatively low.

RsQ 1. Do participants' average BRAS scores change according to their grade levels?

Table 3. Change in BRAS Score Averages According to Grade Level Variable

	N	Mean	Std. Deviation	Minimum	Maximum
2 nd grade	31	147,29	22,20840	106,00	188,00
3 rd grade	39	145,69	21,67360	91,00	184,00
4 th grade	23	151,65	26,08833	77,00	183,00
Total	93	147,69	22,87527	77,00	188,00

According to the findings in Table 3, although the highest average score belongs to the senior students, the average scores of all groups are quite close to each other.

Table 4. Results of Variance Analysis of BRAS Score Averages According to Grade Level Variable

ANOVA					
Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	521,658	2	260,829	,493	,612 *
Within Groups	47619,912	90	529,110		
Total	48141,570	92			

*p>.05

According to the findings in Table 4, the participants' BRAS score averages do not show a statistically significant difference according to their grade levels. In other words, the students' BRAS score averages at the grade level are very close to each other.

RsQ 2. Do participants' average BRAS scores change according to the time allocated for daily book reading?

Table 5. Change in BRAS Score Averages According to Book Reading Time

	N	Mean	Std. Deviation	Minimum	Maximum
Less than an hour	64	140,78	22,73901	77,00	184,00
1-2 hours	27	161,85	14,22269	134,00	188,00
3-4 hours	2	178,00	,00000	178,00	178,00
Total	93	147,69	22,87527	77,00	188,00

According to the findings in Table 5, the BRAS average score (140.78) of the participants who read less than one hour per day is relatively lower than those in the

other group. However, it is seen that those with high BRAS scores (178.0) spend three to four hours per day reading books.

Table 6. Results of Variance Analysis of BRAS Score Averages According to Book Reading Time

ANOVA					
Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10307,225	2	5153,612	12,259	,000 *
Within Groups	37834,345	90	420,382		
Total	48141,570	92			

*p<.05

According to Table 6, the participants' BRAS score averages show a statistically significant difference according to the time spent reading books. According to

the Dunnett C test results conducted for this difference, it was understood that it was against the first group. In other words, the attitude scores of those who spend less than an

hour a day reading books are significantly different from the other two groups.

RsQ 3. Do participants' average BRAS scores changes according to the number of books read per year?

Table 7. Change in BRAS Score Averages According to the Number of Books Read in a Year

	N	Mean	Std. Deviation	Minimum	Maximum
Less than 5 Books	47	137,09	21,67	77	178
Between 5-12 Books	33	155,88	19,70	112	184
More than 12 Books	13	165,31	14,70	145	188
Total	93	147,69	22,88	77	188

According to the findings in Table 7, the BRAS score average of those who read less than five books per year was relatively lower than those in the other group. However, the attitude score of those who read more than

twelve books (165.31) was the highest as expected. It was also seen that more than half of the participants read less than five books per year.

Table 8. Results of Variance Analysis of BRAS Score Averages According to the Number of Books Read

ANOVA					
Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11533,626	2	5766,813		
Within Groups	36607,944	90	406,755	14,178	,000*
Total	48141,570	92			

*p< .05

According to Table 8, the participants' BRAS score averages show a statistically significant difference according to the number of books read in a year. According to the Dunnett C test results conducted for this difference, it was understood that it was against the first

group. In other words, the attitude scores of those who read less than five books in a year are significantly different from the other two groups.

RsQ 4. Do participants' average BRAS scores change according to academic achievement scores?

Table 9. Change in BRAS Score Averages According to Academic Achievement Score

	N	Mean	Std. Deviation	Minimum	Maximum
2,50- 2,99	41	142,03	24,93	77	188
3,00- 3,49	35	148,32	18,43	106	179
3,50- 4,00	17	160,12	22,05	115	184
Total	93	147,69	22,88	77	188

According to the findings in Table 9, the BRAS score averages of those with relatively low academic success scores were relatively lower than those in the other group.

However, the attitude score of those with the highest academic success scores (160.12) was also the highest, as expected.

