

INVESTIGATION THE EFFECT OF TEACHERS' MISBEHAVIORS ON PHYSICS SUCCESS

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ABSTRACT

Misbehaviors can be defined as any behavior which negatively affects the learning environment. It has been figured out that the misbehavior of teachers negatively affects the learning issues. Therefore, this research was done to figure out the misbehavior of teachers and their effects according to students' perceptions and also to research the relationship between the physics achievements of high-school students and the misbehaviors of teachers as well. The research was carried out with 294 students from three public high schools in the center of Konya in the academic year of 2017-2018. The 46,6% (f = 137) of the participants were male students, while 53,4% (f = 57) of participants were female. The data of this research were obtained by the "Teachers' Aggression Behavior Scale" developed by Keçici, Beyhan, and Ektem (2013). The obtained data were analyzed by frequency, percentage, correlation and independent samples-t test in SPSS 16 program. According to the results of the research, male students' perceptions about the mean score of the teachers' misbehaviors subscale was found significantly higher than the female students. It was found out that the mean score of the male students related the effects of teachers' misbehaviors subscale was significantly higher than the female students. Also, it was found a negative correlation between the success of the physics course and the teacher's misbehavior score and the score of the teachers' misbehaviors effects.

Keywords: Misbehaviors, Gender, Physics success, Attitude towards physics, High school.

1. INTRODUCTION

Physics is a science, which try to explain the events that occur around us. Because all events existing around us work depend on physics principles. Therefore, success in physics learning can facilitate our daily life and can help us to solve many problems we may face as well. However, it is essential for us and has an important role for understanding what happens around us, many researches have shown that success in physics decreases day by day (Gök & Silay, 2008; Mattern & Schau, 2002). The scientific developments occur and change very fast in the 21th century. Therefore, the reasons create the lack of physics success should be defined as soon as possible. There are many factors affecting the learning in physics lectures, which decrease the physics achievement of high school students. Some of these factors are related with teachers, students, teaching environments, curriculum, teaching methods, principals and students' parents as well. As we know that most of the learning and teaching processes occur in classroom, in this point of view it can be stated that students and teachers based problems are the main factors causing the lack of physics success. The first person responsible from the learning and teaching

occur in the classroom is teacher. In this context, it has been figured out that there is a strong relationship between classroom management and students success (Evertson & Emmer, 2009; Gage, Scott, Hirn, & Macsuga-Gage, 2018; Johnson, Halocha, & Chater, 2007; Reinke, Lewis-Palmer, & Merrell, 2008). Thus, the effect of teacher on the physics success should be considered.

Misbehaviors are one of the most important reasons that reduce the learning in the classroom. Evertson and Emmer (2009) have defined misbehaviors as any behavior which negatively affects the learning environment. There are two sources of the misbehaviors in the classroom. These are misbehaviors of students and misbehaviors of teachers as well. Many researchers have stated that misbehaviors of students negatively effects the learning and teaching issues (Cruickshank, Jenkins, & Metcalf, 2003; Dada & Okunade, 2014; Evertson & Emmer, 2009; Güleç & Balçık, 2011; Kitishat & Al-Friehat, 2013). So, this shows us that how it is very important to figure out the reasons of these misbehaviors.

In the related literature some researches have tried to figure out the sources of misbehaviors of students in classroom (Kitishat & Al-Friehat, 2013; Kuhlenschmidt & Layne, 1999). According to Kitishat and Al-Friehat (2013), some of the reasons causes the misbehaviors in classroom are teachers' misbehaviors, school managements, teaching methods, students' parents and students' psychologies etc. As it can be seen teachers misbehaviors is one of the reasons which cause students' misbehaviors. These misbehaviors of students are another important reason, which reducing attitudes towards physics as well. The negative attitude towards physics reduces willingness and motivation of students to physics (Cracker, 2006; Guido, 2013). Because of these reasons last decades, the physics attracts fewer students compared to other sciences and enrollment to the department of physics decreases day by day (Brickhouse, 2001; MacLeod, 2013; Zohar, 2005). On the other hand, it was figured out that the positive attitudes towards physics cause an increase in willingness and motivation for class engagement (Cracker, 2006). Guido (2013) has pointed out that the success in physics increases the happiness of students.

