



Green management practices in higher education: the status of sustainable leadership

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Abstract

The present study investigated the level of sustainable leadership among a random sample of 170 faculty members employed by one public university in Jordan. The sustainable leadership questionnaire with 15 items was used to carry out the study. The results of the study indicated that the sustainable leadership questionnaire is composed of three factors (sustainable management, sustainable initiatives and sustainable actions). This result established the construct validity of the questionnaire in a different culture. Moreover, the results indicated high level of sustainable leadership as perceived by faculty members for all items and factors. Further, results indicated that gender, college, rank and experience had no impact on the level of sustainable leadership. Finally, a number of practical and theoretical recommendations were provided for the field of study.

Keywords Sustainable leadership · Green management · Higher education · Jordan

Introduction

Contemporary global changes have triggered thinking about organizational leadership as a critical factor for current and future financial growth in the green economy. The green economy requires committed leaders to implement strategies, policies and programs that can lead to environmentally sustainable practices in their organizations and society, and simultaneously pursue economic prosperity (Edwards et al. 2013; Metcalf and Benn 2013).

Sustainability, sustainability leadership, sustainable leadership, green leadership, green management, eco-sensitive leadership and environmental leadership are used interchangeably in the literature to connect leadership and/or management with green sustainable practices (Cosby 2014). Sustainable leadership as a concept in today's green economy is a top priority for multiple stakeholders including government agencies, environmental pressure groups and organizations, and is becoming a standard practice (Avery and Bergsteiner 2011;

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Elkington and Heitz 2014; Margaretha and Saragih 2013; McCann and Holt 2012; McCann and Sweet 2014; Suriyankietkaew and Avery 2016). Moreover, sustainability leadership has been regarded as an important organizational practice to capture organizational learning (Metcalf and Benn 2013; Riseley 2016).

Sustainable leadership is defined as those behaviors and practices that create permanent value for all stakeholders including the environment, future generations and society at large (Edge equilibrium 2015). Green leadership is defined as those behaviors by managers that are intended to favor green innovations to create competitive advantage for the organization (Miller and Friesen 1983). Green management is defined as the integration of organizational actions and environmental awareness (Backer 2002). It is obvious from these definitions that the leadership's primary consideration is the focus on the environment, which in turn can provide competitive advantage for the organization (Banerjee 2002).

Sustainable leadership is viewed by many organizations as an opportunity for more innovation and a successful strategy for long-term success, continuous improvement and sustained competitive advantage (Berchicchi et al. 2012; Fable et al. 2005; Jutras 2009; McCann and Holt 2011; Porter and Kramer 2011; Siegel 2009; Slankis 2006). Slankis (2006) stated that "the value is in using sustainability as the force behind any new innovations, technologies, or business processes that truly seek out a better way to operate any business" (p. 2). Sustainable leaders are considered the primary drivers of green initiatives and environmental performance in their organizations, because they are responsible for creating an environmental vision through corporate culture changes and creating partnerships with multiple stakeholders to deal with environmental issues and achieve environmental objectives (Bansal 2003; Dechant and Altman 1994).

In addition, "sustainable leadership is concerned with creating current and future profits for an organization while improving the lives of all concerned" (McCann and Holt 2011, p. 209). Recent research indicated that sustainable leadership may lead to strong organizational performance by cutting costs and increasing potential revenue (Ambec and Lanoie 2008; Marcus and Fremeth 2009). Ambec and Lanoie (2008) indicated that reducing costs can be in four categories: "(a) risk management and relations with external stakeholders; (b) cost of material, energy, and services; (c) cost of capital; and (d) cost of labor" (p. 47).

Sustainable leadership usually acts in a proactive manner and constantly scans the environment in which the organization operates to check for any change forces coming from the external environment (Lambert 2011). This requires the capability of organizational leadership to build sustainable relationships with all stakeholders involved inside and outside the organization (Graen and Uhl-Bien 1995).

