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An Analysis of Secondary School Students' Empathy Skills in terms of Student- and School-Related Variables

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Abstract

This study aims to examine the empathy skills of secondary school students in terms of some selected variables at the student and school levels. The study group of the research, which was structured as a correlational survey, consisted of 1010 eighth-grade students attending 29 schools selected by random sampling in the province of Uşak during the 2021-2022 school year. The HLM 8 student version was used in the analysis of the data collected via Google Form. 80% of the difference in empathy scores was found to stem from the student-related variables and 20% from the school-level variables. A positive and significant relationship between the number of books read and gender variable and empathy scores was also identified, and it was concluded that as the number of books read by students increased, their empathy scores increased as well, and the girls had higher empathy scores than the boys. In addition, a negative significant relationship was found between the duration of daily internet use and empathy scores. While no significant relationship between school type and empathy was identified, students at secondary schools located in city centers were observed to have higher empathy scores than those located in small towns.

Keywords: Empathy, Hierarchical Linear Modeling, Secondary School Students, Correlational Survey.

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Introduction

In line with the technological developments, various activities of social life such as communication and shopping have begun to change, an increasing number of individuals have begun to communicate and meet their daily needs by using smart devices connected to the Internet. This phenomenon has accelerated with the COVID-19 pandemic experienced at the global level, which brings up some questions such as "How much can individuals understand each other? How can a person make others feel that he/she understands them? A more important question is whether these recent developments have an impact on individuals' behavior and skills.

This question draws our attention to empathy (Batson, 2003; Eisenberg & Fabes, 1998; Hoffman, 1987; Lovett & Sheffield, 2007), which plays a pivotal role in shaping behaviors (Hogan, 1969) that positively predict prosocial behaviors aiming to help others without any self-interest. Empathy involves a person putting him(her)self in the shoes of another person and looking at events from his/her perspective, perceiving that person's feelings and thoughts correctly and communicating this to him/her (Rogers, 1975). Moreover, it is a skill that plays an active role in helping individuals to establish a healthy communication with self and others, helps them to socialize and get along with others better, and to solve problems with others without resorting to violence (Basch, 1983; Breems, 1988; Dökmen, 2008; Rogers, 1975; Yüksel, 2015).

Empathy, which is studied primarily by psychology and was previously claimed to be not fully teachable (Davis, 1990), has now been demonstrated to be a teachable skill (Shapiro, 2000) through a series of activities and curricula (Bal & Bilge, 2016; Batt-Rawden, et al., 2013; Yüksel, 2004). With the increasing feelings of loneliness and selfishness due to advancing technology and increasing industrialization, it has become increasingly important to create educational environments based on tolerance and sensitivity by analyzing the underlying causes of varying views and attitudes so that the individual can use effective means of communication. Empathy, which has a teachable nature, is needed in classroom environments, and it has begun to be covered in curricula as a targeted skill. The social studies curriculum in Turkey has also led the way in helping students gain empathy skills (Kabapınar, 2005; 2007).

The fact that households in Turkey have more than 90% access to the Internet from home and the increasing use of internet-based social media platforms (Turkish Statistical Institute [TUIK], 2022) have brought along some problems, and therefore, the Information Technologies and Communications Authority (BTK), which is the state institution responsible for the use and control of ICTs in Turkey, recommended students aged 10-14 (the age group involved in the current study) to spend only two or three hours online (BTK, 2022). In addition, it has been reported that individuals will experience some cognitive problems in interpreting and synthesizing, analytical thinking, and learning if their daily TV watching time exceeds two hours (Doğan & Göker, 2012). As such, a

relationship can be established between empathy (Hoffman, 2000), which includes cognitive processes as well as affective processes, and watching TV. Another factor thought to be related to empathy is the duration of internet use. For example, Sezgin (2020) found a negatively significant relationship between excessive internet use and empathy skills of adolescents aged 14-18. Some other studies involving different age groups also support this finding (Çelik, 2014; Siyez, 2014). Therefore, it can be concluded that there is a negative relationship between daily internet use and TV watching time and students' empathy scores. In the current study, the effects of the students' empathy scores were examined, and besides the educational activities, their daily internet use and TV watching durations were also included in the analysis.