Table 10. Variance Analysis Results of BRAS Mean Scores According to Academic Achievement Score

ANOVA					
Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3955,29	2	1977,64	4,028	,021 *
Within Groups	44186,28	90	490,96		
Total	48141,57	92			

*p< .05

According to Table 10, the participants' BRAS score averages show a statistically significant difference according to their academic success score. According to the Dunnett C test results conducted for this difference, it was understood that it was against the first group. In other words, the attitude scores of those with the highest academic success score are significantly separated from the other two groups.

RsQ 5. What are the meanings that participants attribute to reading books in the context of the teaching profession?

Participants' opinions about the teaching profession and book reading habits are presented in Table 11 below.

Table 11. Categories that emerged regarding book reading and the teaching profession*

Categories emerging from qualitative data	F	Quotations from Participants' Opinions
Providing Empathy	12	<p><i>"I think reading books is making sense of life from someone else's experience – that is, from their state."</i></p> <p><i>"As a teacher, even though I read few books, it gives me empathy. It allows me to empathize with the person in front of me."</i></p>
Mental/Cognitive Flexibility or Cognitive Advantages	15	<p><i>"The truth is that when books and our profession come together, the first thing that comes to mind is increasing my mental agility. For example, when I read a very complex text or scientific report, I think it makes it easier for me to understand."</i></p> <p><i>"The more you read, the faster you can grasp the simplest events around you, as well as the complicated facts in our physics classes."</i></p> <p><i>"Especially in our science branches, since there are so many concepts, we really have difficulty cognitively sometimes. Because I will criticize myself here, but if I had read enough books in time, I could have established cause and effect relationships more easily."</i></p> <p><i>"Teacher, you said it in one of our classes. The limit of a person's thinking capacity, the diameter of their imagination is as much as the number of words they have. When we consider our profession, concepts such as communication, words, and logical inference are situations related to reading books."</i></p>
Different Perspectives/Rich Experience	10	<p><i>"Books mean getting inside thousands of different minds. Just like we want to get inside the minds of our students. Isn't that very similar."</i></p> <p><i>"Think of a writer. Are you curious about what's inside their minds? That's easy because everything is in the books they write. And from many different perspectives."</i></p>
The Power of Knowledge	15	<p><i>"To be a teacher, yes, today it is not just about transferring knowledge. After all, in our profession, you are strong with knowledge. Books equal the power of knowledge."</i></p> <p><i>"Today, especially since central exams are so dominant, we can support our students</i></p>

		<i>more by browsing through lots of books. Success, exams like LGS, and the dominance of knowledge lead us to reading books."</i>
Personal/Professional Development	9	<i>"Reading books is the habit I neglect the most. However, I know that it is something that will mature me both personally and professionally." "If I had the mindset I have now, I would have made time to read books every day in the past. If I had done this, my teaching skills, which I currently see as very weak, would have been better."</i>
Affective Awareness/Emotional Intelligence	8	<i>"When I am feeling down, I read to distract myself. This can help me see the emotions of others, especially in my profession." "Even though I am only in the second year, I think the book will help me understand both my own emotions and the emotions of my friends."</i>

* Opinions with a frequency of less than three are not included in the table.

According to Table 11, a large majority of the participants expressed positive views on the relationship between the teaching profession and reading books. Participants expressed that reading books provides very important advantages both professionally and personally.

Examples of thoughts expressed in categories such as "Mental/Cognitive Flexibility", "Power of Knowledge", "Providing Empathy" are presented in this table.

RsQ 6. What are the participants' thoughts on their book reading habits?

Table 12. Categories that emerged regarding book reading habits*

Categories emerging from qualitative data	F	Quotations from Participants' Opinions
Regret about book reading habit	39	<i>"When I think about the habit of reading books, how unfortunate it was actually used. I regret that I was able to read such a student at the time." "The only thing I can say is regret. I wish I had a habit of reading books. But unfortunately I don't. We always ran from exam to exam" "Ah, those valuable teachers. They warned us a lot at the time. But they couldn't succeed. Education was really a must for success in my current classes." "But whatever I say later will probably be useless, but I wish I had spent as much time on books as I did preparing for exams like LGS and YKS at the time."</i>
Necessity about book reading habit	16	<i>"Teaching actually means repetition and consistency. We see that certain skills are used repeatedly in the science branch. For example, reasoning, hypothesizing, determining variables, etc. Reading books is actually a must for us in this sense." "In short, the habit of reading books is a must for our profession. Because I think teachers who are not inclined to read will not be patient either. Their empathy skills cannot develop. They may have difficulty communicating."</i>
Volunteering about book reading habits	9	<i>"In my opinion, reading books is not something that should be forced. I mean, I don't see reading books as a necessity just because we are going to be teachers. You will like this book."</i>

* Opinions with a frequency of less than three are not included in the table.

