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An Investigation of Middle School Students' Attitudes and Awareness of Water Use

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ABSTRACT

The purpose of this mixed method study is to investigate middle school students' attitudes and awareness of water use. The quantitative data were collected through the administration of "Water Usage Questionnaire (WUQ)". The qualitative data were collected through semi structured interviews. In the study the stratified sampling method was employed. The participants of the study were 1050 secondary school students (6th, 7th and 8th grades) in Afyonkarahisar during the 2015-2016 school years. The qualitative data were collected through semi-structured interviews with 18 students who had low (n=6), moderate (n=6) and high level socio economic status (n=6). The quantitative data were analysed using SPSS statistical package software while the qualitative data were content analyzed. It was found out that students mostly agreed with careful use of water. Female students had significantly higher levels of awareness of water use than male ones. In addition, students whose parents were university graduates had high significantly levels of awareness of water use. The qualitative findings also support the quantitative results.

KEYWORDS
middle school students, awareness of water, environment

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Introduction

One of the most important problems in today's world is environmental problems (Günindi, 2010). Although climate change has been attributed to various reasons during the period from the Industrial Revolution until today, scientists have reached a consensus as to the fact that environmental problems with regard to climate have emerged due to human activities (Leggett, 2007). Humans continuously change the environment by struggling with it. The changes occurring in environment are regarded as environmental problems if they are adverse and disruptive (Alım, 2006). Environmental problems, which were initially disregarded for the sake of development, have become quite important

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today (Aracıoğlu & Tatlıdil, 2009). One of the most important resources that face the threat of being exhausted is water resources. In addition to the reduction of the amount of water per capita, water worldwide is getting more contaminated at a fast rate and the distribution of water across the world is changing (Ergin, Akpınar, Küçükcankurtaran ve Ünal-Çoban, 2009). Therefore, it is important that people should be aware of the circumstances affecting local water resources (Suvedi, Krueger, Shrestha & Bettinghouse, 2000). Water in sufficient amounts and of required quality is the foremost requirements that are needed to healthy individuals and quality production. Consequently, it is an obligation for us to do our best not to cause any trouble with regard to water depletion for future generations and to find solutions to increase the amount of usable water today and to use water sparingly. (Ergin, 2008). For this reason, there is a great deal of responsibility to be assumed by schools that undertake the task of raising responsible, conscious and qualified generations and in turn by the educators in these schools within this context. This is because the most effective way for individuals to become responsible for the environment is considered to be through education (Çabuk & Karacaoğlu, 2003).

The importance of conducting studies into the education on water awareness is once again highlighted by the fact that it has been stated that Turkey might fall into the category of countries suffering from water shortage in 2030 and, through an official paper, the Ministry of Education has requested elementary school students to be educated about water use due to the water shortages experienced today (Akpınar, Küçükcankurtaran, Ünal-Çoban, Yıldız, Öztürk, Yılmaz, Karadeniz ve Ergin, 2011). For this reason, it is essential that water resources are preserved. Educators play as much part as public and private institutions do in terms of water conservation. (Yıldız-Feyzioğlu, Akpınar, Ünal-Çoban, Capellaro & Ergin, 2010). The more motivated individuals get towards water conservation, the more they will want to save water. To this end, equipping individuals with special skills as to water conservation is a necessary and important step to canalising them towards this objective. (Corral-Verdugo, Bechtel, & Fraijo-Sing, 2003). Similarly, the study conducted by Corral-Verdugo (2002) states that individuals' level of awareness of water use has an impact on water saving. Therefore, it is vital that middle school students' scores with regard to their attitudes towards water usage be examined. When the studies carried out in our country are examined, we can see that there are few studies that focus directly on water education and that these are generally conducted as a part of the studies that are concerned with environmental education. With this in mind, the purpose of this study is to investigate middle school students' attitudes and awareness of water use.

Method

Data Collection Tools

The quantitative data were collected through the administration of "Water Usage Questionnaire (WUQ)" developed by Ergin, Akpınar, Küçükcankurtaran & Ünal-Çoban (2009). The qualitative data were collected through semi structured interviews. In the study the stratified sampling method was employed. Stratified sampling method also can be used in descriptive analysis (Fraenkel & Wallen, 2009).

