Direct and Indirect Effects of Learning Strategies and Reading Enjoyment on PISA 2009 Reading Performance

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A R T I C L E I N F O	A B S T R A C T

Purpose: The aim of the study was to investigate the extent students' learning strategies and reading enjoyment variables predicted PISA 2009 reading achievement, and to examine whether reading enjoyment had a mediator effect in the relationship between reading achievement and learning strategies.

Methods: In this correlational study, Turkey PISA 2009 reading comprehension cognitive test and student questionnaires were used for data collection. Learning strategies and reading pleasure which was related to students' reading comprehension achievement were identified as predictive variables and index values of these variables were used. The data were analysed using hierarchical linear models (HLM).

Findings: The results of the HLM analysis showed that the students who used control strategies more frequently had higher reading scores. Memorization was negatively associated with reading literacy and the elaboration strategies had no effect on achievement. Reading enjoyment was identified as a variable that improved students' reading performance. It was found out that control and elaboration strategies directly affected student's reading enjoyment whereas memorisation did not have such a direct effect. The results related to the indirect effect between variables showed that reading enjoyment had a partial mediator effect for the control strategy and had a full mediating effect for elaboration.

Implications for Research and Practice: Teachers are encouraged to use deep learning strategies instead of surface learning strategies. Teachers can inform their students about what deep learning strategies are, why they are more effective than others, and how to use them. The think aloud technique can be used to show how this strategy can be used in daily life.

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Introduction

Reading is one of the best strategies for acquiring knowledge and learning. The importance of reading for the individual's personal development, daily and work life cannot be ignored (Holden, 2004). Reading allows us to learn about the events that happen around us or we are curious about them, and to learn about the history, social studies, language arts, science, mathematics and subjects needed for school learnings (Lyon, 1997). Reading is a dynamic and complex skill that is influenced by the reader's personal characteristics, learning processes, and prior knowledge (Koda, 2005; Wilkinson & Son, 2011).

The main purpose of reading is developing comprehension skills. Individuals need to use more complex thinking processes such as establishing relationships, making comparisons, presenting evidence, making generalizations and inferences or predicting events. The fact that most of the learning tools used in schools are reading-based resources shows the importance of reading comprehension skills for academic achievement. Research has shown that students who are good readers are successful in school life (e.g. Duncan et al., 2007; Guthrie, Schafer & Huang 2001; Juel, 1988).

Many countries acknowledge the importance of raising individuals who understand what they are reading, and they conduct research to identify to what extent their students are successful in reading by using different evaluation methods and the factors affecting this success. In recent years, several international studies have been conducted on the education policies and comparison of them with other countries. PISA is one of the international projects that evaluate students' knowledge and skills in the fields of mathematics, science, and reading. This research evaluates to what extent students have the basic knowledge and skills required in modern society (OECD, 2010).

One of the most intensively studied aspects of reading in the last few decades concerns learning strategies and methods (Dunlosky, Rawson, Marsh, Nathan & Willingham, 2013). Learning strategies can be defined as techniques that support student's learning and related behaviors, and thinking process of students (Oxford, 2003). Students need to develop a series of strategies to understand the gist of any given text, to make a judgment and make personal connections with text, and to make sense of unknown words in the text in order to be a good reader (Antonacci, 2000). Today, even young learners are expected to comprehend complex texts and answer complicated questions that require independent interpretation and integration of numerous knowledge sources (Ortlieb, 2013). Therefore, improving reading skills effectively is an important research question than ever. Lack of adequate reading skills impedes educational progress (OECD, 2010). Learning strategies can play a crucial role in closing these "reading gaps". Research shows that lower-achieving students also have lower awareness about how to read and learn efficiently (Alderson, 2000; Baker & Brown, 1984; Pitts, 1983).

Classification of strategies is also somewhat complex and unclear (Kang, 1997; Oxford, 1990), one of the most frequent taxonomies categorizes them as surface, deep and meta strategies (Chiu, Chow & McBride-Chang, 2007). Surface strategies are often

associated with rote learning and memorising of material by using crude techniques, such as rehearsal. Deep strategies are related to more refined processing of knowledge, e.g., transferring information previously learned to new knowledge areas, whereas meta-strategies are described as processes that regulate actions (Hacker, 1998). Another classification separates strategies as cognitive and metacognitive (Phakiti, 2006). This study focuses on metacognitive strategies. PISA 2009 datasets reflect the use of the tree metacognitive strategies: memorisation, elaboration and control.

Memorization is defined as recalling texts through repetitive reading. This is an ineffective strategy, leading to lower re-acquisition and transient learning impacts (Mayer, 2008; Pressley & Harris, 2017). Elaboration is another strategy that helps to link old and new knowledge or enables to make a link between knowledge to everyday experience (OECD, 2010). It leads to a deeper understanding of concepts, more efficient application of knowledge in real life, and makes it easier to retrieve the knowledge from memory (Chiu et al., 2007). Lastly, the control strategy is seen as the most characteristic examples of metacognitive strategies (Kraayenoord, 2010) and it monitors reading purpose, planning and literate activities (Iwai, 2011; Phakiti, 2006).