Table 12 shows the participants' views on their own reading habits in three different categories. These categories are "Regret", "Obligation" and "Voluntariness", respectively. However, the category with the highest frequency among these was "regret". It was stated that the

central exams (LGS, YKS etc.) that are frequently taken in education, especially from a young age, prevented this habit from being acquired.

IV. DISCUSSION AND CONCLUSION

The aim of this study is to reveal the changes in the BRAS scores of science teacher candidates according to the determined variables. Thus, it is aimed to shed light on future studies by determining the factors that affect the book reading attitudes of teachers, who are the most important element of the education system, during their training. In addition, determining the meanings that teacher candidates attribute to reading books in the context of their profession and their views on book reading habits can be listed as another focus of this study. In the current study, it is seen that the book reading attitude scores of a large part of the teacher candidates are unfortunately not as high as expected, on the contrary, they are below the average or slightly above the average. There are studies in the literature that provide similar results indicating that the departments the participants study affect this score. For example, Esgin and Karadağ (2000) determined that the reading habits of university students differ depending on whether they study in a numerical or verbal department. A similar result can be seen in the study of Özdemir, Özdemir, and Kaya (2015). On the other hand, Saracaloğlu et al. (2003) revealed in their study evaluating the reading interests and habits of teacher candidates that there is no difference according to the department studied at the university.

In a study conducted on teachers' reading habits, it was determined that teachers read a book every 2-3 months (Şahiner, 2005). In a study conducted among university students, half of the students (46.1%) stated that they read at most five books in a year, while almost half of the students, including the 4.6% group that stated that they did not read any books, either did not read any books or read at most 5 books (Odabaş, Odabaş, & Polat, 2008).

As a result of the study, it can be said that the book reading attitude scores of the prospective teachers did not change significantly according to their class levels. One of the possible reasons for this may be that the students who come to these faculties have similar socio-economic backgrounds. In addition, the placement processes of the participant group in the teaching branches they study may have similar mechanisms. In the study of Batur, Bek, & Gülveren (2010), it was revealed that there was no significant difference in the book reading habits of the prospective teachers according to their class levels.

According to the results obtained from the study, the participants' BRAS scores show a statistically significant change according to the variables of "time spent reading books", "number of books read annually" and "academic success score". In the research of Kuş and Türkyılmaz

(2010), it was determined that the majority of Turkish and Social Studies Teaching students read less than ten books per year. However, in the study of Yalman, Özkan and Kutluca (2013), it was revealed that the majority of teacher candidates read at least one or more books per week. In contrast, in the study of Geçgel and Burgul (2009), it was determined that the majority of 1st and 4th grade teacher candidates read one book per month; in the study of Aslantürk and Saracoğlu (2010), it was determined that 4th grade Classroom Teaching students read at least twelve books per year. It can be said that the reason for these differences is that some faculties of education do not have secondary education or fine arts education and that the studies are conducted at certain grade levels.

According to another result of the study, it was seen that the participants attributed different meanings to reading books in the context of their professions. According to the results obtained from the qualitative data, it was stated that teacher candidates stated that reading books provided very important advantages both professionally and personally. The most frequently repeated views were observed to be united under categories such as "Mental/Cognitive Flexibility", "Power of Knowledge", "Providing Empathy". The strong connection between advantages such as cognitive power and mental flexibility, which can be considered to be related to the concept of scientific literacy in science education, and reading books was frequently mentioned. Similar studies on the existence of a strong correlation between scientific literacy and reading skills (Chiu, 2007; Özer, 2009; Karadağ, 2014; Kaya and Doğan, 2016; Kaya, 2017) are available in the relevant literature.

Ethics Commitment: Some of the data used in this study were presented at the 3rd INTERNATIONAL SOCIAL SCIENCES CONGRESS (TAMUSKON 2024) held in 2024.

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