With regard to actions taken inside the organization, sustainable leadership usually develops a long-term vision in making decisions related to environmental sustainability, reinforces the core green values of sustainability, recognizes sustainability challenges, instills green management systems, and is innovative when offering quality products, services and solutions (Avery and Bergsteiner 2011; Crossman 2011; Hargreaves 2007; Maak and Pless 2006). However, sustainable leadership's role outside the organization is centered on achieving top performance for both the environment and society (Avery and Bergsteiner 2011; Jutras 2009; Sybesma 2013).

Organizations who adopt sustainable leadership practices can reap many benefits. These benefits are mainly centered on protecting the resources of the natural environment and efficiency in consumption of resources and energy (Peng and Lin 2008). Examples of such practices include pollution reduction, efficient use of water and energy, use of renewable

energy, waste management of viable resources, recycling, research and education, organizational image enhancement, cost reduction and higher productivity (Ambec and Lanoie 2008; Chang 2013; Jafri 2015).

The sustainability challenges that face organizations worldwide have placed great pressure on higher education institutions to be and train sustainable green leaders (Brown et al. 2010; McIntosh et al. 2008; Scott et al. 2012). To elaborate, higher education institutions are being run as business organizations and are regarded as cornerstones to achieve environmental sustainability (Leach 2008). The expertise and research & development efforts provided by higher education institutions can guide many business organizations to create new strategies to integrate the environment into their business process in order to achieve high performance potential for business, the society and the environment (Foo 2013; Jutras 2009; Shriberg 2002).

Research problem

Higher education institutions are demanded by multiple stakeholders to take a leading role in being green and protecting the environment. This requires a strong leadership commitment to instill sustainability practices, policies and procedures into their institutions. Sustainable leadership is a new leadership model that has not been applied adequately in the higher education sector (Lambert 2011). To the researchers' best knowledge, limited research exists in Jordan that addresses sustainable leadership practices in the higher education sector. Therefore, the primary purpose of the current study was to determine the level of sustainable leadership in one public university in Jordan. Based on that, a number of research objectives were formulated:

1. To determine the construct validity of the sustainable leadership questionnaire based on the perceptions of faculty members employed by one public university in Jordan.
2. To determine the level of sustainability leadership in one public university in Jordan as perceived by faculty members.
3. To determine if significant statistical differences exist in the perceptions of faculty members toward sustainability leadership based on differences in gender, college, rank and experience.

Methodology

Study context

The present study took place at one of the largest public universities in Jordan. Teaching began at this university during the academic year 1995/1996. Presently, the university includes 700 faculty members and 24000 students distributed over 15 colleges and the Deanery of Scientific Research and Higher Studies. Of those, there are about 1200 students from about 30 Arab and foreign nationalities. Since 2014, the university has developed significantly in the academic and developmental aspects according to the requirements of the sustainable development plans in society, which resulted in offering 52 undergraduate programs and 25 graduate programs at the master and PhD levels. According to Times Higher Education, the university was ranked among the top 1000 universities and was among the top 250-300 universities in the BRICS and Emerging Economies Group for 2017.

The university has achieved the principle of self-sufficiency through solar energy during the past three years, which was reflected in cost savings in energy of about 5.6 million dollars annually (personal communication, 2018). The University is currently working on several other sustainable projects including the desalination project, which is expected to provide cost savings of about 33 thousand dollars per month, as well as the implementation of the project of purification of wastewater and extraction of water by air. The University has also received the Golden Award (UAE Solar Award, 2017) competing with 210 institutions from 21 Arab and foreign countries in recognition of its achievements in providing the best alternative energy efficiency solutions (Ithaat Journal 2017).

Participants

A random sample of 230 faculty members was drawn out of a population of 700. A total of 170 valid instruments were returned with a response rate of 74%. The sample distribution was 114 males (67%) and 56 females (33%). Of those, 73 (43%) faculty members were from science colleges and 97 (57%) were from social science colleges. There were 49 (29%) assistant professors, 87 (51%) associate professors, and 34 (20%) professors. With regard to years of experience, 42 (25%) had an experience of less than 5 years, 74 (44%) had an experience between 5 and 10 years, and 54 (32%) had an experience of more than 10 years.

