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Exploring Students' Concern about Water Problems in Five Arab States: A Study on College Students

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Abstract

The present study has three aims; first, to explore students' concern about water problems (SCAWP) in Bahrain, Jordan, Saudi Arabia, Qatar, and Kuwait. Second, to examine factors that influence students' concern, and third, to test two major arguments in the literature which claim that people in developing countries have poor environmental concern, and universities are increasingly playing important roles in influencing students' environmental concern (Duroy, 2008; Karol, 2006). A random sample of 5000 students is surveyed and t-test and multiple regression are used. Results reveal that college students in the five developing countries are concerned about water problems. In addition, ten factors are statistically significant to predict SCAWP namely, having a major or a minor in public affairs, class discussion, having previous engagements in environmental activities, professors, having concern about environmental problems other than water, level at college, completing courses related to environment, gender, having a major or a minor in natural sciences, and knowledge about water problems in general. These findings and their implications for researchers and practitioners are discussed.

Keywords- Environment- Water- Arab States- Concern- University- Students Exploring Students' Concern about Water Problems in Five Arab States: A Study on College Students.

Introduction

The terrain of the Arab World and its surrounding (AWS) has one of the driest natures in the world. Consequently, countries in this region, such as Bahrain, Jordan, Saudi Arabia,

Qatar and Kuwait (BJSQK) face serious environmental challenges. Clearly, scarcity of water in BJSQK spawns many other problems. In a wide-scale regional study, Alibeli (2004) identifies several salient environmental problems related to water scarcity, such as water pollution, availability of underground water, and availability of clean drinking water. Dealing with these problems and others requires awareness by national governments as well as by individual citizens and communities (Yaghi, 2004; World Bank, 2006; Gill, 1999).

Citizens' environmental awareness is closely related to having concern about urgent problems within each community (Bedrous, 2008; Dunlap and Jones, 2002). Except a few attempts to examine general environmental issues in the Arab World and despite the necessity of investigating environmental realities in this region, there is a palpable shortage in academic studies in this area of research (see, for example, Alibeli, 2004, Gill, 1999). Consequently, we know about environmental concern in Arab countries far less than we know about it in other parts of the World. Environmental concern in the Arab World, indeed, was overlooked by major cross-cultural studies conducted in the last two decades (see, for example, Dunlap et al., 1993; Strohm, 2002; Jacobs, 2002; Inglehart, 1995; Tuna, 1998; Zelezny, 2000). The present study aims at shedding light on some aspects of environmental concern by surveying college students in BJSQK. These five countries make one-seventh of the total population of 300 million citizens live in the Arab World (World Bank, 2006; Yaghi, 2004; Drevensek, 2005). In addition, surveying college students is convenient for us as college teachers, and it can give us a glimpse of the way the larger communities in BJSQK perceive water issues (see, Ozden, 2008; Dunlap et al., 1973; Bowman, 1977).

Theory

Before we discuss the relevant literature, we should define "environmental concern" and "environmental problems that are related to water." Bedrous (2008), Kollmuss and Agyeman (2002), and Dunlap and Jones (2002: 485) agree that concern about the environment is "the degree to which people are aware of problems regarding the environment and support efforts to solve them and or indicate the willingness to

contribute personally to their solution." Some environmental sociologists prefer to use "concern" instead of "attitude" because the word "concern" implies a positive attitude toward the environment as supposed to the neutral "attitude" (see, Van Liere et al, 1980: 181, and Thompson, 2006; Buttel, 1987, and Adelabu and Akinsolu, 2009). Regardless of terminological differences, having environmental concerns or positive environmental attitudes is a prerequisite to building a culture that cares about the environment and work to challenge the conditions imposed by environmental problems, such as scarcity of water (Bell, 2005, p.181).

In the following section, we highlight major water-related environmental problems in BJSQK, then, we discuss factors that influence environmental concern.

I. Water-related Environmental Problems

Due to the arid nature of the region, the Arab World is known as the water poorest places on earth (FAO 2006). Therefore, underground, desalinization, and recycled water remain the main sources of water (FAO 2006).

