

Investigating the Sustainable Green Education Strategies and the Limits of their Application in the Departments of the College of Education, Ibn Rushd - University of Baghdad

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Abstract:

This study aimed at identifying the sustainable green education strategies and investigating the limits of their application in the academic and administrative departments of the College of Education, Ibn Rushd - University of Baghdad, with reference to the statistical differences in the level of application in terms of gender, years of service, and scientific titles. A five-field questionnaire of (58) items was prepared for data collection and the descriptive method of analysis was used. The results show that all the sustainable green education strategies receive low levels of application as reported by the sample individuals. Besides, there are no differences of statistical significance in their responses that can be due to gender, years of service, or academic title.

Key words: (strategies, sustainable green education, College of Education-Ibn Rushd).

استراتيجيات التعليم الأخضر المستدام وحدود تطبيقاتها في الأقسام العلمية والوحدات

الإدارية في كلية التربية - ابن رشد / جامعة بغداد

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الملخص:

استهدفت الدراسة معرفة استراتيجيات التعليم الأخضر المستدام وحدود تطبيقاتها في الأقسام العلمية والوحدات الإدارية في كلية التربية ابن رشد جامعة في جامعة بغداد مع بيان الفروق الاحصائية في درجات التطبيق لمتغيرات الجنس ، وعدد سنوات الخدمة، والألقاب العلمية ، ولتحقيق أهداف الدراسة وضعت الأسئلة متضمنة (٥٨) فقرة موزعة على مجالات ستة لجمع المعلومات والبيانات المتعلقة بالدراسة ، واستعمل الباحثون المنهج الوصفي بدلالة المنهج التحليلي وفق أحداث وظواهر واقعية. أشارت نتائج الدراسة بأن جميع مجالات استراتيجيات التعليم الأخضر المستدام جاءت بدرجة تطبيق منخفضة طبقاً لآراء أفراد عينة الدراسة ولم تُظهر الدراسة أية فروق ذات دلالة احصائية في إجاباتهم تُعزى إلى متغير الجنس أوعدد سنوات الخدمة أو الألقاب العلمية. الكلمات المفتاحية : (استراتيجيات ، التعليم الأخضر المستدام ، كلية التربية / ابن رشد).

Chapter One

Introduction

1.1 The Statement of the Problem

Universities are institutions where sustainable green education demonstrations can be clearly observed, but what is apparent in the developing countries is the gap in contemporary education that universities of the developed countries are witnessing in the field of sustainable green education as one of the most important modern requirements of high-quality education. Besides, there is a lack of a strategic thought on which goals and missions are to be set as well as the inefficient formulation of effective strategies to confront changes and challenges with methods that go beyond the limits of the current real situation and anticipate the future challenges in order to facilitate the transition to new paths of renewal and modernization. The global trend classifies universities according to, among other criteria, their application of green education strategies, which calls on universities to adopt those strategies and keep pace with the developed countries. The scientific conference held in Germany (19th-21st October, 2016) (Green Education is a Powerful Axis) shows the relation between green education and sustainable development and environment when green education has become a major global concern, focusing on promoting the cultural, environmental and cognitive values associated with sustainable development. Hence, a university is no longer deals only with social, economic, knowledge and technological issues but also with implementing green education strategies with suitable technology to improve and develop its tasks. Therefore, there is a serious call for universities to move towards applying sustainable green education strategies in order to achieve sustainable development as recommended by the scientific conference of Beit Al-Hikma (30th, Nov. – 1st October 2022) (Quality of Energy Management and Green Endeavors; Our Way towards Confronting Climate Change) which came in line with the limits of applying sustainable green education strategies in the scientific and administrative departments of the College of Education, Ibn Rushd – University of Baghdad.

1.2 The Significance of the Study

The university represents a major factor in the renaissance and progress of any society towards achieving human resources development in current circumstances in order to keep its sustainability and to protect the environment. Therefore, it is self-evident to acknowledge the importance of the roles and responsibilities of higher education institutions and scientific research in supporting comprehensive development including green education, as a critical stage of preparing human resources and qualifying their cognitive and social competencies to lead social development in its comprehensive concept. (Al-Nadhiri, 2008:16)

It is necessary for any university administration to reconsider its activities, especially in the field of teaching and developing the professional performance of faculty members with high-standard quality research (Habib, 2016: 74), and to provide community service out of what those researches recommend in order to guide human resources on how to deal with the changing development environment. (Antoine, 2001, 75)

UNESCO considers sustainable green education as a decision-making learning process, taking into account the distant future of the economy and the environment of all the societies. It also means acquiring knowledge, values and skills necessary for individuals and communities to get progress in their public life. (Al-Bardi, 2013: 10)

It is worth saying that achieving the requirements of sustainable development, especially environmental and cognitive development can only be achieved through achieving excellent institutional performance of universities, and this would only be achieved by holding international competition strategies among universities towards achieving all of their targeted goals.