Using of appropriate strategies are important as they are associated with greater reading enjoyment and better performance (Carretti, Caldarola, Tencati & Cornoldi, 2014; McDaniel, Howard & Einstein, 2009; OECD, 2010; Yip, 2007). Oxford (2003) states that students use learning strategies to make learning more fun and to be more successful by self-direction. When the student uses the appropriate strategy, the learning process becomes more enjoyable. Therefore, the mediating role of reading enjoyment in the relationship between learning strategies and reading achievement is also taken into consideration in this research.

Successful reading comprehension is also related to reading enjoyment (Zasacka & Bulkowski, 2017). Reading enjoyment refers to the satisfaction we receive from reading in our daily lives. It can also start with the motivation of someone else and then the individual becomes interested in reading. Many studies and political activities aiming at increasing student's reading success have focused on the cognitive aspects of reading such as word recognition and comprehension. However, the enjoyment of reading is more important for student achievement than the socio-economic level of their families (OECD, 2002). Reading enjoyment could, therefore, be an important way to reduce social exclusion and raise educational standards. Research-based on a reciprocal causality model shows that school success is at risk for individuals reading without having fun (Mol & Bus, 2011; Zasacka & Bulkowski, 2017). Secondary school students who prefer reading in their spare time are more successful than those who do not (Mol & Jolles, 2014; OECD, 2010). A recent meta-analysis by Mol and Bus (2011) showed that leisure readers in College and University had higher GPAs than their non-leisure reading peers.

It is important to raise individuals who understand what they read in today's rapid development and competitive world. According to PISA 2009 results, 56.7% of the age group of 15 students in Turkey have either Level 2 (basic proficiency) or below the level of proficiency. It shows that there are no students with level 6 who have high-

level reading skills (EARGED, 2010). In PISA 2009, Level 2 has been accepted as the basic level of competence in which students have started to show their skills in reading that will enable them to be a success in social life. These results make it necessary to identify the causes of difficulties experienced by Turkish students in terms of reading skills and the variables that play a role in this situation. Thus, it will inform teachers and families on how to develop these skills. In addition, research findings will provide scientific data to relevant institutions in the development of appropriate educational settings and the creation of educational programs to ensure the development of these skills.

The aim of the study is to understand the extent students' learning strategies and reading enjoyment variables predict PISA 2009 reading achievement, and to examine whether reading enjoyment has a mediator effect in the relationship between reading achievement and learning strategies.

Method

Research Design

This research was a correlational study that aimed to reveal the relationships between student's reading achievement and learning strategies variables.

Research Sample

Data in PISA applications were collected by random stratified sampling to represent the 15-age group of each country. The sample was selected from different units such as students, teachers, and schools. Turkey PISA 2009 sample consisted of 4996 students from 170 schools in the age group of 15. After missing value analysis, HLM analyses were conducted on 4648 students in 169 schools. 51.64% of the participants were female and 48.36% were male. PISA data set has predicted weighting value for student and school samples. Sample weights should be included in the analysis to make accurate predictions about the PISA population using the sample (OECD, 2012). Weightings for student and school sampling were used in the study.

Research Instruments and Procedures

In this study, Turkey PISA 2009 reading comprehension cognitive test and the data collected from student questionnaires were used. Data were downloaded from the official web page of the OECD (http://pisa2009.acer.edu.au/downloads.php). Learning strategies and reading pleasure which is related to students' reading comprehension achievement were identified as predictive variables, and index values of these variables were used. Scale scores for these variables were estimates of latent traits using by Item Response Theory (IRT) scaling of depended on item types. Brief descriptions of these indices from PISA technical report are given below (OECD, 2012):

*Reading enjoyment (*ENJREAD) *(Mediator):* Eleven items (e.g."*I read only if I have to, reading is one of my favourite hobbies, I find it hard to finish books*") were used to measure this variable. The scale includes four response categories from "strongly disagree",

"disagree", "agree" to "strongly agree". The positive scores from this scale indicate higher levels of enjoyment of reading. The alpha reliability of scale for this research was reported as 0.84 in PISA Technical Report.

Learning strategy (Initial variables): This scale includes three subscales: memorisation (MEMSTR), elaboration (ELBSTR) and control strategies (CTRSTR). Positive scores from the scale indicate the use of reading strategies more often. In the scale, thirteen items measured learning strategies; four items measured memorisation (e.g. *"When I study, I try to memorize as many details as possible; when I study, I read the text so many times that I can recite it. etc."*), four items measured elaboration strategies (e.g *"When I study, I try to relate new information to prior knowledge acquired in other subjects, When I study, I try to understand the material better by relating it to my own experience etc"*), and five items measuredcontrol strategies (*"When I study, I check if I understand what I have read; When I study, I start by figuring out what exactly I need to learn, etc").* There are four response categories varying from "almost never", "sometimes", "often" to "almost always". Positive scores indicate greater use of that learning strategy. The alpha reliability of memorisation is 0.67, elaboration was 0.68 and the control was 0.74.