Underground water is particularly crucial for BJSQK. It is the main source of fresh water in Saudi Arabia, Bahrain, Qatar, and Kuwait and is the second source of fresh water after rainwater in Jordan (King Abdullah 2004; Swain 1998; Government of Bahrain 2006). Although it is scarce, underground water has been over-extracted for unsustainable and agricultural activities (World Resources Institute 2006). One complication of over-extraction of underground water is that it recharges itself very slowly (Swain 1998; Kolars 2000).

Desalination is "the intensive process of converting brackish water or seawater to freshwater (Hiniker 1999, 10)." Desalinization is one of a few available options to alleviate the shortage of freshwater in BJSQK. It has been widely utilized in the region, to the extent that a major portion of the world's desalinization capacity is installed in the Arabian Peninsula (Yolles and Gleick 1994; World Resources Institute 2006). However, depending on desalinization in BJSQK remains limited because it is economically infeasible and costly (Gleick 1998).

Water recycling is another source of freshwater and it is usually referred to as "wastewater management." It is a process of treating wastewater to a level suitable for use in a variety of applications, such as irrigation (Gleick 1998). Recycling, therefore, can save the environment from untreated water, reduce pollution and water contamination (Gleick 1998: 28). Recently, more wastewater is being treated and reused. Although recycling has the potentials to alleviate water shortage, it remains imperfect option because the technology employed to produce it is still developing thus recycled water continues to be contaminated (Nachmani 1997:84).

We can say that while aridity and water shortage problems are not human made, people's behavior- individuals as well as groups- exacerbates them. For example, over consumption and lack of awareness of the saliency of water shortage can indeed make such problems difficult to manage.

II. Factors that Influence Environmental Concern

Reviewing the literature reveals that researchers report the following factors to have significant influence on environmental concern: country of origin (developing versus developed), socioeconomic factors (e.g., income), rationality, urgency of peoples' needs, demographics, and campus life. However, there seems to be little agreement amongst researchers on how these factors influence environmental concern. The following section discusses these factors.

There is no agreement among researchers on the impact of country of origin on environmental concern. While Dunlap et al. (1993), report that environmental concern is high in developing and developed nations alike, Duroy (2008) asserts that environmental concern in developing countries is poor and people have no clear interest in caring about or protecting the environment compared to people in developed countries. In addition, while Dunlap et al. (1993) report that perception of environmentalism can no longer be regarded as postindustrial or western value, Inglehart (1995) asserts the opposite by arguing that the nature of environmental concern and the driving forces behind it vary based on the level of economic development in the country. According to Inglehart, while concern about the environment in developing nations is reactive to eminent

environmental problems, such as high levels of water contamination and air pollution, it is proactive in developed nations. Inglehart (1995) explains this variation between developed and developing countries by noting that societies in developed countries went through a cultural shift, which reshaped public priorities and put the environment on the top of citizens' priorities (Inglehart, 1995; Alibeli, 2004).

Some researchers assert that differences in environmental concern between developed and developing nations can only be rooted in the economic differences between the two groups. They also indicate that differences in concern can be found between economically developed communities (social class or cities) and economically undeveloped communities within the same country (Arcury, Scollay and Johnson, 1987; Arcury & Johnson, 1987; Danlup and Mertig, 1995; Buttel, 1987). To explain the importance of economic factors, Ozden (2008) and Kollmuss and Agyeman (2002) add that economic status of people make their priorities differ significantly thus their environmental concern differ as will. Furthermore, Jacob (2002) indicates that compared to the rich, poor people in Brazil show more concern about the environment and more engagement in activities that aim at protecting the environment. Other researchers, however, challenge Jacob's findings by reporting that rich and poor people alike show concern about immediate environmental problems that affect their wellbeing, and they rarely show similar concern about problems if they do not directly affect their life (Shiva and Jafri, 1998, Wong, 2003, and Escobar, 2006; Drevensek, 2005; Jacobs, 2002; Gerlund and Matti, 2006; Shiwaku and Shaw, 2008).