The researchers specify the importance of the study as follows:

1. Sustainable green education represents the fourth function of universities in terms of its importance after education, scientific research and community service.

2. Sustainable green education strategies ensure finding out reasonable solutions to environmental problems. This is linked to the high-quality scientific performance of universities with the availability of the characteristics of safe education for all.

3. The university represents the locations for investing and encouraging scientific inventions and innovations, therefore its involvement in sustainable development plans is extremely important to ensure the optimal achievement of its tasks.

1.3 The Aims of the Study

The study aims at finding out:

1. The strategies of sustainable green education and the limits of their applications in scientific and administrative departments at the College of Education, Ibn Rushd / University of Baghdad from the point of view of faculty members.

2. The statistical differences in the responses of the study sample individuals due to the variables of gender, years of service, and academic title.

1.4 The Limits of the Study

The geographical location of the study is limited to the faculty members of the College of Education, Ibn Rushd / University of Baghdad for the academic year 2022/2023.

1.5 Definition of Basic Terms

1. Sustainable Green Education

It is the education that seeks to develop students' abilities to participate in cognitive, moral and environmental activities and practices in order to enhance their life skills and also to employ technology to support a healthy-sustainable environment (Al-Husseini, 17: 2020) which is concerned with innovation skills related to variables based on methods of teaching and learning styles. (Rumaid, 2021: 2)

It is defined procedurally as all practices that result in developing and implementing the educational system and lead to transforming human resources tasks from the traditional approach into those who are capable of performing their tasks as rated by the degree that the target group prepared for this purpose will obtain.

2. University Administration

It refers to the quality of the administrative operations practiced by each department of the university system, represented by the practices of advanced strategic planning, effective leadership, organization, coordination, decision-making, evaluation, follow-up procedures of routine administrative work, and solving problems in creative ways. (Alwan, 2006: 224)

It is defined procedurally as the university procedures of achieving effective functions of work support through providing appropriate settings, material, and human capabilities for the purpose of developing its academic and administrative departments to serve the other state institutions, especially the educational ones. It is measured by the total score that the target group will obtain in the questionnaire prepared for this purpose.

Chapter Two

Theoretical Background and Previous Studies

There is no doubt that the progress and renaissance of nations is not only measured by their human resources, but also by what they possess of human minds that are capable of making use of knowledge and producing multiple creative solutions for problems that may appear in the work environment from time to time, as well as their ability to self-learning to get the desired outcomes. Thus, the improvement and development of the educational system has become a main focus to prepare a skilled generation who can achieve the goals of sustainable development.

Universities can make remarkable contributions to the development of societies, especially to sustainable protection of the environment and the investment of its human resources. Hence, the success of any university depends on the extent to which it assesses the efficiency of the performance of its departments whether scientific or administrative, as well as the quality

of its competition with other universities on one hand and the purposeful behavior of decision-makers (the target group) on the other hand. (Zarqon & Rawani, 2007: 53)

It is worth noticing that some universities face problems related to the environment which makes its performance questionable. Consequently, universities began to adopt modern strategies for improving their outcomes in a sustainable manner, as well as preserving their environmental field by employing electronic engineering in the that field to align with the requirements of the investors and the community needs. (Kufain, 2014: p13)

The activities of sustainable green education have received great attention from countries that have witnessed an escalating update in education programs, as calls have been made for the necessity of adopting the concept and the possibility of employing it in institutions with the aim of developing environmental awareness among students, rationalizing the growing consumption of clean energy and taking care of the environment and its good investment by improving and developing programs, courses and strategies with a contemporary vision that pushes towards sustainable development. (Okel, 2011: 22)

On a related level, sustainable green education is concerned with environmental programs and activities and green infrastructure, as well as with the use of technologies, applications, strategies and practices that are concerned with updating the curricula and developing specializations that promote green environmental culture among university staff members and thus achieve the required goals.

2.1 Green education resources in academic institutions

Many sources have shown the pillars of green education in academic institutions, as stated in by the Arab Bureau of Education for the Gulf States, 2021, including the following:

First: The school curricula should aim at enriching the cognitive, environmental and values culture, providing a package of information and facts about the environment and its multiple resources and on how to preserve it from natural climatic variables.