1. Water Usage Questionnaire (WUQ)

"Water Usage Questionnaire (WUQ)" has been developed by Ergin, Akpınar, Küçükcankurtaran & Ünal-Çoban (2009). Researchers have stated that WUQ is made up of 26 items and its reliability coefficient is 0, 85. "Water Usage Questionnaire (WUQ)" has been applied to the same 1050 middle school students with the current study and its Cronbach Alpha Reliability Coefficient has been found to be 0,83.

2. Semi-structured interview forms

In order to identify the level of awareness of water usage among middle school students in a more detailed manner, semi-structured interview forms devised by the researchers have been used. In the process of devising such forms, we have asked the opinions of 5 academic members, who are experts in their respective fields. Sample questions towards semi-structured interview forms have been applied in Turkish for Turkish students. The translated form of questions is presented below:

- What kind of precautions can you take to save water?
- What kind of precautions can your family take to save water?
- How is future generations affected by water saving?
- What can people make to inform other people about water saving?

Participants

The participants of the study were 1050 middle school students (from the 6th, 7th and 8th grades) attending schools in downtown Afyonkarahisar, districts and towns during the school year of 2015-2016. Distribution of the participants regarding their gender, grade and residential aria is presented in Table 1.

Table 1. Distribution of the participants regarding their gender, grade and residential aria

Variables		**N**	**%**
Gender	Female	527	50.19
	Male	523	49.81
	Total	1050	100
Grade	6th grade	351	33.43
	7th grade	523	32.95
	8th grade	353	33.62
	Total	1050	100
	Socio-economic status of school environment		
	Low Middle High	350	33.33

Residential area	City	116	115	119	350	33.33
	District	117	116	117	350	33.33
	Town	-	350	-	350	33.33
	Total	233	581	236	1050	100

The qualitative data were collected through semi structured interviews with 18 students who had lower scores (n=6), moderate scores (n=6) and higher scores (n=6). The quantitative data were analyzed using SPSS, while the qualitative data were investigated using content analysis.

Data analysis

The quantitative data obtained through this study have been analysed with the help of statistics packet program and it has been observed that the data have a normal distribution pattern. Item frequencies and the averages of percentage and items on the Water Usage Questionnaire (WUQ) have been calculated. The arithmetic means and standard deviation values of the total scores that the middle school students have obtained on ATWUS have been calculated. With the aim of determining whether the scores obtained from ATWUS differ with regard to variant of gender, "independent samples t-test" has been used. In order to determine whether the scores obtained on the questionnaire differ with regard to the variants of place of residence, grades, parents' level of education, one-way ANOVA has been used. The data collection tools have been prepared in five point Likert scale. The items of rating have been comprised of "I absolutely agree", "I agree", "I am neutral", "I don't agree", "I definitely don't agree".

The qualitative data have been content analysed. Content analysis is a scientific approach that enables verbal, written and other materials to be examined in an objective and systematic way (Tavşancıl & Aslan, 2001). After the interviews have been completed, the data obtained have been penned and organized. Afterwards, the data have been codified and draft themes have been identified. Codes have been arranged in accordance with the draft themes that have been identified and the data have been reorganized in accordance with the draft themes and codes; then draft themes took its final form after having been checked. The codifications in the analysis that have been conducted by the researcher and an expert in his own field of study independently from each other have been crosschecked and the reliability of the study has been calculated as 0.87 by using the reliability formula of "Reliability = Agreement / (Agreement + Disagreement)" suggested by Miles and Huberman (1994). In addition, examples have been cited by directly quoting from the data collected from 18 middle school students.

Findings

A. Findings as to the Quantitative Data of the Study

The arithmetic mean of the attitudes of middle school students towards water usage have been presented in Table 2.

Table 2. The arithmetic mean of the attitudes of middle school students towards water usage

Questionnaire	N	Min	Max	$\overline{X}$	Sd
WUQ	1050	1.69	4.92	3.68	.54

When Table 2 is examined, we can see that the arithmetic mean of the attitudes of middle school students towards water usage is on the "I agree" level.

T-test results of the independent samples as to the total points on WUQ according to the genders of the middle school students have been presented in Table 3.

Table 3. t-test results of the independent samples as to the total points on WUQ according to the genders of the middle school students

Gender	N	$\overline{X}$	Sd	Df	t	p	Differences
Male	523	3.80	.533	1048	7.539	0.000 *	Female-Male
Female	527	3.55	.536				

*p<0.005

When we examine Table 3, we can see that there are significant differences in their attitude towards water usage according to the gender of the middle school students. These differences were in favor of female students.