Reading performance (PV1- PV5) (outcome): Students participating in PISA applications have not responded to all questions of the reading literacy test. PISA uses the imputation methodology usually referred to as plausible values (PVs). Using item parameters from the international calibration, the plausible values are randomly estimated from the marginal posterior of the latent distribution for each student (OECD, 2012). In this research, five possible values for reading literacy were separately analysed. Table 1 presents the descriptive statistics of the variables.

Table 1

Descriptive Statistics

Variable name	N	MEAN	SD	MIN	MAX
CTRSTR	4648	0.24	0.82	-2.05	2.50
ELBSTR	4648	0.46	0.78	-1.52	2.76
MEMSTR	4648	-0.04	0.77	-1.97	2.52
ENJREAD	4648	0.62	0.76	-1.82	2.66
PV1 (Reading)	4648	468.29	77.71	229.01	706.04
PV2	4648	467.04	78.19	234.06	726.06
PV3	4648	467.61	78.44	225.00	698.26
PV4	4648	467.23	77.96	229.49	694.46
PV5	4648	467.36	77.95	234.70	698.26

There are large differences in standard deviation between students' reading comprehension scores and differences in the assessment of the index values of the variables. When Table 1 is examined, it can be seen that, for example, PV1 had SD = 78.12 while CTRLSTR had SD = 0.82. Kline (2011) emphasizes that the variance of the variables should first be analysed and then the variance values should be scaled by

various conversion methods, including iterative processes of analysis. Standardized scores of dependent variables (mean 0.00, standard deviation 1.00) were calculated to equalize the scale levels of dependent and independent variables.

Data Analysis

In PISA, sampling was selected from different units such as students, teachers, and schools. In studies involving such sampling structures, it is assumed that the previous level is not independent of its subsequent levels (Raudenbush & Bryk, 2002). Multi-level models take into account dependence between observations in nested data, and so the result was estimated more accure (Krull & MacKinnon, 2001). This results in fewer errors. In this research, direct effects of memorisation, elaboration and control strategies and reading enjoyment variables on reading comprehension were tested. In conditions when reading enjoyment was mediator, the direct effects of memorisation, elaboration and control strategies on reading comprehension were analysed using hierarchical linear models (Figure1).
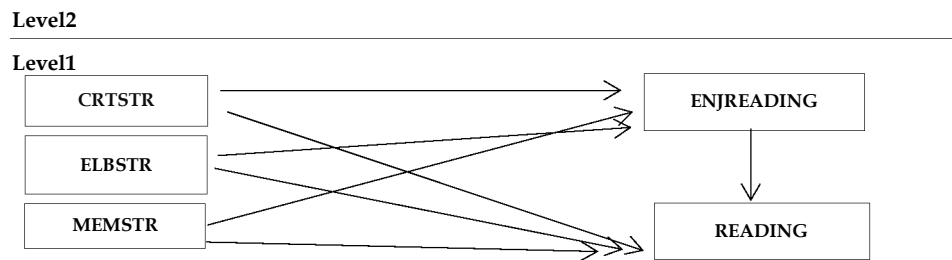

Figure 1. *The Tested Model*

In this research, a mediational model was formed at the lower level by considering the hierarchical structure of the PISA sample. All variables were measured at Level-1, the model was labelled as 1-1-1, the Level-1 units (students) were nested in Level-2 units (schools). The direct and indirect outcomes of Initial variables (CRTSRT, ELBSTR, and MEMSTR) on reading achievement were analysed. The effect of reading enjoyment (mediator variable, M) on reading literacy (outcome variable, Y) was also been tested. Considering the HLM model tested in the study, the following regression equations were formed. (Krull & Mckinnon, 2001; Yildirim, 2012; Zhang, Zyphur & Preacher, 2009):

Model 1-1-1

(1)   L-1: $PVReading_{(ij)}$ (Y) = β_{0j} + $\beta_{1aj}(CRTSTR)_{ij}$ + $\beta_{1bj}(ELBSTR)_{ij}$ + $\beta_{1cj}(MEMSTR)_{ij}$ + r_{ij}

L-2: $\beta_{0j} = \gamma_{00} + u_{0j}$

$\qquad \beta_{1aj} = \gamma_{10}$

$\qquad \beta_{1bj} = \gamma_{20}$

$\qquad \beta_{1cj} = \gamma_{30}$

(2) L-1: ENYREADING$_{(ij)}$(M)= $\beta_{0j} + \beta_{1dj}$(CRTSTR)$_{ij} + \beta_{1ej}$(ELBSTR)$_{ij} + \beta_{1fj}$(MEMSTR)$_{ij} + r_{ij}$