As it was stated before that teacher is one of the most important factors, which effect attitudes towards courses such as physics. Their good behaviors increase the students' motivations and willingness to physics. For example, it was explained that when students like their teachers, they enjoy learning physics (Guido, 2013). Because of this reason, teachers are very important figures who can create negative and positive effects on learning and teaching issues by their behaviors. In this context, teachers' misbehaviors or unwanted behaviors are another important factor, which affect the learning of students especially in physics subjects. It has been showed that misbehaviors of teachers directly harm learning which causes a decrease in students' learning (Banfield, Richmond, & McCroskey, 2006; Kearney, Plax, Hayes, & J., 1991; Keçici et al., 2013). Thus, it is so important to investigate these misbehaviors of teachers to increase the students' physics success.

1.1. Purpose of the Research

This research aimed to figure out the high school students' perceptions about misbehaviors of teachers and to investigate the effect of these behaviors of teachers on the students' physics success. Therefore, this research carried out to figure out views of high school students about misbehaviors of teachers and to learn if the views of high school students about misbehaviors of teachers differ in terms of gender. Also, it was aimed to figure out the relationship between the misbehaviors of teacher and their physics success.

2. METHOD

2.1. Research Design

This research is a descriptive research. Therefore, the general scanning model was used in this research. Scanning models are the research approaches that aim to describe a situation which happened in the past or still exist with its all contents (Karasar, 2009). The views of students about misbehaviors of teachers are compared in terms of gender variable. It is investigated that whether there is a significant difference between the views of students in terms of gender variable or not. This research is also a relational survey model by having this gender aspect (Erkuş, 2005). Relational survey is a research model that is conducted in order to define the relationship between two or more variables, and to obtain clues related to cause and effect relationships (Çepni, 2010; Karasar, 2009).

2.2. Participants

The research is conducted with 294 students from three public high schools in the center of Konya in academic year of 2017-2018. When the demographic features of the participants were examined, it is seen that 46,6 % (f = 137) of them are male students while 53,4% (f = 57) are female students. The detailed data related with the sample of the research is given in Table 1.

Table1. The Data Related with Participants According to Different Variables

Variables		Frequency	Percentage (%)
Gender	Male	137	46,6
	Female	157	53,4
	Total	294	100,0
Grade	9 th Grade	101	34,4
	10 th Grade	193	65,6
	Total	294	100,0

As it can be seen from Table 1, the sample of the research consists of 101 (34,4%) 9th and 193(65,6%) 10th grade students.

2.3. Data Collection Tools

2.3.1. Teacher's Aggression Behavior Scale

In the research, "Teachers' Aggression Behavior Scale" developed by Keçici et al. (2013) is used as data collection tool. The scale is a likert-type scale and has 39 questions in two-factors that are "Misbehaviors of teacher" and "The effects of the misbehaviors of teacher".

According to the results of the analysis of validity and reliability of the scale, the Cronbach's Alpha had been found as .96 for misbehaviors of teacher sub-dimension. The Cronbach's Alpha had been calculated as .95 for the effects of the misbehaviors of teacher sub dimension. The Cronbach's Alpha had been found as .97 for the whole scale as well. On the other hand, as a result of the analysis, it had been figured out that the factor loadings of the scale ranged from .51 to .86.

2.4. Data Analysis

Frequency, mean, independent samples t-test and Pearson correlation analysis were used in order to analysis of data in research. Research data obtained in the research is analyzed with SPSS 16 program.

3. FINDINGS

The statistical data on misbehaviors of teachers, the effects of the misbehaviors of teachers, the relationship between these misbehaviors and the physics success of students are investigated and findings obtained are given in Tables 2-6.