Another factor that is thought to have an effect on students' empathy scores is the number of fictional books such as novels and stories read by the students. Reading is a process that begins with infancy. Books that are read aloud by parents activate the frontal region of the brain and improve the language and cognitive skills of their babies (Metin & Gökçay, 2014). The books read by their mothers to children aged 41 to 65 months have been shown to improve children's empathy skills (Aram & Shapira, 2012). In addition, a connection was found between the emotional vocabulary of middle and high school students and their reading habits (Dylman, et al., 2020). Thus, it can be said that reading plays a role in empathy. Studies that have found a positive relationship between reading novels and high empathy skills also confirm this conclusion (Bal &Veltkamp, 2013; Johnson, 2012; Koopman, 2016; Stansfield & Bunce, 2014). A limited number of studies that examined the effects of both reading and watching TV on social behaviors (Turner, 2017) have found that those who prefer to read books are more sensitive to the feelings of others and have stronger empathy with them, but those who prefer watching TV remain insensitive to others' feelings.

In Turkey, empathy skills have been studied especially in terms of gender, class, and education level of parents (Boran, et al., 2019; Coşkun, 2004; Dinçyürek, 2004; Duru, 2002; Genç & Kafalat, 2010; Güven, 2018; Öztürk, 2019; Savaş, 2018; Salı, 2017; Temizyürek, 2019; Tozoğlu, et al., 2020; Yontar & Yel, 2018). However, there is a limited number of studies examining the relationship between empathy skills and reading (Akyüz, 2013; Yurttaş & Avşar, 2020), and between empathy skills and internet use (Çelik, 2014; Sezgin, 2020; Siyez, 2014). In addition, schools in Turkey demonstrate a clustered distribution. Secondary schools are located in cities, small towns, and villages. Those in the cities and towns are of two different types, normal secondary school and imam hatip (theological) secondary school. For this reason, students' empathy scores may vary by student characteristics (reading books, watching TV, using the internet and gender), as well as by school characteristics (city centers versus small towns, secondary schools versus imam hatip secondary schools). The Hierarchical Linear Model (HLM), which is suitable for the analysis of hierarchical data such as student and school level, provides a clear framework for making accurate estimations of this

type of data (Draper, 1995; Raudenbush & Bryk, 2002). In the relevant literature, no study has been found that examines students' empathy scores using this model.

HLM is a more extensive version of regression methods. This model is very important as it is applied to data with a clustered structure and better reflects cause and effect relationships. In the statistical analysis of data having a clustered structure, multi-stage models are more suited (Moerbeek, et al., 2003). Besides, HLM distinctively explains the multi-level data structures of clustered data. As a result, the regression coefficients can be computed objectively (Raudenbush & Bryk, 2002). In accordance with the explanations, it is considered that this study is important in terms of revealing the level of correlation of empathy scores with variables considered at the student and school level by making estimates of students' empathy scores with fewer errors. On the other hand, it is expected that researchers who want to have information about this study, in which the empathy scores of students are examined at a multi-level with HLM, and future research, especially social studies education, will be given an example related to the study of HLM.Thus, the aim of the study is examining the empathy scores of secondary school students in terms of student- and school-level variables. In line with this broader purpose, answers were sought for the following specific sub-objectives:

1. Do students' empathy scores differ by the schools they attend?
2. Is there a relationship between students' empathy scores and gender, number of books they read annually, daily TV watching, and internet use?
3. Is there a relationship between the empathy scores of the students and the type of school (normal, IHO) and the location of the school (city and small town)?

Method

Research Design

The study was designed according to the correlational survey research model. According to Karasar (2011), correlational survey studies are carried out to reveal the relationships between variables and to find out any change. As such, this research design was preferred to determine whether the empathy scores of the students, which is the dependent variable of the study, are related to the selected variables both at the student and school level.

Study Group

The study group of the research was selected by simple random sampling. The study group consisted of 1010 eighth-grade students attending 29 public secondary schools in the city of Uşak, located in the midwest of Turkey, in the 2021-2022 academic year (See Table 1).