L-2: $\beta_{0j} = \gamma00 + u0j$

$\qquad \beta_{1dj} = \gamma10$

$\qquad \beta_{1ej} = \gamma20$

$\qquad \beta_{1fj} = \gamma30$

(3) L-1: PVReading$_{(ij)}$ = $\beta_{0j} + \beta_{1gj}$(CRTSTR)$_{ij} + \beta_{1hj}$(ELBSTR)$_{ij} + \beta_{1kj}$(MEMSTR)$_{ij} + \beta_{1mj}$(ENJREADING)$_{ij} + r_{ij}$

L-2: $\beta_{0j} = \gamma_{00} + u_{0j}$

$\qquad \beta_{1gj} = \gamma_{10}$

$\qquad \beta_{1hj} = \gamma_{20}$

$\qquad \beta_{1kj} = \gamma_{30}$

$\qquad \beta_{1mj} = \gamma_{40}$

Model refers to the model where all variables measured at level 1. Equations presume that predictive variables are fixed; that is, they do not allow to vary across higher-level units. The effect of the mediator was determined by multiplying the alpha levels of the variables in the second module and the alpha level of reading enjoyment variable in the fourth model (γ_{10}(2) $*$ γ_{40}(3)). Sobel (1982) test was used to calculate the significance of the effect. The variances explained in the reading scores of the variables included and the effect sizes based on these variances were calculated. The following formula is used in the calculation of the explained variances

(Snijders & Bosker; 2012):

$R^2 = 1 - (\sigma^2_F + \Upsilon_F) / (\sigma^2_E + \Upsilon_E)$

Where σ^2_F represents the variance of eij for Model with coefficients; Υ_F represents the variance of u0j for the same model. σ^2_E represents the level-one random error variance for the empty model, and Υ_E represents the level-two random error variance for the null model.

The effect size f^2 was computed as (Cohen, 1992):

$f^2 = R^2 / (1-R^2)$

The explanation of f^2 indicates that "*0.02 is a small effect, 0.15 is a medium effect, and 0.35 is a large effect*" (Cohen, 1992).

Before the analysis of the data, the assumptions with regards to the regression analysis and hierarchical models were tested. Multilevel modeling was conducted using Hierarchical Linear Modelling (HLM6) (Raudenbush, Bryk, Cheong & Congdon, 2004).

Results

Null model (One-way ANOVA) and ICC (intra-class correlation) were calculated before testing the direct effects of learning strategies on reading performance. This shows that 68% of the variance in reading performance was due to the difference between the schools and 32% of it was related to the differences among students. The overall effects of the learning strategies on reading performance were tested by Model 1 before including reading enjoyment to the model as a mediator. Table 2 presents the findings of the model and the tested model.
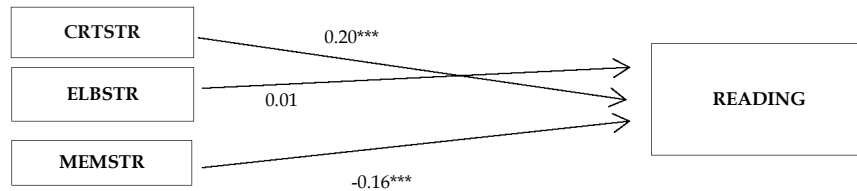
Table 2

The Overall Effect on Reading Attainment

Model1	β Coefficients	Se	t	p
CNTRSTR (Xaj) → Reading(Y)	0.202	0.029	7.011	0.000
EBRSTR (Xbj) → Reading(Y)	0.016	0.024	0.665	0.506
MEMSTR (Xcj) → Reading(Y)	-0.160	0.023	-6.763	0.000
Random Effects	Variance Component	df	χ2	p
U0j	*0.89*	*168*	10100.05	0.000
rij	*0.434*			

(Y)=Outcome, (X)= Initials, (M)= Mediator

Level2

Level1

***p<0.001

Figure 2. *The relationship between learning strategies and reading performance*

Table 2 shows that the control and memorisation strategy were significant predictors of reading performance (p <0.01), and the elaboration did not significantly predict the students' reading performance (p> 0.01). When other variables were controlled, the control strategy resulted in a standard deviation increase of 0.20 in the frequency use of the control strategy. Memorisation is a variable that decreases the student's reading scores. A one-unit increase in the standard deviation of memorisation strategy causes 0.16 decrease in the standard deviations of reading scores. The strategies explained 9% (R^2) of variance on reading performance. The variables in the model could explain 9% of the change in reading attainment. Accordingly, the effect size of reading variables on reading performance was 0.10 in (f^2). The effect of variables on reading attainment was minimum. Model 2 tests whether learning strategies predict reading enjoyment, and the findings are presented in Table 3.