Instrumentation

The sustainable leadership questionnaire (SLQ) developed by McCann and Holt (2011) was used in this study. Originally, the SLQ was created based on the ten pillars of sustainable leadership proposed by Slankis (2006). The SLQ is used to determine the level of sustainable leadership based on followers' perceptions. The SLQ is composed of 15 items that are rated using a five point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The SLQ exhibited acceptable reliability statistics of .98 (McCann and Holt 2011). Example items of the SLQ include: "my leader balances sustainable social responsibility with profits" and "my leader attempts to use unique innovative methods to resolve sustainability issues". The instrument also collected information related to gender, college, rank and experience.

The SLQ was translated into Arabic by a faculty member who is bilingual in English and Arabic, and another faculty member judged the accuracy of the translations. Based on that, a few items were re-worded and the response scale was modified. The SLQ-Arabic was pilot tested with a group of 30 faculty members who were not included in the final study sample. The reliability coefficient for the SLQ was .93, which is regarded as exemplary (Robinson et al. 1991).

Data collection and analyses

The surveys for this study were distributed and collected within two weeks during the second semester of the academic years 2017/2018. The study participants were assured that the information gained from them would be treated anonymously and with confidence. To achieve the first objective, exploratory factor analysis was used to uncover the underlying structure of the SLQ. The second objective was achieved by computing means and standard deviations for items and factors of the SLQ. The third objective was achieved through independent t-test for gender and college and one-way analysis of variance (ANOVA) for rank and experience.

Results

The first objective was achieved with exploratory factor analysis with oblique rotation. The measure of sampling adequacy indicated a value of .88, which is suitable for factor analysis. To determine the number of factors to extract, eigenvalues greater than one and a visual inspection of the scree plot were used (Hair et al. 1998). Based on the eigenvalue, three factors were extracted and explained 59.93% of the variance. The first factor explained 47.2% of the variance (eigenvalue = 7.5), the second factor explained 7.9% of the variance (eigenvalue = 1.5), and the third factor explained 4.9% of the variance (eigenvalue = 1.5) (see Table 1). The conditions to retain items on factors were a minimum loading of .40 on the main factor and a cross loading of less than .20. Using these conditions, 14 items were retained on the SLQ. Loadings of items on factors ranged from .487 to .907.

The first factor was named “sustainable management”, which included seven items with a reliability coefficient of .89. The second factor was named “sustainable initiatives”, which included four items with a reliability coefficient of .81. The third factor was named “sustainable actions”, which included three items with a reliability coefficient of .91.

The second objective to determine the level of sustainable leadership was achieved by computing means and standards deviations for each item and a composite score for each factor. To describe the level of sustainable leadership, the following classification was used: above 3.5: high level; 2.5–3.49: moderate level; and below 2.5: low level. The average mean for the first factor (sustainable management) was 3.68 indicating a high level of sustainable leadership as perceived by faculty members. The highest mean score was for item five “my leader’s decisions are made while considering the entire organization” with a value of 3.79, while the lowest mean score was for item three “my leader has plans to demonstrate sustainability when hiring, promoting employees and replacing leaders”, with a value of 3.52 (see Table 2). The second factor (sustainable initiatives) exhibited an average mean of 3.76 indicating high level of sustainable leadership. The highest mean was for item one “my leader is willing to correct mistakes that affect sustainability”, with a value of 3.88, while the lowest mean was for item seven “my leader attempts to use unique innovative methods to resolve sustainability issues” with a value of 3.62. The mean value for the third factor (sustainable actions) was 3.83, indicating a high level of sustainable leadership (see Tables 3 and 4).

Objective three was to determine if there were significant differences in the perceptions of faculty members toward sustainable leadership based on gender, college, rank and experience.