Table 1. Study Group (N=1010)

Variables	Categories	f	%
Gender	Female	544	53.9
	Male	466	46.1
Books read per year	One book	74	7.3
	Two books	24	2.4
	Four books	105	10.4
	12 books	392	38.8
	48 books	415	41.1
Daily internet use	Two hours or less	386	38.2
	Three hours and more	624	61.8
Daily TV viewing	Two hours or less	685	67.8
	Three hours and more	325	32.2
Type of schools	Normal secondary school	20	69.0
	İmam Hatip (İHO)	9	31.0
Location of schools	Major city center	19	65.5
	Small town center	10	34.5

Data Collection

The data were collected via Google Form, using the *Personal Information Form* and *Empathy Scale* developed by the researchers. The *Empathy Scale* developed by Gökalp and İnel (2021) for middle school students consists of one factor and 7 items. The items in the scale were scored in a 4-point Likert-type as "Does not fit me at all=1, Somewhat fits me=2, Quite fits me=3, Completely fits me=4". The Cronbach's alpha value was calculated to be .79 in the original version of the scale, and the model fit values (RMSEA=.045; SRMR=.03; CFI=.98; TLI=.97) were excellent according to Kline's criteria (2011). In the current study, the Cronbach alpha internal reliability coefficient was calculated to be .82. According to George and Mallery (2010), this value is in the range of $0.7 \leq \alpha < 0.9$, which is a good criterion value. In addition, model fit indices (RMSEA=.059; SRMR=.027; CFI=.97; TLI=.96) were calculated and the scale was found to be valid and reliable.

The Personal Information Form includes students' gender, number of books they read per year, daily internet use and daily TV viewing, which are also the student characteristics that are

discussed in the study. The school-level variables are the type of schools (Normal secondary schools, İHO) and location (major city center, small town).

Data Analysis

Two-level Hierarchical Linear Modeling was performed on the collected data to determine the relationship between students' empathy scores and variables at the student and school level.

One of the primary conditions for conducting HLM is having a sufficient sample size. Therefore, attention was paid to having the sample size of 30 x 30 suggested by Hox (2010) (30 different schools x 30 students = 900). Reaching 1010 students from 29 different schools indicates that this condition was satisfied. The data collected from 1010 students from 29 different schools via Google Form were downloaded as an Excel file, and then transferred to the SPSS 22 statistical package program. There was no missing data in the dataset as the online form required participants to answer all the questions. Then, the Z scores were calculated over the total scores. This calculation revealed that the Z scores were in the range of +3, -3, so it was decided that there was no extreme value in the scale.

For the research variables, two separate SPSS data sets were created as students (1st level), and school (2nd level) level. Among the student-level variables, gender (1 = male, 2 = female) is a classification-level variable, while duration of daily internet use (0 = 2 hours or less, 1 = 3 hours and more), duration of daily TV viewing (0 = 2 hours or less, 1 = 3 hours and more) and the number (ranging from 1 to 48) of books read per year (novels, stories excluding textbooks) are rank-level variables. Among the school-level variables, the location of the school were coded as 0 = small town, 1 = major city center, and the type of school were coded as 0 = imam hatip (theological), and 1 = normal secondary schools. Thus, the datasets were prepared for analysis in the HLM 8 student version.

Various models were used to achieve the sub-objectives of the research. For the first sub-objective of the study, one-way ANOVA model with random effects was used. The results obtained from this model show whether there is a change in students' empathy scores explained by Level 2 (Hox, 2010; Raudenbush and Bryk, 2002; Snjders and Bosker, 1999). For this, the “significance of the Chi-Square test” and the “Design Effect” were examined. The formula “DE = 1 + p (ñ-1)” was used for the design effect, and the design effect was expected to be greater than 1 (Hox, 2010). The “Regression Model with Random Coefficients” was used for the second sub-objective of the research, and “Regression Model with Means of Results” for the third sub-objective. Then, the τ_{00} and $\sigma 2$ estimates obtained from the second and third models were compared with the τ_{00} and $\sigma 2$ estimates of the first model, thus the reduction rate of variances at the student and school level was calculated. Finally, the reliability estimates were calculated for each model, and the representative power of the

selected sample was shown. The results were reported with reference to the tables suggested by Raudenbush and Bryk (2002). The minimum ($p<.05$) was taken as the basis for the significance level of all the statistics.