Table 3

The Effects on Reading Enjoyment

Model 2	β Coefficients	Se	t	p
CNTRSTR (Xdj) → ENJREADING(M)	0.271	0.024	10.930	0.000
EBRSTR(Xej) → ENJREADING(M)	0.117	0.018	6.424	0.000
MEMSTR (Xfj) → ENJREADING(M)	-0.016	0.025	-0.640	0.522
Random Effects	Variance Component	df	χ2	p
u0j	0.014	168	416.518	0.000
rij	0.482			

(Y)=Outcome, (X)= Initials, (M)= Mediator

Table 3 shows that that control and elaboration strategies significantly predicted reading enjoyment (p <0.01); however, the memorisation strategy was not a significant predictor (p> 0.01). Therefore, memorisation had no indirect effect on reading attainment. These variables explained 13% of the variance in the variable of reading enjoyment. As the frequency of using control and elaboration strategy increased, the level of reading enjoyment also increased.

The mediator effects of reading enjoyment were tested via Model 3. Table 4 presents the findings of the model, and the tested model is shown in Figure 3.
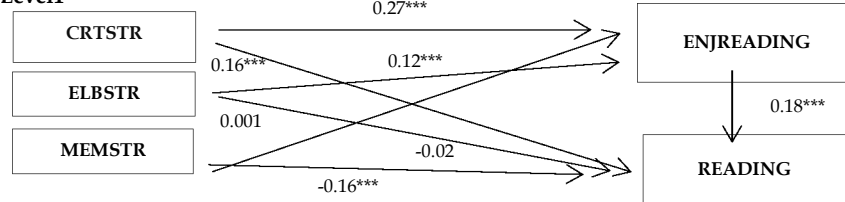
Table 4

The Direct Effects on Reading attainment

Model3	β Coefficients	Se	t	p
CNTRSTR (Xaj) → Reading(Y)	0.155	0.030	5.069	0.000
EBRSTR (Xbj) → Reading(Y)	-0.005	0.025	-0.020	0.839
MEMSTR (Xcj) → Reading(Y)	-0.158	0.023	-6.823	0.000
ENJREADING(M) → Reading(Y)	0.176	0.023	7.466	0.000
Random Effects	Variance component	df	χ2	p
u0j	0.886	168	10347.168	0.000
rij	0.420			

(Y)=Outcome, (X)= Initials, (M)= Mediator

***p<0.01

Figure 3. *The relationship between learning strategies, reading enjoyment and reading attainment*

Table 4 shows that control and memorisation strategy predicted reading scores (p<0.01), and elaboration strategy was not a significant predictor in this model (p>0.01). According to the model, reading scores of the students who used control strategies more frequently were higher, while reading scores of the students who used

the memorisation strategies were low. The more pleasure student gets from reading, the higher their reading scores are. When other variables were controlled, a standard deviation increase in the reading enjoyment increased the standard deviation of the students' reading points by 0.18 units. When reading enjoyment mediator was included in the model, all variables explained 10% (R^2) of the reading scores, and the effect size was calculated as 0.11 (f^2). The variance explained by the variables was small.

The effects of control and elaboration strategies on reading scores were examined with the effect of reading enjoyment mediator. It was found out that the use of control and elaboration strategies' frequency significantly predicted students' reading performance ($p < 0.01$). This situation showed that reading enjoyment had a mediating effect on predicting reading scores of control and elaboration strategies. As the frequency of using a control strategy for reading increased, level of reading enjoyment increased. Student's reading score increased as the level of enjoyment increased (Mediation effect (10 (2) * (40 (3) = 0.27 * 0.18 = 0.05, z_{sobel} = 6.33 p <0.01). A one-unit increase in index values related to the use of control strategy led to a 0.27 increase in reading enjoyment scores, and 0.18 of this increase was transferred to reading scores. Thus, the indirect effect of the frequency of the use of control strategy on reading scores was 0.05.

It is observed that the students who use the elaboration strategy frequently increase their level of reading enjoyment and reading scores. Since there was no significant relationship between the elaboration strategy and reading performance, the reading enjoyment was a full mediator for the elaboration strategy. (Mediation effect $\gamma_{20}(2)* \gamma_{40}(3)=0.12*0.18=0.02$, $z_{sobel}=5.03$ p<0.01). A one-unit increase in the elaboration strategy led to an increase of 0.12 in reading enjoyment, and 0.18 of this increase was transferred to reading scores. Thus, the indirect effect of the elaboration strategy on reading scores was 0.02.