Table2. The Statistical Data On Misbehaviors of Teachers

The misbehaviors of teachers	Strongly disagree f (%)	Disagree f (%)	Undecided f (%)	Agree - f (%)	Strongly agree - f (%)
1. The teacher thinks that I am not appropriate for the school.	195(66,3)	40(13,6)	31(10,5)	12(4,1)	16(5,4)
2. The teacher says that I am psychologically ill	213(72,4)	45(15,3)	18(6,1)	8(2,7)	10(3,4)
3. The teacher says that my reasoning ability is not sufficient.	201(68,4)	47(16,0)	22(7,5)	17(5,8)	7(2,4)
4. The teacher emphasizes my weak points intentionally.	188(63,9)	48(16,3)	23(7,8)	18(6,1)	17(5,8)
5. The teacher ironizes my mistakes.	220(74,8)	38(12,9)	15(5,1)	7(2,4)	14(4,8)
6. The teacher teases about my physical appearance.	209(71,1)	51(17,3)	15(5,1)	8(2,7)	11(3,7)
7. The teacher teases about my name.	211(71,7)	47(16,0)	15(5,1)	7(2,4)	14(4,8)
8. The teacher gives excess amount of home works to exclude me from in class activities.	206(70,1)	51(17,3)	13(4,4)	11(3,7)	13(4,4)
9. The teacher behaves me as if I am not there.	178(60,5)	49(16,7)	29(9,9)	17(5,8)	21(7,1)
10. The teacher always interrupts me and never allows me to talk.	190(64,6)	48(16,3)	28(9,5)	14(4,8)	14(4,8)
11. The teacher never allows me to talk when I raise my hand.	153(52)	71(24,1)	36(12,2)	12(4,1)	22(7,5)

12. The teacher always finds an excuse when I try to talk with her.	195(66,3)	48(16,3)	34(11,6)	11(3,7)	6(2,0)
13. The teacher makes me wait intentionally too long.	203(69)	40(13,6)	20(6,8)	13(4,4)	18(6,1)
14. The teacher assaults my private life.	219(74,5)	31(10,5)	14(4,8)	13(4,4)	17(5,8)
15. The teacher tells my private issues in public.	213(72,4)	37(12,6)	24(8,2)	11(3,7)	9(3,1)
16. The teacher backbites behind me.	199(67,7)	52(17,7)	19(6,5)	10(3,4)	14(4,8)
17. The teacher vilifies me to the principal and other teachers.	204(69,4)	41(13,9)	23(7,8)	14(4,8)	12(4,1)
18. The teacher vilifies me to my parents.	180(61,2)	43(14,6)	25(8,5)	16(5,4)	30(10,2)
19. The teacher sends me to the principal even for little issues.	185(62,9)	44(15,0)	23(7,8)	15(5,1)	27(9,2)
20. The teacher always criticizes my home works and studies.	192(65,3)	49(16,7)	23(7,8)	10(3,4)	20(6,8)
21. The teacher always gives low grades without any explanation.	191(65,0)	32(10,9)	21(7,1)	27(9,2)	23(7,8)
22. The teacher gives punishments randomly.	205(69,7)	26(8,8)	23(7,8)	17(5,8)	23(7,8)
23. The teacher randomly shouts, insults and abuses.	193(65,6)	44(15,0)	21(7,1)	9(3,1)	27(9,2)

When the misbehaviors of teachers are controlled from Table2, it is seen that the participants ratio, who are “strongly agree” and “agree” about the misbehaviors of teachers is about 5-15%. For example, this ratio is found as 11.9 % for item-4 (The teacher emphasizes my weak points intentionally). On the other hand, the misbehaviors of teacher which they frequently have, are found as item-9 (The teacher behaves me as if I am not there”) by 12,9%, item-18 (The teacher vilifies me to my parents) by 15,6%, item-19 (The teacher sends me to the principal even for little issues) by 14,3%, item-21 (The teacher always gives low grades without any explanation) by 17,0% and item-22 (The teacher gives punishments randomly) by 13,6%. From these findings, it can be stated that each kind of these misbehaviors can reduce the motivation of the students, which also affect their attitudes towards physics and physics success as well.

As a results of the misbehaviors of teachers given in Table 2, the behaviors, feelings and emotions that the students of these teachers have, are given in Table3 below.