There is no clear agreement among researchers about the impact of demographics, such as gender, on environmental concern. Tuna (1998) and (Adelabu and Akinsolu (2009), for example, indicate that demographics are important to predict environmental concern. Arbuthnot (1977) and Arcury and Johnson (1987) argue that compared to women, men are more active, more knowledgeable, and more concerned about the environment. Contrarily, Uyeki and Holland (2000), Stern et al. (1993), and Zelezny (2000) assert that women are more, than men, concerned about the environment. Karol (2006) in a study on students finds both, males and females, have comparable concern about the environment. Hayes (2001) argues that gender does not influence

environmental concern and women "are not more concerned about the environment than men" (657). Finally, Arcury et al. (1987) and Mohai (1985) play down the effect of gender on environmental concern and give social factors more attention. Therefore, we can conclude that the effect of gender on environmental concern remains inconclusive.

Another socioeconomic factor that researchers examined was social class. The literature associates middle class with high environmental concern (Buttel & Flinn, 1978a; 1978b; Buttel, 1987; Van Liere et al, 1980; Mohai, 1985; Morrison & Dunlap, 1986). According to Jacobs (2002) people who live in cities and urban areas are better concerned about global environmental issues, whereas those who live in rural areas are concerned about the surrounding environment. Ozden (2008) asserts that environmental concern is associated with small family size, high family income, and life in suburbs or cities. Some studies indicate that higher income people tend to show strong concern about the environment and they support, fund, and commit to protecting the environment. Some researchers explain that because rich people have enough money they can afford to engage in environmental activities and to take actions to protect the environment (Mohai & Twight, 1987; Adelabu and Akinsolu, 2009; Olsen, Lodewick & Dunlap, 1992).

The literature suggests that environmental concern among college students take the same pattern as that of other groups in the society (see, for example, Wong, 2003; Peer et al, 2008). However, what is important here is the fact that education and college environment in general can play an important role in developing a sense of environmental concern. Consequently, as the level of education increases, environmental concerns may increase as well (Karol, 2006; Peer et al, 2008; Arcury, Scollay and Johnson, 1987; Arcury & Johnson, 1987; Buttel & Flinn, 1974).

Campus environment can be influentially significant to students' environmental concern. Peer et al (2008) points out the lack of trained teachers who can be equipped to educate students about the environment (p.46). These researchers explain that environmental literacy is necessary to sustain the environment by educating others and raising their attention to environmental problems, such as water shortage or water overconsumption. In line with this argument, Bonnett and Williams (1998) assert that poor environmental education can lead to weakening environmental attitudes.

Consequently and as result of poor education, students may tend to perceive global environmental problems as more salient than those that directly affect their own communities (p.2). Bonnett and Williams (1998) and Uzzell et al. (1995) indicate that concern about local environmental problems- within the country- remains poor as long as students do not learn that environmental problems are serious and they have the responsibility to care about them.

III. Research Problem

Because water is one of the most serious challenges that face BJSQK (Yaghi, 2004), we examine environmental concern about water problems in these five countries. We use Alibeli's model in which he identifies nine water problems that face BJSQK (2004). These problems are water pollution, availability of underground water, availability of clean drinking water, wastewater management, household consumption, spelled oil in the sea, water acidity, impact of offshore oil drilling, and polluting water by the outcomes of oil industry. We examine Alibeli's model by asking college students about their level of concern about each one of the nine problems.

Duroy (2008) suggests that levels of environmental concern and environmental awareness are higher in western countries compared to other countries. Although other researchers have examined this argument in different parts of the world and reported conflicting findings, none has been examined in an Arab nation (see, Dunlap et al., 1993; Inglehart, 1995). Despite the fact that the Arab World makes over 5% of the world population (around 350 million inhabitants) and all Arab countries are classified as developing nations (World Bank, 2006), none of previous comparative studies have examined environmental concern in an Arab nation. Therefore, we decided to examine Duroy's argument in BJSQK. Since we described water-related problems as environmental problems, we will answer three related, main questions. First research question: is SCAWP in the five developing nations, BJSQK, low as implied by Duroy (2008)? To answer this question, we ask students if they perceive water problems as "serious" environmental problems in their countries. Second research question: what are the factors that influence SCAWP in BJSQK? Karol (2006) argues that colleges play

significant and positive roles in influencing students' attitude toward environmental problems. We examine this argument by asking the third research question: do colleges (i.e., teachers, curriculum, and environment) influence students' concern about water and its related problems?