Ethical

In this study, all rules stated to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. Ethical Review Board Name: Uşak University Ethics Committee Date of Ethics Evaluation Decision: 13.01.2022. (Ethics Assessment Document Issue Number: 01/2022-07)

Results

Results Regarding the First Sub-Objective

The random effect one-way ANOVA model was used to determine whether the empathy scores of the students, which is the first sub-objective of the study, differed by the schools they attend. The model combined with the 1st and 2nd level models for the analysis is shown, and then the findings are given in Table 2.

Level-1 Model

$EMPATHY_{ij} = \beta_{0j} + r_{ij}$

Level-2 Model

$\beta_{0j} = \gamma_{00} + u_{0j}$

Mixed Model

$EMPATHY_{ij} = \gamma_{00} + u_{0j} + r_{ij}$

Table 2. Results for One-Way ANOVA With Random Effects Model

Fixed Effect		**Coefficient**	**se**	***p***
Intrcpt2, γ_{00}		20.00	0.41	<0.001
Random Effect	Variance Component	df	$\chi 2$	*p*
Intrcpt1, u_{0j}	4.55	28	236.50	<0.001
Level-1 effect r_{ij}	18.77			

Note: p=<.05

Examining Table 2, it is observed that the students' mean empathy score is 20.00, and the Chi-square test is statistically significant ($\chi^2_{(29)}$=236.50, p<.05), which shows that there is a significant difference between the empathy scores of the schools. According to the calculated variance value,

20% of this difference is due to schools [(τ_{00} / (σ^2 + τ_{00}) = 4.55 / (18.77 + 4.55) = 0.20)], and 80% of the variance in empathy scores is due to student characteristics [(σ^2 / (σ^2 + τ_{00}) = 18.77 / (18.77 + 4.55) = 0.80)].

In addition, the value obtained as 0.20 is the inter-school correlation coefficient (p). Thus, the design effect was calculated as 1 + 0.20 (1010 / 29-1) = 8.21 using the formula 1 + p(ñ-1). Since the result is 8.21>1, the data set is suitable for multilevel models. Finally, the reliability was estimated to be .89, which shows that the sample averages are reliable indicators of the real school averages. In other words, it can be said that the selected sample represents the universe.

Results Regarding the Second Sub-Objective

A random coefficient regression model was used to determine whether there is a relationship between students' empathy scores, which is the second sub-objective of the study, and gender, number of books read per year, daily TV watching and internet use. The model combined with the 1st and 2nd level models for the analysis is shown, and then the findings are given in Table 3.

Level-1 Model

$$EMPATHY_{ij} = \beta_{0j} + \beta_{1j}*(GENDER_{ij}) + \beta_{2j}*(INTERNET_{ij}) + \beta_{3j}*(TV_{ij}) + \beta_{4j}*(BOOK_{ij}) + r_{ij}$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + u_{0j}$$
$$\beta_{1j} = \gamma_{10}$$
$$\beta_{2j} = \gamma_{20}$$
$$\beta_{3j} = \gamma_{30}$$
$$\beta_{4j} = \gamma_{40}$$

Mixed Model

$$EMPATHY_{ij} = \gamma_{00} + \gamma_{10}*GENDER_{ij} + \gamma_{20}*INTERNET_{ij} + \gamma_{30}*TV_{ij} + \gamma_{40}*BOOK_{ij} + u_{0j} + r_{ij}$$

Table 3. Results for Random Coefficient Regression Model

Fixed Effect		**Coefficient**	**se**	**df**	***p***
Intrcpt2, γ_{00}		17.09	0.77	28	<0.001
Gender, γ_{10}		1.89	0.35	977	<0.001
Internet, γ_{20}		-0.60	0.26	977	0.020
TV, γ_{30}		-0.08	0.29	977	0.758
Book, γ_{40}		0.06	0.01	977	0.028
Random Effect	Variance Component	sd	df	$\chi 2$	*p*

Intrcpt1, u_{0j}	4.36	2.08	28	240.09	<0.001
Level-1 effect, r_{ij}	17.61	4.19			

Note: p=<.05

Looking at Table 3, it can be seen that the Chi-square test is statistically significant ($\chi 2(28)=240.09$, $p<.05$), and the students' mean empathy score is 17.09. There is a positive and significant relationship between students' empathy scores by gender, which is one of the variables (Gender, $\gamma_{10}= 1.89$, $p<.05$). This finding indicates that gender plays a role in empathy scores, and shows that female students have higher empathy scores than male students. Another variable that has a positive and significant relationship with students' empathy scores is the number of books students read annually (Book, $\gamma_{40}= 0.06$, $p<.05$). This finding indicates that the number of books read is a variable that differentiates empathy scores, and reveals that as the number of books read by students increases, their empathy scores do as well.