Table 1 Factor loadings for the three factors of the SLQ

Sustainable management		Sustainable initiatives		Sustainable actions	
Items	Loadings	Items	Loadings	Items	Loadings
1	.839	1	.812	1	.907
2	.799	2	.692	2	.884
3	.770	3	.591	3	.687
4	.726	4	.487		
5	.600				
6	.557				
7	.525				

Table 2 Means and standard deviations for the items of the first factor (sustainable management) of the SLQ

Sustainable management	Means	Std. Deviations	Level
Item 1	3.64	.78	High
Item 2	3.74	.83	High
Item 3	3.52	.87	High
Item 4	3.72	.82	High
Item 5	3.79	.76	High
Item 6	3.75	.75	High
Item 7	3.66	.85	High
Average	3.68	.63	High

The results of independent sample t-test indicated no significant differences between perceptions of male and female faculty members related to sustainable leadership (Table 5). Moreover, Table 6 indicated no significant differences between faculty members from the scientific and social science colleges. Based on ANOVA analyses, no significant differences were found related to academic rank (Table 7) and work experience (Table 8) regarding sustainable leadership.

Discussion and recommendations

Organizations of all types and sizes are under increased pressure from multiple stakeholders to achieve financial growth and at the same time adhere to the demands of the green economy. Sustainable leadership is a top priority in such an economy to drive green initiatives and achieve environmentally sustainable practices, which result in long-term success and sustained competitive advantage for organizations and society (Berchicchi et al. 2012). The university system is one type of organization that needs sustainable leadership to instill rules, regulations and practices which lead to environmental sustainability. It is noted that research on sustainable leadership in the university system in Jordan is rather limited.

The SLQ was the instrument used in this study (McCann and Holt 2011) and validated in Jordan, providing additional evidence for the construct validity of the instrument in a different culture.. Of the original 15 items, 14 items loaded on three factors: sustainable management; seven items; $\alpha = .89$, sustainable initiatives; four items; $\alpha = .81$, sustainable actions; three items; $\alpha = .91$. Sustainable leadership practices are grouped into three factors that need to be considered when determining the effectiveness of leaders in sustaining the environment in a university setting. This study is the first of its kind to uncover the underlying structure of the SLQ.

Table 3 Means and standard deviations for the items of the second factor (sustainable initiatives) of the SLQ

Sustainable initiatives	Means	Std. Deviations	Level
Item 1	3.88	.84	High
Item 2	3.83	.74	High
Item 3	3.62	.87	High
Item 4	3.70	.83	High
Average	3.76	.61	High

Table 4 Means and standard deviations for the items of the third factor (sustainable actions) of the SLQ

Sustainable actions	Means	Std. Deviations	Level
Item 1	3.84	.67	High
Item 2	3.82	.67	High
Item 3	3.83	.69	High
Average	3.83	.62	High

The findings of the study indicated a high level of sustainable leadership in the university setting under study as perceived by faculty members for the three factors. With regard to the first factor (sustainable management), university leadership has a plan to demonstrate sustainability when hiring, promoting employees and replacing leaders. This result is supported by the fact that sustainable organizations are those that hire, train and develop their own leaders and employees rather than bring in outsiders (Aguinis and Kraiger 2009). University leadership in this study builds a culture of sustainability through communicating sustainability decisions and how they impact employees and the university; balances sustainable social responsibility with profits and recognizes issues that interfere with this balance. These results are supported by the efforts undertaken by the university leadership to sustain the environment that resulted in pollution reduction, efficient use of water and energy, and use of renewable energy. This culture of sustainability has been communicated to all employees in the university and informed them how such sustainable projects results in cost savings and higher productivity that impact employees and the university. The university has provided the surrounding community with free services and established projects which do not harm the long-term profitability of the university. This is regarded as a practical approach to organizational sustainability (Avery and Bergsteiner 2010; Kantabutra 2006).

With regard to the second factor (sustainable initiatives), the university leadership uses innovative methods to correct mistakes and resolve sustainability issues to protect the environment, which results in wealth for the university. For example, the university puts the purpose of environmental sustainability on its top agenda, has learned from mistakes, and created wealth that resulted in cost savings as a result of using renewable energy on campus. These results are consistent with the views of Slankis (2006) who mentioned that the organization should balance sustainable efforts with long-term financial growth, communicate sustainable initiatives to all employees, and demonstrate how this affects all involved. Leadership awareness of sustainable issues is a critical factor for sustainable success (Wan et al. 2012).