The present study is important theoretically and practically. Theoretically, it examines two major arguments in the literature about environmental concern in developed versus developing nations as well as the role of universities in shaping environmental concern (see, Duroy, 2008 and Karol, 2006). Thus, the study provides insights into environmental issues in the Arab World, a region about which little has been written. In addition, the study helps researchers and policymakers to better understand the way people in Arab countries respond to environmental problems. Practically, the present study is particularly important for policymakers and educators in BJSQK who are interested in making the university (campus) hospitable to ideas, behaviors, and activities that help society care about its environment and especially water (see, Kollmuss and Agyeman, 2002; Ozden, 2008; Berglund and Matti, 2006).

IV. Methodology

We surveyed a random sample of 5000 college students in BJSQK. A total number of 2085 surveys were completed and returned. The survey process took place between the year 2000 and 2009. We distributed a modified version of a survey that was originally developed by Duane Gill of Mississippi State University. The sample was drawn randomly as follow: firstly, we prepared a list of universities (public and private) in each one of the five countries. Secondly, a list of all classes on each campus was prepared. Thirdly, a simple random sample of classes was drawn. Fourthly, we coordinated with respective professors to distribute survey during class time (in the last twenty minutes). Since participation in the study was voluntary, professors and students who elected to opt out were excluded from the sample. Students were instructed to return completed, anonymous surveys to a designated office on campus. To process data, we used SPSS, version 12.0. The following table describes the sample.

Table1. Characteristics of the Study Sample (N=1666)

Variable	*Mean*	*Bahrain* (N=374)	*Jordan* (N=412)	*Saudi* (N=178)	*Qatar* (N=384)	*Kuwait* (N=318)
Age		21.03	20.60	22.50	21.16	21.41
Gender	Male	26.70	34.00	44.10	16.20	70.00
	Female	73.30	66.00	55.90	83.80	30.00
Social Class	Working Class	15.70	20.00	13.20	10.10	8.00
	Middle Class	79.90	75.40	58.80	77.50	85.30
	Upper Class	4.30	4.60	28.00	12.40	6.70
Father's Education	Less than high school	44.90	43.00	47.30	51.20	32.00
	High school	22.30	28.40	19.90	21.50	22.00
	College	32.80	28.60	32.80	27.30	46.00
Mother's Education	Less than high school	61.30	60.90	84.60	62.00	35.80
	High school	21.70	19.20	10.40	16.40	21.10
	College	17.10	19.90	5.00	21.60	43.10

Table 1 shows the general characteristics of the sample. As expected, most respondents are in their early twenties. However, respondents' gender varies from one country to another depending on male-female composition in each campus. Moreover, the majority of respondents fit in the middle class in society. Respondents' parents' level of education also varies within and across countries. Nevertheless, the majority of all parents have high school or lower degrees.

V. Findings and Discussion

For durability we discuss each one of the three research questions sequentially.

Research question #1: knowing that BJSQK are developing countries, is SCAWP in these nations low as implied by researchers, such as Duroy (2008)? In order to answer

this question, we simply calculate students' responses to survey questions that ask about the nine dimensions of water problems (see, Table 2) as identified in Alibeli's Model (2004). Respondents mark their responses on 4-point scale, very concerned, concerned, not concerned, not concerned at all.

Results in Table 2 show that students have above-average concern about water. In addition, students' responses indicate they are concerned about all nine dimensions of water problems. Therefore, we can say that there is no poor SCAWP in BJSQK. This finding challenges Duroy's claim (2008), which indeed echoes an old, similar, claim about the existence of environmental divide between North and South, and East and West (see, for example, Inglehart, 1995). Based on Inglehart's assertion that environmental concern is a western and postindustrial value, can we say that BJSQK have postindustrial values? While Duroy (2008) does not explain why or how developing nations suffer from poor environmental concern, Inglehart (1995) explains that people in developed nations have satisfied their basic needs, such as food security and sufficient income. Therefore, they started looking to satisfying higher level needs, such as the need to protect the environment. If this is the case, can we say that BJSQK share environmental values with developed countries, therefore, they have "postindustrial" values? If we believe the argument of Inglehart, then we should say yes because, four of the five surveyed countries (all except Jordan) are rich and wealthy where per capita income is among the highest in the world (World Bank, 2006)! Therefore, people in these countries may have reached a level of needs' satisfaction that allowed them to think about higher level of needs, such as the environment. Nevertheless, if we do not agree with Inglehart's claim, we have to believe that concerning about the environment is neither exclusive to westerners nor it is a postindustrial value per se. This is simply because other factors may influence people's environmental attitudes other than living in a western or eastern country. Consequently and based on our findings, we argue that people may show concern about the environment when other factors exist and enhance people's realization of environmental problems. Ozden (2008), Jacobs (2002), and Wong (2003) report that environmental concern in Turkey, Brazil, and China, respectively, ranges between "above

average" to "high" despite the fact that none of these nations is classified as "developed" or postindustrial.