There is a negative significant correlation between students' empathy scores by the daily time spent on the internet (Internet, $\gamma_{20}= -0.60$, $p<.05$). This finding indicates that the duration of daily internet use is a variable that affects the empathy scores, and it shows that those who use the internet for 3 hours or more a day have a lower empathy score than those who use the internet for 2 hours or less. Although there is a negative relationship between students' empathy scores depending on their daily TV watching time, this relationship is not significant (TV, $\gamma_{30}= -0.08$, $p>.05$). This finding shows that watching TV for less than 2 hours or for more than 3 hours does not make a significant difference on the empathy scores.

To see the decrease rate of variance at the student level, the $\sigma 2$ estimates from Model 1 and Model 2 were compared [($\sigma 2$ One-Way ANOVA With Random Effects Model - $\sigma 2$ Random Coefficient Regression Model) / $\sigma 2$ One-Way ANOVA With Random Effects Model = (18.77 – 17.61) / 18.77 = 0.06)]. Accordingly, the variables at the student level (Level 1) explain 6% of the variance in students' empathy scores. The reliability estimate was calculated to be .89.

Results Regarding the Third Sub-Objective

To find out any a relationship between the empathy scores of the students and the type and location of the school, the regression model, in which the results are averages, was used. The model combined with the 1st and 2nd level models for the analysis is shown, and then the findings are given in Table 4.

Level-1 Model

$$EMPATHY_{ij} = \beta_{0j} + r_{ij}$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01}*(LOCATION_j) + \gamma_{02}*(SCHOOLTYPE_j) + u_{0j}$$

Mixed Model

$$EMPATHY_{ij} = \gamma_{00} + \gamma_{01}*LOCATION_j + \gamma_{02}*SCHOOLTYPE_j + u_{0j} + r_{ij}$$

Table 4. Results for Means as Outcomes Regression Model

Fixed Effect		**Coefficient**	**se**	**t**	***p***
For Intrcpt1, β_0					
Intrcpt2, γ_{00}		19.3	0.56	34.74	<0.001
Location, γ_{01}		1.9	0.66	2.91	0.007
SchoolType, γ_{02}		0.8	0.76	-1.03	0.311
Random Effect	Variance Component	sd	df	$\chi 2$	*p*
Intrcpt1, u_{0j}	4.09	1.25	26	201.81	<0.001
Level-1 effect, r_{ij}	18.77	3.52			

Note: p=<.05

When Table 4 is examined, it is observed that the Chi-square test is statistically significant ($\chi^2_{(26)}$=201.81, p<.05), and the average empathy score of the students is 19.3. There is a significant positive correlation between the school location variable and empathy scores (Location, γ_{01}= 1.9, p<.05), which indicates that secondary schools located in major city centers have higher empathy scores than those located in small towns. No significant relationship could be identified between school type and empathy scores (School Type, γ_{02} = 0.8, p>.05). This finding reveals that school's being a normal or imam hatip school is not a factor that significantly affects the empathy scores.

To see the reduction rate of variance at school level, τ_{00} estimates obtained from the random-effects one-way ANOVA model and the regression model were compared [($\tau_{00\ \text{One-Way ANOVA With Random Effects Model}} - \tau_{00\ \text{Means as Outcomes Regression Model}}$) / $\tau_{00\ \text{One-Way ANOVA With Random Effects Model}}$ = (4.55 – 4.09) / 4.55 = 0.11)], which shows that 11% of the variance at the school level is explained. In addition, the reliability estimate was calculated to be .88.