Table3. The Statistical Data of the Effects of the Misbehaviors of Teachers

The effects of misbehaviors of teachers on students	Strongly disagree f(%)	Disagree f(%)	Undecided f(%)	Agree f(%)	Strongly agree f(%)
24. I resort to physical violence.	211(71,8)	44(15,0)	13(4,4)	10(3,4)	16(5,4)
25. I find the teacher antipathetic.	167(56,8)	31(10,5)	30(10,2)	30(10,2)	36(12,2)
26. I feel anger and resentment to the teacher.	151(51,4)	42(14,3)	27(9,2)	31(10,5)	43(14,6)
27. I feel isolated by the teacher.	170(57,8)	34(11,6)	34(11,6)	29(9,9)	27(9,2)
28. I always think about behaviors of teacher.	169(57,5)	57(19,4)	23(7,8)	24(8,2)	21(7,1)
29. I feel sad.	161(54,8)	37(12,6)	26(8,8)	36(12,2)	34(11,6)
30. I hate the lecture that teacher is tutor.	168(57,1)	33(11,2)	20(6,8)	32(10,9)	41(13,9)
31. I am afraid in the lecture hours in which the teacher is tutor.	201(68,4)	35(11,9)	23(7,8)	16(5,4)	19(6,5)
32. I could not concentrate to the lecture of the teacher.	169(57,5)	36(12,2)	23(7,8)	38(12,9)	28(9,5)
33. I hate school and I do not want to continue.	171(58,2)	29(9,9)	34(11,6)	20(6,8)	40(13,6)
34. I lose my faith into myself.	186(63,3)	43(14,6)	31(10,5)	18(6,1)	16(5,4)
35. I feel desperate.	195(66,3)	42(14,3)	19(6,5)	19(6,5)	19(6,5)
36. I have been sleeping hardly at night.	207(70,4)	46(15,6)	12(4,1)	12(4,1)	17(5,8)
37. I am embarrassed.	209(71,1)	40(13,6)	19(6,5)	9(3,1)	17(5,8)
38. I feel nausea and headache.	210(71,4)	30(10,2)	16(5,4)	12(4,1)	26(8,8)
39. I feel to be bruised my pride among my friends.	207(70,4)	24(8,2)	26(8,8)	6(2,0)	31(10,5)

From the results of Table 3, one easily realizes that the misbehaviors of teachers have many negative effects. For example, some of these negative effects are such as: finding the teacher antipathetic, hating school, feeling sad, afraid of teacher and lesson etc. All of these are the effects of the misbehaviors of the teachers that reduce the attitude towards school, teacher, physics science and lessons and also decrease the physics success of students as well. As it can be seen from Table 3, the misbehaviors of teachers mostly have caused the existence of the following negative situations given by item number. The item-26 (I feel anger and resentment to the teacher) with ratio of 25,1%, item-30 (I hate the lecture that teacher is tutor) with ratio of 24,8%, item-29 (I feel sad) with ratio of 23,8%, item-32 (I could not

concentrate to the lecture of the teacher) with ratio of 23,4%, item-25 (I find the teacher antipathetic) with ratio of 22,4%, item-33 (I hate school and I did not want to continue) with ratio of 20,4% and item-27 (I feel isolated by the teacher) with ratio of 19,1%.

The comparison results of two sub-dimensions (The misbehaviors of teachers and the effects of misbehaviors of teachers) in term of gender are given in Table4.

Table4. The Comparison Results of Two Sub-Dimensions in Term of Gender

Subscales	Gender	f	\bar{x}	S	t	df	p
The misbehaviors of teachers	Male	137	39.61	19.12	2.77	301	.006
	Female	157	33.76	17.29			
The effects of misbehaviors of teachers	Male	137	32.66	16.39	2.73	301	.007
	Female	157	27.74	14.93			

As it can be seen in Table4, When the students' misbehaviors subscale scores of the teachers are examined in term of gender, the mean score of the teachers' misbehaviors subscale of male teachers is found significantly higher than the female students ($p = 0.006$, $p < 0.05$).