Table 2: Distribution of Responses, How concern are you about the following problems?

Dimension of water problem	*Valid N*	*Missing N*	*Mean*	*Std. Deviation*
Water pollution	1277	5	3.18	.458
Availability of underground water	1276	6	2.95	.722
Availability to clean drinking water	1266	16	3.08	.646
Wastewater treatment	1276	6	3.00	.693
Household over consumption of water	1278	4	3.11	.533
Occasional spelling of oil in the Arabian Gulf and Arabian Sea	1278	4	3.47	.488
The increase of water acidity	1255	27	2.85	.707
Polluting the Arabian Gulf due to permanent drilling offshore	1278	6	3.79	.579
Polluting water directly or indirectly by the outcomes of oil industry, such as building and operating refineries and drilling oil offshore	1276	8	3.16	.681

* Accumulated percentage of concern about all dimensions is: Saudi Arabia 91%, Bahrain 60%, Kuwait 51.8%, Jordan 51.3%, and Qatar 50.8%

In Table 2, we see that students are concerned about each one of the nine dimensions listed as water-related problem. Therefore, we can say that Duroy's (2008) argument does not apply to these students. At this stage of the study, there is not a clear explanation yet as why students have concern about these dimensions. We, however, can speculate that the nine dimensions are salient to the extent that students cannot ignore (Allan 2002:169). While the Saudi students scored the highest rate (90%), Qatari students

scored the lowest concern rate (50.8%). Although all rates are above the 50% rate, the variation seems alarming because all five nations suffer from very closely similar water problems. Therefore, having a varied 'low' level of concern in some countries may indicate weaknesses in the educational process or in the efforts the society undertakes to inform people about the environmental problems they face. However, examining causes of this variation is beyond the scope of the present study. After we provided evidence against lack of concern (see Table 2), we examine other factors that may have contributed to getting these results. In the following section, we discuss both the second and third research questions. These questions are different, yet interconnected.

Research question #2: what are the factors that influence SCAWP in the five countries? **Research question #3**: do colleges (i.e., teachers, curriculum) influence students' concern about water and its related problems?

Table 3 shows four multiple regression models. Although we ran many regression models, we only included here the strongest four models, which have combinations of variables that showed correlations with the dependent variable (SCAWP). Model 4 represents the best fit model including all variables form the other three models. From model 4, we notice that SCAWP can be influenced by ten variables (listed from the strongest to the weakest): 1- having major or minor in public affairs, 2- class discussion, 3- having previous engagements in environmental activities, 4- professors, 5- showing concern about environmental problem other than water problems, 6- level at college, 7- completing courses related to environment, 8- gender, 9- having major or minor in natural science, and 10- knowledge about water problems in general. All these variables explain about 38% of the variance in the dependent variable (look at adjusted R^2).

Table 3: Factors affecting SCAWP

Independent variables	Model 1	Model 2	Model 3	Model 4
Gender	.323*			.286*
	(.025)			(.040)
Father's education	.036	.029		.036
	(.016)	(.024)		(.016)
Mother's education	.034	.171		.034
	(.017)	(.136)		(.017)
Number of family members	.077			.210
	(.013)			(.175)
Number of family members	.077			.210
	(.013)			(.175)
Completed courses related to environment		.291*		.286*
		(.011)		(.017)
Level at college		.308*		.297*
		(.018)		(.028)
Class discussions		.515*		.513*
		(.097)		(.092)
Professors		.388*		.411**
		(.214)		(.371)
Having major or minor in public affairs		.574*		.574**
		(.106)		(.106)
Having major or minor in natural sciences		.183		.128*
		(.031)		(.106)
Previous engagement in activities to protect			.427**	.425**
the environment			(.122)	(.116)
Local environmental civic groups			.033	.029
			(.072)	(.024)
Media			.098	.118
			(.052)	(.082)
Knowledge about water problems in general			.119	.119*
			(.021)	(.023)
Showing concern about environmental			.266*	.377**
problems other than water-related problems			(.184)	(.319)
Constant	16.238	25.901	11.512	22.712
Adjusted R^2	.193	.381	.091	.377