Discussion

In this study, the empathy scores of eighth-grade secondary school students were examined in terms of variables at the student and school levels. First of all, the empathy scores of the students in the sample were observed to differ by the schools they studied at. The source of the change in students' empathy scores is the school-level variables with a rate of 20%, while student characteristics accounted for the remaining 80%. Therefore, it was concluded that most of the changes in the empathy scores of the students in the sample were due to student characteristics.

There is a positive and significant relationship between gender and students' empathy scores, and female students had higher empathy scores than male students. Similar research has reported that empathy scores differ in favor of girls (Boran, et al., 2019; Çelik, 2014; Duru, 2002; Güven, 2018; Öztürk, 2019; Salı, 2017; Savaş, 2018; Sezgin, 2020; Temizyürek, 2019; Yontar & Yel, 2018). However, a few studies have reported that the gender variable is not a factor that significantly differentiates the empathy scores of the participants (Coşkun, 2004; Dinçyürek, 2004; Genç & Kafalat, 2010; Tozoğlu, et al., 2020). Thus, it can be said that the findings of the current study are generally in line with the results of the previous studies in the relevant literature.

Considering the student characteristics, although the daily TV-viewing time was negatively related to the students' empathy scores, as expected, the students' daily TV viewing for 2 hours or less or 3 hours or more did not have an effect that would significantly change their empathy scores. However, the expected negative significant relationship was observed between the time devoted to daily internet use and empathy scores. As the daily internet use of the students increased, their empathy scores decreased. Moreover, those who used the internet for 3 hours or more per day had lower empathy scores than those who used it for 2 hours or less. This finding explains to some extent why BTK, which is the institution responsible for the healthy and effective use of ICT in Turkey, recommends 2 or 3 hours of internet use for students in the 10-14 age group. In addition, there is a negative significant relationship between excessive internet use and empathic tendency levels of students aged 14-18 in Turkey (Sezgin, 2020), and similar findings were found in another study in which university students formed the study group (Siyez, 2014). In addition, Çelik (2014), who conducted research on a similar age group, reported that those who spend less time online have higher empathy scores than those who spend more time online.

The findings on the relationship between empathy and internet use are supported by another study conducted on an international scale. Chopik et al. (2017) examined the relationship between internet use and empathy in 63 countries, including Turkey, and found a significant negative relationship between them ($r_{(60)} = -.31$, $p = .02$). The empathy scores were also observed to be lower in places where internet use was high. Therefore, this relationship between internet use and empathy can be described as a global phenomenon experienced similarly around the world.

A positive and significant relationship was also found between the number of books read in a year and the empathy scores of the students. The more the number of books read, the higher was the empathy score. Although some studies have found no relationship between empathy and reading habits (Akyüz, 2013; Yurttaş & Avşar, 2020), the finding of the current study is supported by studies reporting a positive and significant relationship between empathy and reading novels (Bal & Veltkamp, 2013; Johnson, 2012; Koopman, 2016; Stansfield & Bunce, 2014). In addition, considering that those who read books have stronger empathy towards others (Turner, 2017), the number of books

read by the students in the sample can be considered as a factor that positively increases their empathy scores.

It was further observed that there was no significant relationship between the type of school, which is one of the school level variables, and empathy scores. Unlike other secondary schools, compulsory religious courses such as the Holy Quran and Arabic are given in imam hatip (theological) secondary schools in Turkey. However, in both secondary schools, the basic courses such as Turkish and Social Studies, aiming to foster empathy skills, are commonly taught as core courses and the same curriculum is applied (Ministry of National Education [MEB], 2018a; 2018b). The fact that the secondary schools in the sample were normal or imam hatip did not significantly affect the empathy scores of the students, which can be explained by the fact that the basic courses taught in both secondary schools are common. However, since no other research on this subject has been identified in the literature review, it is difficult to confirm this conclusion.

Under the school location variable, the secondary schools were analyzed at two levels as those located in a major city or a small town. A positive and significant relationship was found between the location of the school and empathy scores. It was concluded that secondary schools located in city centers have higher empathy scores than those located in small towns. No research has been found that examines the empathy scores of secondary school students based on the location of the schools (cities and small towns). However, Çoşkun (2004), who examined the empathy skills of university students according to the place of residence, could not identify any significant differences between the empathy scores of those living in a big city (= 141.7) and those living in a small town (= 139.1). In another study, Topdemir (2009), who discussed the empathy scores of teachers according to the settlement where they completed their primary education, reported that the empathy scores of those who completed their primary education in rural (= 118.8) and urban (= 125.4) places did not differ significantly (p =.47). As can be seen, the average of empathy scores of individuals living in a urban area/city or completing primary education is higher than those in rural area/town, though not significantly. Therefore, the results reported by the related research are not supported by the results in the current study.