Discussion, Conclusion, and Recommendations

This research analysed the extent the effects of the learning strategies and reading enjoyment variables predict students' PISA 2009 reading performance, and tested the mediator effect of the reading enjoyment variable on reading the relationship between reading performance and learning strategies. The results of the study showed that students who used control strategies more frequently had higher reading scores. PISA reading skills are measured in the form of simple analysis of a text or deriving extensive, realistic or figurative meanings from the text, and understanding the theme of a long text written for discussion or storytelling (OECD, 2012). Therefore, students' use of higher-level learning strategies to understand relevant texts is a factor that increases their reading scores. Many studies conducted in different countries using PISA 2000 data found positive correlations between the frequency of using control strategies of students and reading performance (Artelt, Baumert, Julius-McElvany &Peschar, 2003; Bortoli & Cresswell, 2004; Muszyński & Jakubowski, 2015).

Memorization was negatively associated with reading performance. Yet, this is not surprising; researchers have argued that a surface strategy such as memorization is insufficient for deep learning. (e.g. Chiu et al.,2007; Czuchry & Dansereau, 1998; Mayer, 2008). However, the relationship between these two variables for different countries where PISA data were used showed the difference. Using of memorisation shows a less consistent relationship with performance than the other two strategies (control and elaboration). For example, in Hong Kong, Hungary, and the Russian Federation, it is found that students who frequently use the memorization strategy are more successful than those who used it less. In Italy, Austria, and Poland, the success of students who use this strategy frequently is low (Artelt et al., 2003; Bortoli & Cresswell, 2004; Li & Chu, 2012; Muszyński & Jakubowski, 2015). These findings do not, however, support that memorisation strategies never contribute to effective learning. Researchers point out that poor readers memorise more to make up for other learning limitations (Artelt et al., 2003; Weinstein & Mayer, 1986). Several other factors may support the conflict between results. First, socio-cultural factors can play a role in the emergence of the results. Cultural context is a factor that affects students' learning strategies and approaches to that strategy (Oxford, 1996). For example, memorization is common in Asian countries, and students from the Confucian heritage culture generally prefer memorization strategies (Kember, Biggs & Leung, 2004; McInerney, 2011; Politzer & McGroarty, 1985). Second, the relationship between using strategies and performance may be moderated by other student or family characteristics. Third, it should be noted that high frequency use, and more types of learning strategies do not necessarily lead to better academic success (Wen & Wang, 2004). Finally, although the same PISA data is used in these studies, the variables discussed for each study are different. Accordingly, the effects of the learning strategies of students on reading literacy differ depending on the direct and indirect effects of these variables and their interaction with each other.

The elaboration strategies had no effect on achievement, which could be considered as an unexpected but not a surprising finding. The research of Muszyński and Jakubowski (2015) and Chiu et al., (2007) also reached a similar finding. There may be some reasons for this result. First, questionnaire questions may be insufficient to adequately measure student's transfer skills through detailing. For example, students may not have an objective view of the extent to which and how to link their previous knowledge to their new knowledge. How to transfer knowledge across situations or context remains one of the greatest challenges for educators (Halpern, 1998). Second, it is possible that the use of the elaboration strategy should not be measured according to self-reports as students report that they struggle to use this strategy. It is difficult to successfully implement; thus, they would mostly then report failed attempts (Muszyński & Jakubowski, 2015). Despite these explanations, there are also studies showing that there is a positive significant relationship between elaboration strategies and reading literacy. For example, Artelt et al. (2003) conducted a study using PISA 2000 data from 26 countries. They assert that stronger readers are more likely to use elaboration strategies than poor readers. Similarly, Li and Chun (2012) state that there is a strong positive relationship between elaboration strategies and reading literacy for Hong Kong in the top rankings of PISA. This result can be explained by the theory of

learning pattern dissonance which asserts that high-achieving students tend to benefit from using deep cognitive strategies and self-regulated learning whereas low-achieving students succeed by virtue of externally-regulated learning (e.g., by teacher or parents) and using surface strategies (Beishuizen & Stoutjesdijk 1999; Meyer, 2000).

Reading enjoyment is identified as a variable that improves students' reading performance. Research findings show that a large achievement gap between the secondary school students who read and who do not read books is the most important finding (e.g. OECD, 2010; Mol & Bus, 2011; Mol & Jolles, 2014; Rao & Moely, 2000). Readers who read frequently are more likely to enjoy reading, and it improves their performance in school (Baker, Dreher & Guthrie, 2000; Oatley, 2012). This finding is pointing a causal relationship between the variables.

When the effects of learning strategies in the related model on the reading enjoyment were examined, it was found out that control and elaboration strategies directly affected student's reading enjoyment whereas memorisation did not have such a direct effect. This shows that students who use higher-level strategies for learning enjoy reading more. When reading the text, students using higher-level skills take more pleasure in reading. Previous studies with adults found that feeling highly vividness can increase the enjoyment of reading books (e.g., Green et al., 2008; Weibel, Wissmath & Mast, 2011).