Notes: cell entries are regression coefficient and standard error. For brevity, several other variables are not listed in this table; * $p < 0.10$, ** $p < 0.05$

Table 3 shows that gender is one of the personal variables that influence SCAWP. As gender is important, other researchers, such as Uyeki and Holland (2000) and Stern et al (1993), single it out as a demographical factor that should be examined carefully. Therefore, we start the discussion here by noting that Table 3 shows that gender has a significant relation with the dependent variable, yet not the strongest relation (r= 0.286). Because previous studies have not agreed on one pattern of gender impact on environmental attitudes, we run a t-test to find out which gender has the stronger concern. Table 4 indicates that female students have stronger SCAWP, and mean values show that male and female students hold slightly different views about water problems. This finding confirms that males and females express different views toward environmental issues (see, Gambro and Switzky, 1992, Kuhlemeier et al, 1999). However, while Adelabu and Akinsolu (2009), Tarrant and Stern (1997), Davidson and Freudenburg (1996) and Arcury (1990), and Zelezny (2000) report that male students are more engaged and politically educated, and report that males are more concerned about the environment, our findings report the opposite; female students have the higher level of concern about environmental problems related to water. Table 4 confirms those findings reported by Peer et al. (2008) and Ozen (2008) who asserted that females show more concern about the environment in general, and they tend to be environmentally sensitive and show more attachments to environmental problems that affect human life (see, also, Arcury et al, 1987, and Hes-Quimbita and Pavel, 1996).

Table 4: Gender Influence on the Nine Dimensions of SCAWP

Gender		*N*	*Mean*	*Std Deviation*	*t*	*p*
	Male	481	6.156	1.486	5.890	.000
	Female	784	7.641	1.242		

($p < 0.05$ significance)

Table 3 reveals that campus life can shape students' SCAWP. We see that professors, class discussions, studying about the environment, and learning topics related to it, all are factors that influence environmental concern. Rider (2005), Yaghi (2008), Ozden (2008), Karol (2006), and Peer et al. (2009) assert that campus life provides students with many venues to learn and care about, not only the environment, but also other problems that affect students' own communities. College prepares students to play a bigger role in the society, especially when they graduate and work because they represent the well-educated generation that would enact policies and make important decisions that affect society (see, for example, Shiwaku and Shaw, 2008).

Level at college is also important. Table 3 shows that students' level at college has significant impact on their concern. Although, age was not found significant, it can be contained or reflected better by the progress students do in moving from one level, such as freshman, to another, such as senior (see Table 3, r= 0.297). Peer et al. (2008) explains this phenomenon by saying that students spend longer time in college getting more chances to learn about the environment and its problems. Karol (2006) also confirms that students' exposure to more information by various sources during student's academic life may improve their perception about the environment. Such exposure may include taking more courses that teach students about different aspects of the environment (r=0.286), discuss more issues related to the environment in general and about water in particular (r= 0.513), interact with professors (r= 0.411), and choose a major or minor that can provide insights about the environment (r= 0.574 for public affairs, r= 0.128 for science majors). Therefore, we can say that campus life works as one package; it provides several opportunities for students to interact with the environment as well as to learn about it. Future studies should examine issues related to campus life such as the influence of peers, why social science fields showed higher impact on SCAWP as compared to science fields, and the role of freedom of speech and forming organizations. However, examining these issues is beyond the scope of the present study.