The descriptive statistics of the total points on WUQ according to the grades of the middle school students have been presented in Table 4.

Table 4. The descriptive statistics of the total points on WUQ according to the grades of the middle school students

Grade level	N	$\overline{X}$	Sd
6th grade	351	3.63	.507
7th grade	346	3.72	.553
8th grade	353	3.67	.582
Total	1050	3.68	.549

When we examine Table 4, there are differences in the arithmetic means of the points they received with regard to their attitudes towards water usage based on the according to the grades of the middle school students. Whether these results are significant or not have been examined with ANOVA test and the data obtained has been presented in Table 5.

Table 5. The results of ANOVA towards the total points on WUQ according to the grades of the middle school students

Source of variance	Sum of Squares	Df	Mean Square	F	p
Between Groups	1.594	2	.797	2.650	.071
Within Groups	314.848	1047	.301		
Total	316.442	1049			

When we examine Table 5, we can see that there aren't any significant differences in their attitude towards water usage according to the grades of the middle school students. However, when we examine the arithmetic means, we can see that 7th graders have the highest value of arithmetic means.

The descriptive statistics of the total points on WUQ according to the places these middle school students reside in have been presented in Table 6.

Table 6. The descriptive statistics of the total points on WUQ according to the places these middle school students reside in

The places these middle school students reside in	N	$\overline{X}$	Sd
Town	350	3.67	.506
District	350	3.69	.533
City center	350	3.66	.603
Total	1050	3.68	.549

When we examine Table 6, we can see that there are differences in the arithmetic means of the points they got for their attitude towards water usage in accordance with the places these middle school students reside in. Whether these differences are significant or not have been studied with the help of ANOVA test and the findings obtained have been presented in Table 7.

Table 7. The Results of ANOVA towards the total points on WUQ according to the places these middle school students reside in

Source of variance	Sum of Squares	Df	Mean Square	F	p
Between Groups	.219	2	.110	0.363	0.696
Within Groups	316.222	1047	.302		
Total	316.442	1049			

When we examine Table 7, we can see that there aren't significant differences in the attitudes of the middle school students towards water usage in accordance

with the place they reside in. however, when we examine the arithmetic means, we can see that the students that live in city center have the lowest arithmetic mean values.

The descriptive statistics of the total points on WUQ according to mother's educational background of the middle school students have been presented in Table 8.

Table 8. The descriptive statistics of the total points on WUQ according to mother's educational background of the middle school students

Mother's Educational Background	N	$\overline{X}$	Sd
Literate	65	3.49	.513
Elementary School Graduate	538	3.67	.528
Middle School Graduate	337	3.69	.558
High School Graduate	86	3.73	.621
University Graduate	24	3.89	.601
Total	1050	3.68	.549

When we examine Table 8, we can see that the arithmetic means of the water usage attitude points vary according to the educational backgrounds of the mothers of the middle school students. Whether these differences are significant or not have been studied with the help of ANOVA test and the findings obtained have been presented in Table 9.

Table 9. The results of ANOVA towards the total points on WUQ according to mother's educational background of the middle school students

Source of variance	Sum of Squares	Df	Mean Square	F	p	Differences
Between Groups	3.734	4	.933	3.119	0.015*	High School Graduate- Literate
Within Groups	312.708	1045	.299			University Graduate-Literate
Total	316.442	1049				

*p<0.05

When we examine Table 9, we can see that there are significant differences in the attitudes of middle school students towards water usage based on the educational background of mothers. It has been observed that these significant differences are in favor of high school graduates when we compare mothers who are literate with those who are high school graduates and they are in favor of

university graduates when those who are literate and university graduates are compared.

The descriptive statistics of the total points on WUQ according to father's educational background of the middle school students have been presented in Table 10.

Table 10. The descriptive statistics of the total points on WUQ according to father's educational background of the middle school students

Mother's Educational Background	**N**	$\overline{X}$	**Sd**
Literate	23	3.44	.450
Elementary School Graduate	378	3.64	.519
Middle School Graduate	353	3.66	.531
High School Graduate	242	3.73	.589
University Graduate	54	3.83	.667
Total	1050	3.68	.549

When we examine Table 10, there are differences in the arithmetic means of the points they received with regard to their attitudes towards water usage based on the educational backgrounds of their fathers. Whether these results are significant or not have been examined with ANOVA test and the data obtained has been presented in Table 11.