When the results showing the indirect effect between variables were examined, reading enjoyment had a partial mediator effect for the control strategy and had a full mediating effect for elaboration. This shows that students who employ control and elaboration strategies enjoy reading more, and they are more successful. Research on the effects of learning strategies shows that the use of learning strategies has positive effects on students' attitudes (Carroll & Leander, 2001; Huffman & Spiers, 1992; Keller, 1990) and their academic achievement (e.g. Ho, 1998; Vermunt & Vermetten, 2004; Ward & Rosetta 2001). Successful students were found to be more enthusiastic and conscious about the use of learning strategy (Loranger, 1994; Schutz, Drogozs, White & Distefeno 1998).

In conclusion, this research shows that students who use learning strategies with high-level skills enjoy reading, and they are more successful in reading comprehension. Teachers are encouraged to use deep learning strategies instead of surface learning strategies. Teachers can inform their students about what deep learning strategies are, why they are more effective than others, and how to use them. The think-aloud technique based on how this strategy can be used in daily life can be used. Future studies may examine cognitive or affective factors in natural settings or explore the effects of learning strategies on reading literacy experimentally. Large scale studies that distinguish between higher and lower-achieving countries are definitely needed in order to assess the contribution of the learning strategies to reading literacy.

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Okumaktan Zevk Alma ve Öğrenme Stratejilerinin PISA 2009 Okuma Performansı Üzerindeki Doğrudan ve Dolaylı Etkilerinin İncelenmesi

Atıf:

Özet

Problem durumu: Gelişen ve sürekli rekabetin yaşandığı dünyamızda, okuduğunu anlayan bireyler yetiştirmek önemlidir. Bireyin kişisel, sosyal ve ekonomik olarak kendinin geliştirebilmesi için okuma önemli bir role sahiptir. Bireylerin okuduğunu anlama sürecinde, ilişki kurma, karşılaştırma yapma, kanıt sunma, genelleme yapma, çıkarımda bulunma ya da olayları yordama gibi daha karmaşık düşünme süreçlerini kullanmaları gerekmektedir. Bu da akademik başarıyı destekleyen bir faktördür. Bu

bakımdan öğrencilerin okuduğunu anlama performansı bakımından durumlarının değerlendirilmesi, bu beceriyi geliştirmek üzere yapılacak uygulamalara yön vermesi açısından bu beceriyle doğrudan ya da dolaylı olarak ilişkili faktörlerin belirlenmesi giderek daha önemli hale gelmektedir. Son yıllarda okuma becerisinin geliştirilmesi için öğrencinin kullandığı stratejiler ve metodlar üzerinde ağırlıklı olarak durulmaktadır. Bu çalışmada, öğrencilerin okuma performansı ile ilişkisini belirlemek üzere metabilişsel stratejiler (kontrol, ezberleme ve detaylandırma) ele alınmıştır. Ayrıca, bu iki değişken arasındaki ilişkide okumaktan zevk almanın olası aracı etkisi de incelenmiştir.

Araştırmanın amacı: Bu çalışmanın amacı, öğrencilerin kullandıkları öğrenme stratejileri ve okumaktan zevk alma değişkenlerinin öğrencilerin PISA 2009 okuma başarılarını ne derece yordadığı ve okuma başarısı ile öğrenme stratejileri arasındaki ilişkide okumaktan zevk alma değişkeninin aracı etkisinin olup olmadığının incelenmesidir.

Araştırmanın Yöntemi: İlişkisel tarama modelindeki bu araştırmada örneklemi, PISA 2009 uygulamasına katılan 170 okuldan 4996 Türk öğrenci oluşturmaktadır. Verilerin düzenlenmesinden sonra analizler 4648 öğrenci ve 169 okul üzerinden yürütülmüştür. Araştırmada, Türkiye PISA 2009 okuduğunu anlama bilişsel alan testi ve öğrenci anketinden toplanan veriler kullanılmıştır. İlgili veriler OECD'nin resmi web sayfasından elde edilmiştir. Öğrencilerin okuduğunu anlama başarısı ile ilişkili olduğu düşünülen "öğrenme stratejileri ve okumaktan zevk alma" yordayıcı değişken olarak; öğrenme stratejiler olarak tanımlanan kontrol, hatırlama ve detaylandırma stratejileri içsel değişkenler, okumaktan zevk alma ise aracı değişken olarak belirlenmiştir. Kurulan model yoluyla okuma başarısı üzerinde öğrenme stratejilerinin dolaylı etkisi incelenmiştir. Ölçeklerin geçerlik ve güvenirlik çalışmaları PISA 2009 teknik raporunda ayrıntılarıyla raporlanmıştır. Araştırmada PISA örnekleme yaklaşımının hiyerarşik yapısı dikkate alınarak HLM'ye dayalı analizler yapılmıştır.