The influence of family seems insignificant (see Table 3). Our study shows that contrary to what Peer et al. (2009) reported, parents' educational level does not impact SCAWP. Maybe because most parents have limited education (high school or lower),

they do not influence their children's environmental attitude (see Table 1). Moreover, there is not inclusive evidence in the literature that education impacts environmental awareness. For example, Wong (2003) and Michael and Williams (1998) assert that students gain their environmental knowledge from many sources such as the media, curriculum, direct engagement in environmental activities, and first-hand experience with environmental problems, but not from parents. Table 3 indicates supporting facts to this explanation. For example, the strong impact of professors, other campus-related factors, and previous engagement in environmental activities (r= 0.427) may imply that even with the poor educational level of parents, and even if their overall role is not significant (see Model 4 in Table 3), placing environmental problems in the center of students' life can make up for the lack of parental role (see, Shiva and Jafri, 1998). Kollmuss and Agyeman (2002) emphasize that socialization outside the home has a tremendous effect on people's environmental attitude because it can shape one's convections about what is right and what is wrong about the environment. Of course, campus life provides a platform and facilitates a socialization pattern within which environmental problems are central (see, Ozden, 2008; Rider, 2005). The findings of our study support Karol's claim that campus life is instrumental in educating people about their environment and allowing them to grow environmentally (see, Karol, 2006 and Yaghi 2009).

Students' concern in BJSQK is influenced by factors other than what some researchers have suggested. While Freudenburg and McGinn (1989) note that people from rural areas care more about the environment than do city dwellers, Jacobs (2002) asserts that people in cities and in rural areas show different patterns of environmental attitudes simply because each group has different priorities and different problems that they have to face. Musser and Diamond (1999) connect attitudes with income saying that rich people, regardless of residency, care less about the environmental as compared to poor people. In the present study, income and rural vs. urban residency are insignificant factors because none of them is correlated with students' concern. Instead, we examined a long list of factors that other researchers suggested as important to predict environmental concern and found that ten variables- as shown in Table 3- that have significant influence over SCAWP.

VI. Implications and Recommendations

This study is an exploration of environmental concern about water problems among college students in five Arab states namely, Bahrain, Jordan, Saudi Arabia, Qatar, and Kuwait (BJSQK). The study was an attempt to compensate the shortage in scientific research written on environmental issues in the Arab World. To this end, we surveyed a random sample of college students and asked them about nine environmental problems related to water. Three research questions aimed at testing two main arguments; that people in developing countries have poor environmental concern (Duroy, 2008) and that campus life can significantly influence students' environmental attitudes (Karol, 2006). The third research question asked about factors that may influence students' concern.

The study revealed that college students were concerned about water problems, and showed concern about all nine dimensions about which we asked them. We concluded that Duroy's (2008) argument was invalid in the surveyed countries. We also concluded that ten factors can predict SCAWP namely, 1- having major or minor in public affairs, 2- class discussion, 3- having previous engagements in environmental activities, 4- professors, 5- showing concern about environmental problem other than water problems, 6- level at college, 7- completing courses related to environment, 8- gender, 9- having major or minor in science, and 10- knowledge about water problems in general. Lastly, we reported that campus life has a strong impact on students' environmental attitude because at least six factors from the aforementioned list were related to campus life.

These findings have important implications for researchers and practitioners, especially college educators and administrators. For researchers, the study calls for more efforts to explore different environmental aspects in the Arab World and surrounding (AWS). AWS is a large region which includes the entire Arab World, Iran, Israel, Turkey, and Pakistan. It hosts over 600 million inhabitants and has a lot of economic and human potentials. At the same time, it has the most waterless and driest areas. Insufficient studies on this region may hinder sustainability and lead to enacting poor social and economic policies or ineffective environmental legislations. Researchers are

invited to explore other factors that we did not explore as well as to reexamine the factors and correlations that we reported in our study, so that a better validation of findings and conclusions can be reached.

For educators and policymakers in higher education, the findings provide invaluable insights about campus life and the role it may play to enhance positive attitudes about the environment. Campus emerges as a platform for environmental learning. As our study found, students benefit from their professors, teaching methods, activities, and courses in which they enroll. Therefore, universities should be aware of this important role and should act upon it. Policymakers in higher education should design and redesign the curriculum of each major to ensure that students are exposed to environmental learning opportunities continuously. Students should learn that environmental problems such as scarcity of water in BJSQK crucially affect their basic needs and the very wellbeing of their lives and their families. Policymakers as well as educators need to diversify teaching methods to ensure that students have opportunities to engage in solving problems within their own communities.

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