Table 11. The results of ANOVA towards the total points on WUQ according to father's educational background of the middle school students

Source of variance	Sum of Squares	Df	Mean Square	F	p	Differences
Between Groups	3.626	4	.907	3.028	0.017*	University Graduate- Literate
Within Groups	312.815	1045	.299			
Total	316.442	1049				

*p<0.05

When we examine Table 11, we can see that there are significant differences in the attitudes of middle school students towards water usage based on the educational background of fathers. We have also found out that these significant differences tend to be in favor of university graduates when fathers who are only literate and those who are university graduates are compared.

B. Findings as to the Qualitative Data of the Study

The sub-themes of the theme "Measures" have been identified as "measures taken by the child" and "measures taken by family members". These sub-themes and the codes below them have been demonstrated in Table 12.

Table 12. Measures Taken to Increase Water Awareness

Theme	Sub-theme	Code
Measures	Measures taken by the child	Warning
		Elucidating
		Using water sparingly
	Measures taken by family members	Using water sparingly

As it can be seen in Table 12, the sub-themes of the theme "Measures" have been identified as "measures taken by the child" and "measures taken by family members".

Students have expressed the following with regard to the "warning" code in the sub-theme of measures taken by the child": "I warn both my mother and father not to use too much water." (Student 1).

Students have expressed the following with regard to the "elucidating" code in the sub-theme of measures taken by the child": "I inform the staff in the school administration when taps are broken." (Student 2)

Students have expressed the following with regard to the "using water sparingly" code in the sub-theme of Measures taken by family members": "I use water for a short time when washing my hands" (Student 10).

Students have expressed the following with regard to the "using water sparingly" code in the sub-theme of measures taken by the family": "My mother tries to save water when she is doing the laundry. She tries to leave the water running for as short as possible. She does the dishes with as little water as possible." (Student 2).

The sub-themes of the theme of "sustainability" have been identified as "water" and "life". These sub-themes and the codes below them have been demonstrated in Table 13.

Table 13. The Importance of Water Awareness

Theme	Sub-theme	Code
Sustainability	Water	Handing water down on the next generation
		Experiencing water shortage
	Life	A liveable world
		Forests
		Living things
		Drought

As it can be seen in Table 13, the sub-themes of the theme of "sustainability" have been identified as "water" and "life".

The following has been expressed with regard to the "handing water down on the next generation" code of the sub-theme of "water": "If we use water sparingly, we can hand down a better life to the next generations." (Student 15).

Students have expressed the following with regard to the code of "not experiencing water shortage" in the sub-theme of "water": "Their lives would be better because we sometimes see in the news that there will be no water left in the future. If we act consciously now, they will also have water resources." (Student 5).

The following have been expressed with respect to the code of "experiencing water shortage" in the sub-theme of "water": "Now we see everywhere, in the news for instance, that there will be no water left in the next century for the future generations or our grandchildren, if we continue to use water so wantonly. We should consume it sparingly, we should use it wisely; otherwise, our grandchildren will live in a period of water shortage, not that of wealth and profusion." (Student 16).

Students have noted the following as regards the code of "a liveable world" in the sub-theme of "life": "If we use water sparingly, we can hand down a good place to live to the next generations. In this way, we can take measures for animals and humans to lead better lives. We can improve the conditions under which the next generation will live and hand down a better place to live." (Student 15).

Students expressed the following as regards the code of "forests" in the sub-theme of "life": "Forests may gradually shrink." (Student 7).

The following have been expressed as to the code of "living things" in the sub-theme of "life": "For instance, when we speak of water, the first thing that comes to our minds is the fish. Behaving this way, we endanger their habitats. This disrupts the life cycle, I mean, the extermination of the fish." (Student 11).

The following have been expressed with regard to the code of "drought" in the sub-theme of "life": "We should use water sparingly as future generations need it. For this reason, we shouldn't keep it running for too long. We should be most careful with water since drought has already begun to occur." (Student 10).

The sub-themes of the theme of "suggestions" have been identified as "with a view to instilling water awareness in individuals" and "with a view to instilling water awareness in societies". These sub-themes and the codes below them have been demonstrated in Table 14.