When the effects of teachers' misbehaviors according to gender is analyzed, it is seen that the mean score of the male students related the effects of teachers' misbehaviors subscale is found significantly higher than the female students ($p = 0.007$, $p < 0.05$).

For figure out the effect of teachers' misbehaviors on students' physics success, the physics success mean results of the participants are given in Table5.

Table5. The Mean of Physics Success of the Participants

Gender	Frequency	Physics Success Mean
Male	140	75,2
Female	163	78,6
Total	303	76,9

As it is seen in Table5, the mean value of physics success for male students is found as 75,2 point, while it is found 78,6 point for female students. The mean of physics success result for whole students is found as 76,9 point.

The comparison results of two sub-dimensions of "The Teacher's Aggression Behavior Scale" with physics success of participants are given in Table6.

Table6. The comparison results of sub-dimensions with physics success of participants.

Sub-dimensions	Physics Success
Misbehaviors of teacher	-.182**
The effects of misbehaviors of teacher	-.193**

** $p < .01$

When the Table6 is examined, it is seen that there is a negative correlation between the success of the physics lesson and the teacher's misbehavior score ($r = -.182$, $p < .01$) and between the teacher's misbehaviors effects score ($r = -.193$, $p < .01$).

4. RESULTS AND DISCUSSIONS

All technology in our daily life is based on various scientific laws which form the fundamental of physics. However, a significant decline in the students' physics success in high schools day by day. Students' attitude towards physics is defined as a key factor which influences the learning of physics subjects. There are many factors such as teachers' misbehavior, teaching methods, students' parents, school managements and environmental factors which influence students' physics success and attitude

towards physics courses. In this research, the misbehaviors of the teachers and their misbehaviors effects on the physics success of students are investigated according to the perceptions of high school students. The results obtained in the research are discussed in this part of the research.

As it can be seen from Table2, the students who are “strongly agree” and “agree” about the misbehaviors of teachers given in Table2 is widely determined about 5-15% of participants. As the teachers are the main key factor in learning issues, this results of Table 2 shows that they have really bad behaviors which cause a decrease in the physics success. For example, the students have stated that their teacher; emphasizes their weak points intentionally (in 11,9 %), behaves them as if they are not in class (in 12,9%), gives punishments randomly (in 13,6%), sends them to the principal even for little issues (in14,3%), vilifies them to their parents (in 15,6%) and gives low grades without any explanation (in 17,0%). These kinds of misbehaviors of teachers can create the misbehaviors of students as well and this prevents the successful class management. Therefore, teachers can prevent the learning of their students by their own misbehaviors. It can be stated that each kind of these misbehaviors can reduce the motivation of the students, which also affect their attitudes towards physics and physics success as well.

According to data given in Table 3, the misbehaviors of teachers cause different kinds of effects such as misbehaviors, negative feelings and emotions which students can have such as: finding the teacher antipathetic, hating school, feeling sad, afraid of teacher and lesson etc. As it has been stated before these negative emotions and behaviors reduce the attitude towards school, teacher, physics and lessons as well. Also, as a result of decrease in attitude towards lesson, school and teacher the physics success of students decrease too. From findings of Table3, it is clear that the students feel anger and resentment to the teacher with ratio of 25,1%, hate the lecture that teacher is tutor with ratio of 24,8%, feel sad with ratio of 23,8%, could not concentrate to the lecture of the teacher with ratio of 23,4%, find the teacher as antipathetic with ratio of 22,4%, hate school with ratio of 20,4% and feel isolated by the teacher with ratio of 19,1%. These results are in good agreement with different researches are carried out (Dilekmen, 2011; Kearney et al., 1991; Keçici et al., 2013; Zhang, Zhang, & Castelluccio, 2011). For example, Dilekmen (2011) was figured out that the teachers display physical and passive aggressive behaviors.