Table 5 Differences in sustainable leadership factors based on differences in gender (Male vs. Female)

Sustainable leadership factors	Gender	N	Means	Std. Deviations	T	<i>p</i>
Sustainable Management	Male	114	3.69	.67	.20	.84
	Female	56	3.67	.55		
Sustainable Initiatives	Male	114	3.75	.64	.16	.86
	Female	56	3.76	.55		
Sustainable Actions	Male	114	3.84	.65	.46	.64
	Female	56	3.79	.56		

Table 6 Differences in sustainable leadership factors based on college (Science vs. Social Science)

Sustainable leadership factors	Gender	N	Means	Std. Deviations	T	<i>p</i>
Sustainable Management	Science	73	3.69	.64	.05	.96
	Social Science	97	3.68	.62		
Sustainable Initiatives	Science	73	3.72	.63	.60	.54
	Social Science	97	3.78	.60		
Sustainable Actions	Science	73	3.90	.65	1.35	.17
	Social Science	97	3.77	.60		

As far as the third factor is concerned (sustainable actions), faculty members perceived the actions of their university leadership as being sustainable socially, ethically and environmentally. These leadership roles are viewed as being as important as the actual skills and characteristics of leaders (Davies 2007; Hargreaves and Fink 2006), which can hugely impact the image of green leaders and organization's sustainable success (Barr and Dowding 2012; Boiral et al. 2014).

Regarding demographic variables investigated in this study, results indicated no differences between male and female faculty members regarding sustainable leadership. This result is justified considering that the university under study has followed a path of female empowerment in leadership positions for years. Results also indicated that no differences detected between faculty members' perceptions from the science and social science colleges. One explanation for this result might be that all faculty members are under the same umbrella of rules, regulations and initiatives. Results also indicated that faculty members of all ranks and experience levels had similar perceptions related to all components of sustainable leadership. These results are logical considering that everybody in the organization has witnessed the practical applications of sustainability projects and how they impacted employees and the university socially and financially.

In conclusion, this study has made a case for a well-established practice of sustainable leadership in the Jordanian public university system. The university studied is pursuing an effective sustainable leadership practice that leads to important outcomes for the university, the society and the environment.

The researchers recommend that the university system should have sustainability programs that are committed to cost savings, pollution control, waste management and long-term

Table 7 Differences in sustainable leadership factors based on rank (Professor, Associate Professor, and Assistant Professor)

Sum of squares			<i>df</i>	<i>F</i>	<i>p</i>
Sustainable Management	Between Groups	.045	2	.055	.95
	Within Groups	67.793	167		
	Total	67.838	169		
Sustainable Initiatives	Between Groups	.004	2	.006	.99
	Within Groups	64.353	167		
	Total	6.358	169		
Sustainable Actions	Between Groups	.994	2	1.27	.284
	Within Groups	65.503	167		
	Total	66.49	169		

Table 8 Differences in sustainable leadership factors based on experience (less than 5 years, 5-10 years, and more than 10 years)

Sum of squares			<i>df</i>	<i>F</i>	<i>p</i>
Sustainable Management	Between Groups	.429	2	.532	.59
	Within Groups	67.409	167		
	Total	67.838	169		
Sustainable Initiatives	Between Groups	.309	2	.403	.67
	Within Groups	64.049	167		
	Total	64.358	169		
Sustainable Actions	Between Groups	1.194	2	1.53	.22
	Within Groups	65.303	167		
	Total	66.497	169		

financial growth. For example, green courses should be established for all majors with the aim of developing green jobs and green products and services for today's green economy. Moreover, it is recommended that the university leadership should integrate environmental sustainability initiatives and green policies into its strategic planning. This requires the presence of sustainability officers to make sure that sustainability projects are employed on campus. These officers should be required to publish and disseminate periodical reports of green performances for the university. Significant changes should be made to the mission and vision statement of the university to provide a better image for the university locally and internationally. Regular meetings should be held between faculty members and university leadership to share success stories about how green projects impacted life inside and outside the university, which can encourage them to commit to sustainability efforts. More research should be carried out to enhance the instrument and to test it with multiple and more comprehensive samples in Jordan.

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