Table 14. Students' views about the effects of the activities on their environmental awareness

Theme	Sub-theme	Code
Suggestions	With a view to instilling water awareness in individuals	Turning off the taps
	With a view to instilling water awareness in societies	Meetings
		Projects
		Media
		Marches
		Theatres
		Seminars
		Schools
		Activities on "World Water Day"
		City Councils
		Documentaries
		Informative texts
		Awards

As it can be seen in Table 14, the sub-themes of the theme of "suggestions" have been identified as "with a view to instilling water awareness in individuals" and "with a view to instilling water awareness in societies".

The following have been expressed with respect to the code of "turning off the taps" in the sub-theme of "with a view to instilling water awareness in individuals": "If we see water running unnecessarily anywhere, we can turn the tap off." (Student 4)

The following have been expressed with respect to the code of "meetings" in the sub-theme of "with a view to instilling water awareness in societies": "People can gather crowds by holding meetings, going from one village to another, from one district to another, from one town to another." (Student 16).

The following have been expressed with respect to the code of "projects" in the sub-theme of "with a view to instilling water awareness in societies": "There might

be a project which will attract people's attention to encourage them to save water." (Student 6).

The following have been expressed with respect to the code of "media" in the sub-theme of "with a view to instilling water awareness in societies": "The public may be made more aware through advertisements on TV." (Student 5).

The following have been expressed with respect to the code of "marches" in the sub-theme of "with a view to instilling water awareness in societies": "Marches with a crowd of people might be organized to save water." (Student 15).

The following have been expressed with respect to the code of "theatres" in the sub-theme of "with a view to instilling water awareness in societies": "Students could be inspired through plays in theatres, whose influence would also be permanent for them." (Student 9).

The following have been expressed with respect to the code of "seminars" in the sub-theme of "with a view to instilling water awareness in societies": "Seminars could be held." (Student 12).

The following have been expressed with respect to the code of "schools" in the sub-theme of "with a view to instilling water awareness in societies": "Principals and teachers could raise awareness in students and general public alike by delivering speeches in their schools and classrooms respectively." (Student 9).

The following have been expressed with respect to the code of "activities on world water day" in the sub-theme of "with a view to instilling water awareness in societies": "People might decide not to use any water for an hour, for instance, on the World Water Day to save water." (Student 7).

The following have been expressed with respect to the code of "city councils" in the sub-theme of "with a view to instilling water awareness in societies": "City councils might publish publicity posters; they could raise awareness in public on TV and in advertisements." (Student 5).

The following have been expressed with respect to the code of "documentaries" in the sub-theme of "with a view to instilling water awareness in societies": "This could be done through the visual media of TV and through documentaries." (Student 16).

The following have been expressed with respect to the code of "informative texts" in the sub-theme of "with a view to instilling water awareness in societies": "Informative stickers could be put on the doors of cupboards and lockers at home and in the places where there are taps." (Student 12).

The following have been expressed with respect to the code of "awards" in the sub-theme of "with a view to instilling water awareness in societies": "Those who use water sparingly and those who save water could be awarded." (Student 3).

Discussion, Conclusions and Suggestions

In accordance with the quantitative results of the study, we can say that the awareness of water usage among the middle school children is in the level of "I agree." Based on this result, it can be said that the level of awareness of water usage among the middle school students is as expected. In the study carried out by Ergin et al. (2009), it has been concluded that the attitudes of students towards

water use is in the level of "I absolutely agree". When we examine other studies in the body of literature, we come across findings that show the environmental sensitivity of the students are at a medium level (Ürey, 2005; Özmen, Çakmakçı Çetinkaya & Nehir, 2005; Ek, Kılıç, Öğdüm, Düzgün & Şeker, 2009; Aydın, 2010; Bodur, 2010; Aydın & Kaya, 2011). The study carried out by Corral-Verdugo (2002) demonstrates that the level of awareness of the individuals with regard to water use has an impact on saving water. Therefore it is very important that the scores of middle school students regarding attitudes towards water use should be high.