The findings obtained in Table4, the students' misbehaviors subscale scores are compared in term of gender and it is found a significant difference between male and female students' perceptions. The perceptions of male students about the mean score of the teachers' misbehaviors subscale is found significantly higher than the female students ($p = 0.006$, $p < 0.05$). Also, the effects of teachers' misbehaviors are compared in term of gender as well. It is found out that the mean score of the male students related the effects of teachers' misbehaviors subscale is significantly higher than the female students ($p = 0.007$, $p < 0.05$). These results show that male students give bigger reactions to the misbehaviors of their teachers than female students. When the high school students adolescence period take into account, one can easily understand the reason of these difference between male and female students. Adolescence is a period of development in the developmental process of the individual, starting with the end of childhood, until it reaches physiological maturity. Therefore, male students behave much more aggressive behaviors than female students. In this context, teachers' misbehaviors are really very important in development of students' development and school's carriers. Many students can decide to end their school carriers because of these misbehaviors of teacher.

As it can be seen from Table5, the average physics mark is determined as 75,2 point and as 78,6 point for male and female students, respectively. The average physics course marks of whole students is determined as 76,9 point. The misbehaviors of teacher and the effects of misbehaviors of teacher with physics success of students are compared and the results are given in Table6. According to the results of these comparison, it was found a negative correlation between the success of the physics lesson and the teacher's misbehavior score ($r = -.182$, $p < .01$) and between the score of the teachers' misbehaviors effects ($r = -.193$, $p < .01$). These results show that there is relationship between teachers' misbehaviors and students' physics success. This results is in good agreement with th results of the research was conducted by (Broeckelman-Post et al., 2016). They have found a negative relation between the misbehaviors of the teachers and student interest too. This is an expected result because it has been figured out that the misbehaviors of teachers reduce the attitudes towards lessons in different researches (Boice, 1996; Broeckelman-Post et al., 2016). As a result of this, the lower attitudes towards school and lessons cause an important decrease in academic achievements of students as well (Cracker, 2006;

Guido, 2013; Güleç & Balçık, 2011; Keçici et al., 2013; Mattern & Schau, 2002). Also, these misbehaviors can negatively effects individual development of the students as well. According to students' perceptions, teachers have different misbehaviors which create various barriers in the learning process in classroom. Physics is a very important science for the next generation to follow the last developments in the technology. Therefore, it is so crucial to help students to forming positive attitudes towards physics science.

Conclusions and suggestions

Based on the findings obtained from this research, the results of the research can be summarized as below;

- 1- The perceptions of male students about the mean score of the teachers' misbehaviors subscale is found significantly higher than the female students.
- 2- It was found out that the mean score of the male students related the effects of teachers' misbehaviors subscale is significantly higher than the female students.
- 3- It was found a negative correlation between the success of the physics course and the teacher's misbehavior score and the score of the teachers' misbehaviors effects.

In conclusion, teachers should be very carefully while doing teaching events in the classroom. Especially, they should be very careful about acting misbehaviors which can cause unwanted student behaviors. In this context, the teacher candidates should be informed about these kinds of behaviors during their class management lessons in their undergraduate education. They should be aware of students' norms and traditions as well. They should be open to their students. They should try to form a good relationship between their students and also a democratic environment in classroom for preventing unwanted behaviors of students. Thus, quality and quantity of pre-service teacher education should be increased to have better relationship between teachers and students.