Implications, Limitations, and Suggestions

In this study, the variables of the empathy scores of secondary school students at student and school level were examined using the Hierarchical Linear Model. It can be said that the current study has an exploratory nature, since there is no previous study in the related literature that examines empathy scores both by using this analysis technique and in terms of the variables (especially school-level variables) included.

With the rapid advancements in science and technology, the roles expected from individuals have also changed. The curriculum in Turkey has also been affected by these advancements and has been revised. This advancements has defined an individual who can solve problems, think critically, communicate effectively, and empathy with others. In connection with educating individuals with these qualities, the curriculum have been prepared in a value and skill-oriented, simple structure, taking into account individual differences. Teachers were also expected to teach students the values and skills in the curriculum, taking into account individual and developmental differences and environmental conditions (MEB, 2018c).

In this context, it is very important for teachers to be aware of the characteristics of both their students and the schools they work in. Another important consideration is which factors affect the skill or value that is expected to be acquired. In this study, gender, daily internet use time and the number of books read in a year were determined as variables that significantly affect students' empathy scores. It has also been determined that schools in the city center had better empathy scores than those in small towns, based on the school's location, which is one of the variables analyzed at the school level. These factors also explained some of the changes in students' empathy scores. Based on this, teachers can prepare lesson plans based on the factors that affect empathy skills and they teach this skill more effectively by knowing the factors that affect empathy skills.

The variables in the study, especially at the school level, are limited and at the macro level. In this respect, the research is limited. In addition, the variables at the student and school level determined in the study fail to explain a large part of the changes in students' empathy scores (6% of the changes at the student level and 11% at the school level are explained). It can be said that the selected factors are important and empathy, with its various multiple components, dimensions and deep theoretical structure (Feshbach, 1975; Hoffman, 2000), is a highly complex concept (Dökmen, 2008). Thus, besides the factors selected in the current study, different factors can be included in further analyses, and studies aiming at the relationship of students' empathy scores with the same sample or different samples can be planned. Thus, it can contribute to both understanding the changes in students' empathy scores and eliminating the shortcomings in the relevant literature.

The results regarding the decrease in the empathy scores of the students as their internet use increases and the increase in the empathy scores as the number of books they read increases are considered important because empathy does not only contribute to the development of communication skills but also helps successful development of friendships (Özbek, 2002). So, the question of whether online technologies make us more or less sociable asked by Waytz and Gray (2018) can be made more specific, as “Do internet-based technologies used for socializing undermine empathy, which is a social skill?” To be able to answer this question, experimental studies can be carried out to test the relationship between empathy and internet use. A similar empirical study can also be conducted about

the effect of the number of books read on empathy skills. Ultimately, this study is relationship-based and it is difficult to say that it reveals the cause-effect links between the variables. However, there are some clear relationships identified between empathy and the variables in question. As such, informative seminars can be given to teachers, families and students regarding responsible internet use. Both teachers and families can encourage students to read books instead of spending too much time online.

Conclusion

This study revealed that the empathy scores of the students in the sample differ both by the student characteristics and the characteristics of the school they are studying at. Of the student characteristics, gender, daily internet use time and the number of books read in a year were determined to be related to empathy scores, but daily TV watching time was not. Based on this, it is possible to say that gender, daily internet use time and the number of books read are factors that have an important impact on students' empathy scores. On the other hand, the fact that secondary schools are normal secondary schools or imam hatip did not cause an important difference in the empathy scores, but it can be said that schools located in city centers have higher and differentiates empathy scores than those at schools located in small towns. At this stage, research can be undertaken on the socioeconomic opportunities, administrative structure of the secondary schools located in the city centers and small towns, and how the teachers working in secondary schools follow a path in the teaching of empathy skills. And it will also be useful to know whether these studies have an effect on empathy scores.

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