We can see that there are significant differences between the attitudes towards water usage based on their gender. These significant differences have been found to be in favour of girls. Other studies conducted on the subject (Paraskevopoulos, Korfiatis & Pantis, 2003; Atasoy, 2005; Gezer, Çokadar, Köse & Bilen, 2006; Gökçe, Kaya, Aktay & Özden, 2007; Meydan & Doğu, 2008; Ek, et al. 2009; Kayalı, 2010; Karatekin, 2011; Aydın & Ünaldı, 2013; Önder, 2015) have also demonstrated that female students have a more careful attitude towards the environment. The fact that female students have higher levels of awareness than their male counterparts can be attributed to the fact that female students approach house holding more sensitively and mindfully than males in the society in which they live. It has emerged from this study that there aren't any significant differences between the attitudes towards water usage of the middle school students based on their grades. However, when the values of arithmetic means have been examined, 7th graders have been found to have the highest arithmetic means. This result in our study can be attributable to the fact that students focus on TEOG, which is an exam that determines the high school they will attend in the future. Other studies carried out before (Aslan, Uluçınar-Sağır & Cansaran, 2008; Teyfur, 2008) haven't identified any significant differences toward the environment based on their grades in both elementary and middle school. However, when the other studies in the body of literature have been examined (Çabuk & Karacaoğlu, 2003; Meydan & Doğu, 2008; Özpınar, 2009; Aydın & Çepni, 2012), we can observe that there are significant differences in the attitudes of students towards the environment with regard to their grades, which is different from these findings.

We can see that there aren't significant differences between the attitudes towards water usage among the middle school students based on the place they live in. Nevertheless, when we examined the arithmetic means, we identified that the students living in districts have the highest arithmetic means. This may result from the fact that the students that live in districts are more involved with the environment. At the same time, this can be attributed to the fact that individuals in the districts have to cope with the water cuts which occasionally happen during certain times when the population density in the district gets higher. Also, it has been observed in some studies (Çimen, Yılmaz & Çimen, 2011; Gürbüz & Çakmak, 2012; Polat & Kırpık, 2013) that there aren't any significant differences in the attitudes of students towards the environment with regard to their place of residence. Some other studies (Şama, 2003; Özmen et al., 2005; Erol & Gezer, 2006; Özay-Köse, 2010) have concluded that those who live in larger settlements have higher averages than those who live in smaller settlements.

We can see that there are significant differences between the attitudes towards water usage among the middle school students based on the educational

backgrounds of their mothers and fathers. It has also been identified that these significant differences are in favour of those whose mothers and fathers have higher educational levels. Similar studies conducted (Aydın-Çepni, 2012; Özpınar, 2009; Taycı-Ünal, 2009; Tecer, 2007) have also demonstrated that students whose mothers and fathers have higher educational levels have higher points with regard to their environmental awareness. This can be attributed to the fact that parents that have received university education can properly pass a great deal of their knowledge (on environment, water use etc.) on the other members of their family. Also, the fact that such parents pose as proper role models for their children can be said to help children to have a positive attitude towards water use and gain awareness, having been brought up in such a way.

When we examine the qualitative results of the study, we come to the conclusion that middle school students are in the water usage awareness level of "I agree" in the quantitative analyses and similarly their level of water usage awareness is high based on the qualitative data. In addition, when we examine the qualitative data, we have concluded that the students' knowledge about the importance of water awareness is sufficient. Students have also proven to have awareness with regard to handing down water to future generations. Furthermore, we can see that the students are conscious of the importance of water awareness for a liveable world and they are also aware of the responsibilities on part of individuals and societies to further raise this awareness. However, we have also identified through our qualitative data that students don't have enough knowledge as to "World Water Day". This demonstrates that schools don't put much emphasis on "World Water Day". We have found out after the interviews with 18 students that only two of the students are aware of "World Water Day". We have concluded that "22 March World Water Day" which has to be celebrated as a part of special days and weeks is not celebrated in any of the schools where the interviews were made. This could be a sign of the fact that not enough emphasis is placed on water awareness which requires sensitivity. Similarly, the study conducted by Şahin (2015) has shown that schools don't integrate enough activities into their programs with respect to environment.

Based on the findings obtained during this study, the following could be suggested:

1. The reasons why the attitudes towards water use and the levels of awareness of middle school students differ between genders can be investigated.
2. With a similar study to be applied to the students that attend high schools, we can look into whether the university entrance exams leads to any differences with regard to the attitudes towards and awareness of water use among senior high school students.
3. In a similar study to be carried out, whether the differences between the occupations of parents have an impact on the attitudes towards water use and the level of awareness can be investigated.
4. A similar study can be conducted to investigate how the attitudes towards water use and the level of awareness of the students differ in the event that a stream of a creek runs through their places of residence.

Disclosure statement

No potential conflict of interest was reported by the authors.

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