REFERENCES

- Banfield, S. R., Richmond, V. P., & McCroskey, J. C. (2006). The effect of teacher misbehaviors on teacher credibility and affect for the teacher. *Communication Education*, 55(1), 63-72. doi:10.1080/03634520500343400
- Boice, B. (1996). Classroom incivilities. *Research in Higher Education*, 37(4), 453-486. doi:10.1007/BF01730110
- Brickhouse, N. W. (2001). Embodying science: A feminist perspective on learning *Journal of Research in Science Teaching*, 38(8), 282-295.
- Broeckelman-Post, M. A., Tacconelli, A., Guzmán, J., Rios, M., Calero, B., & Latif, F. (2016). Teacher Misbehavior and its Effects on Student Interest and Engagement. *Communication Education*, 65(2), 204-212. doi:10.1080/03634523.2015.1058962
- Cracker, D. (2006). Attitudes towards science of Students enrolled in Introductory Level Science Courses. *UW-L Journal of Undergraduate Research IX*, 1-6.
- Cruikshank, D. R., Jenkins, D. B., & Metcalf, K. K. (2003). *The Act of Teaching*. New York: McGraw-Hill.
- Çepni, S. (2010). *Araştırma ve proje çalışmalarına giriş*. Trabzon: Üç Yol Kültür Merkezi.
- Dada, E. D., & Okunade, H. F. (2014). Classroom undesirable behaviours and strategies used for controlling them among primary school teachers. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 3(9), 51-57.
- Dilekmen, M. (2011). Student teachers observations of unfavorable teacher behaviors exhibited in classrooms. *Psychological Reports*, 108(1), 45-53. doi:10.2466/11.16.17.21.PR0.108.1.45-53
- Erkuş, A. (2005). *Bilimsel araştırma sarmalı*. Ankara: Seçkin Yayıncılık.

- Evertson, C. M., & Emmer, E. T. (2009). *Classroom management for elementary teachers*. New Jersey: Pearson Education, Inc.
- Gage, N. A., Scott, T., Hirn, R., & Macsuga-Gage, A. S. (2018). The relationship between teachers' implementation of classroom management practices and student behavior in elementary school. *Behavioral Disorders, 43*(2), 302-315. doi:10.1177/0198742917714809
- Gök, T., & Silay, I. (2008). The effect of problem-solving strategies on students' achievement, on the cooperative learning groups in physics teaching. *Hacettepe Egitim Dergisi*(34), 116-126.
- Guido, R. M. (2013). Attitude and Motivation towards Learning Physics. *International Journal of Engineering Research & Technology (IJERT)*, 2(1), 2087-2095.
- Güleç, S., & Balçık, E. G. (2011). Undesirable behaviors elementary school classroom Teachers encounter in the classroom and their reasons. *Bulgarian Journal of Science and Education Policy*, 5(2), 163-177.
- Johnson, J., Halocha, J., & Chater, M. (2007). *Developing teaching skills in the primary school*. England: Open University Press.
- Karasar, N. (2009). *Bilimsel Araştırma Yöntemi*. Ankara: Nobel Yayıncılık.
- Kearney, P., Plax, T. G., Hayes, E. R., & J., I. M. (1991). College teacher misbehaviours: What students don't like about what teachers say and do. *Communication Quarterly, 39*(4), 325-340. doi:10.1080/01463379109369808
- Keçici, S. E., Beyhan, Ö., & Ektem, I. S. (2013). A study on aggressive teacher behavior based on student perceptions. *Asian Journal of Management Sciences and Education*, 2(2), 15-25.
- Kitishat, A. R., & Al-Friehat, H. M. (2013). Undesirable behavior in class: Reasons and solutions. *Research Journal of Science & IT Management*, 2(5), 37-42.
- Kuhlenschmidt, S. L., & Layne, L. E. (1999). Strategies for dealing with difficult behavior. *New Directions for Teaching and Learning, 1999*(77), 45-57. doi:10.1002/tl.7705
- MacLeod, K. (2013). Physics Education and STSE: Perspectives From the Literature. *European J of Physics Education, 4*(4), 1-12.
- Mattern, N., & Schau, C. (2002). Gender differences in science attitude-achievement relationships over time among white middle-school students. *Journal of Research in Science Teaching, 39*(4), 324-340. doi:10.1002/tea.10024
- Reinke, W. M., Lewis-Palmer, T., & Merrell, K. (2008). The classroom check-up: A class wide teacher consultation model for increasing praise and decreasing disruptive behavior. *School Psychology Review, 37*(3), 315-332.
- Zhang, Q., Zhang, J., & Castelluccio, A. A. (2011). A cross-cultural investigation of student resistance in college classrooms: The effects of teacher misbehaviors and credibility. *Communication Quarterly, 59*(4), 450-464.
- Zohar, A. (2005). Physics teachers' knowledge and beliefs regarding girls' low participation rates in advanced physics classes. *International Journal of Science Education, 27*(1), 61-77.