Araştırmanın Bulguları: Öğrenme stratejilerinin okuma performansı üzerindeki doğrudan etkileri test edilmiş, kontrol stratejisi ve hatırlama stratejisi kullanma sıklığının öğrencilerin okuma performansını yordamada anlamlı bir değişken olduğunu (p<0.01), detaylandırma stratejisi kullanımının ise anlamlı bir yordayıcısı olmadığı belirlenmiştir (p>0.01). Kontrol ve detaylandırma stratejilerini kullanım sıklığı, öğrencilerin okumaktan zevk almasını anlamlı bir şekilde yordamakta (p<0.01); ancak hatırlama stratejisini kullanım sıklığı öğrencilerin okumaktan zevk almasını anlamlı olarak yordamamaktadır (p>0.01). Bu bakımdan hatırlama stratejisinin okuma başarısı üzerinde dolaylı etkisi olmadığı belirlenmiştir. Okumaktan zevk alma değişkeninin aracı etkileri test edildiğinde ise kontrol stratejisi, hatırlama stratejisi ve okumaktan zevk alma stratejisinin okuma performansının anlamlı olarak yordamış (p<0.01); detaylandırma stratejisi ise bu modelde de anlamlı bir yordayıcı olmamıştır (p>0.01). Okumaktan zevk alma değişkeninin aracı etkisiyle, kontrol ve detaylandırma stratejilerinin okuma puanları üzerindeki etkisi incelenmiş; bu iki stratejinin kullanım sıklığının okumaktan zevk alma değişkeni üzerinden öğrencilerin okuma performansını anlamlı olarak yordadığı görülmüştür (p<0.01).

Araştırmanın Sonuç ve Önerileri: Okuma sırasında kontrol stratejilerini daha sık kullanan öğrencilerin okuma puanlarının daha yüksek olduğu belirlenmiştir. Öğrencilerin ilgili metinleri anlamak üzere daha üst düzey öğrenme stratejileri kullanmaları onların okuma puanlarını artıran bir faktör olmaktadır. Hatırlama stratejisinin okuduğunu anlama başarısı ile negatif yönlü bir ilişkisi bulunmuştur. Bu durum ezberleme ağırlıklı strateji kullanımının, farklı becerileri bir arada içeren okuma sürecini desteklemediğini işaret etmektedir. Beklenilenin aksine bu araştırmada detaylandırma stratejisinin okuma başarısı üzerinde doğrudan bir etkisi bulunmamıştır. Okumaktan zevk alma, öğrencilerin okuma performansını artıran bir değişken olarak belirlenmiştir. Bu durum, daha iyi okuyucuların, okuduklarından zevk aldığını, gönüllülükle okumaya devam ettiklerini ve ayrıca okul performanslarını arttırma eğiliminde olduğunu göstermektedir. İlgili modelde öğrenme stratejilerinin okumaktan zevk alma değişkeni üzerindeki doğrudan etkileri incelenmiş; kontrol ve detaylandırma stratejilerini kullanma sıklığının öğrencinin okumaktan zevk almasını doğrudan etkilediği, hatırlama stratejisinin ise öğrencinin okumaktan zevk almasını doğrudan etkilemediği görülmüştür. Bu durum, öğrenmeye yönelik üst düzey stratejileri daha sıklıkla kullanan öğrencilerin, okumaktan daha çok zevk aldığını göstermektedir. Değişkenler arasındaki dolaylı etkiyi gösteren sonuçlar incelendiğinde, okumaktan zevk alma kontrol stratejisi değişkeni için kısmi aracı etkiye sahipken, detaylandırma stratejisi için tam aracı bir etkiye sahip olmuştur. Sonuç olarak, bu araştırma üst düzey beceri içeren öğrenme stratejilerini kullanan öğrencilerin okumaktan daha çok zevk aldığını ve bu öğrencilerin okuduğunu anlama konusunda daha başarılı olduğunu göstermektedir. Araştırma sonuçları, üst düzey beceri içeren öğrenme stratejilerini kullanan öğrencilerin okumaktan daha çok zevk aldığını ve bu öğrencilerin okuduğunu anlama konusunda daha başarılı olduğunu göstermektedir. Bu durumda, öğrencilerin okumaktan zevk almalarını sağlayacak farklı öğretim materyalleri ve etkinliklerin öğretmenler tarafından kullanılması, öğrencilerin okuma sırasında üst düzey becerilerini geliştirmelerini ve kullanmalarını sağlayacak öğretim ortamlarının oluşturulması ve bu becerilerin nasıl kullanılacağının öğretilmesine yönelik etkinliklerine öğretim programlarında yer verilmesi önerilmektedir. Okul dışında ise, aileler öğrencilerin ilgisini çekebilecek farklı türde kitaplar edinerek okumayı çocuklar için daha zevkli hale getirebilir. Aileler, çocukların okunan metne ilişkin var olan bilgilerini kullanarak, yorum yapma ve yeniden anlam verme gibi becerilerini kullanmalarına yönelik birlikte etkinlikler yapabilir.

Anahtar Kelimeler: Okuma performansı, öğrenme stratejisi, okumaktan zevk alma, doğrudan-dolaylı etki, aşamalı doğrusal model.