Second: The teaching strategy should be concerned with employing a package of multiple strategies for the purpose of achieving its goals, including; the strategy for solving cognitive and environmental problems that people face while performing their tasks, the life-skills strategy, and the digital-games strategy.

Third: The performance skills should be concerned with developing students' capabilities towards achieving their knowledge requirements in accordance with the goals of sustainable development, especially those related to design and technology management in a professional manner.

Fourth: The digital technology should be concerned with employing digital technology in teaching all the subjects, such as the use of virtual reality platforms and other devices and machines that allow students to interact and participate in various activities.

Fifth: The internal and external environment should be resources that attract the students' concern to everything related to the environmental boundaries inside and outside the classroom, such as organizing recreational activities within the institution as well as participating in exploratory trips in places determined by the concerned authorities.

2.2 The advantages of applying sustainable green education strategies in universities as presented by Al-Husseini, 2020: 181

1. It contributes to providing a safe environment for the practice of scientific and technological activities in all the academic and administrative departments of the colleges.
2. It supports human resources to make good use of technical innovations of scientific and environmental aspects, and effective contribution to investing and saving time and effort.
3. It contributes to providing an environment which can improve the educational process through knowledge-based informative settings to develop the students' mental abilities by purposeful application of that knowledge.

4. It provides a safe and healthy environment free of pollution which positively contributes to students' safety and thus results in perfect scientific productions.
5. It contributes to increasing students' acquisition of the concepts of self-confidence and cognitive empowerment to display higher levels of critical thinking.
6. It develops the evaluation strategies when using digital education tools.

2.3 Green education strategies used in universities

Below are the most important teaching strategies and the possibility of applying them in the green educational environment, as indicated by (Beers, 2014: 65):

1. Situation-based Learning Strategy

The teacher assigns certain tasks for students to accomplish in real situations in their local environment that simulates the real-life situations.

2. Virtual Instruction Strategy

The purpose of this type of instruction is to work on utilizing virtual educational electronic technology by using the simulation method such as taking students to geographical and historical places via the Internet to explore those sites or to conduct a chemical experiment by mixing dangerous ingredients in virtual laboratories using safe and environment-friendly tools.

3. Task-Performance Strategy

This strategy is concerned with linking the subject matters of the courses with students' real environment and presenting them in a manner similar to real-life situations in order to provide the students with critical thinking skills appropriate for solving the problems that they face in daily life situations.

4. Competitive Learning Strategy

This type of learning aims to encourage students and urge them to work in groups to achieve the assigned goals by competing with groups of same level and abilities.

5. Project-based Learning Strategy

This is done by assigning field projects as stated in the objectives of the curriculum by including a number of purposeful activities, for example using the digital library to help learn how to carry out their research projects.

6. Creative Problem-solving Strategy

This strategy is done by encouraging the students' productive thinking styles to understand the problems that hinder their progress and to generate many unconventional ideas, evaluate them and implement the possible ones. The completion of this strategy requires the individual to be familiar with problem-solving as well as creative thinking skill that lead to mastering the rationale for this strategy.

2.4 Sustainable green education and the inner/outer challenges

The crisis that universities are experiencing today is not the result of interacting variables and challenges, as some of them are concerned with the components of their inner environment, infrastructure and management, as well as the methods and procedures used to achieve the goals and the methods adopted in dealing with challenges, while other variables are related to their external environment such as knowledge, technology, funding, policy, and social relations (Al-Amiri, 2002: 432). Arab and international universities resort to procedures of improvement, modernization as a competition of international quality standards (Ramaid, 2017: 160), therefore they are obliged to interact with challenges in one way or another. The outer environment imposed situations and threats that need to be dealt with and to be well invested.

As for the inner environment, it refers to the points of shortcomings that need solutions, and points of strength that need to be relied upon when defining a strategy for sustainable development. (Ahmed, 2007: 55)

The researchers believe that the sustainable changes and challenges put university administrations, especially in the developing countries, in a very critical position, as they can compete with international universities only through the limits of applying the processes of renewal and modernization to confront those changes, challenges and the problems that appear in the work

environment from time to time. They have to depart the traditional administrative frameworks that restrict its inner and outer activities. Accordingly, there is a serious need to adopt new strategies based on interaction with knowledge and environmental changes and challenges and to encourage the creativity process which leads forward to sustainable development.

2.5 Obstacles of applying green education strategies in universities

The researchers believe that there are many obstacles that stand in the way of applying green education strategies in academic institutions, especially in the developing countries, including the following:

1. The budget shortage to transform from traditional career path into green environmental institutions to provide opportunities for students' participation in various activities.
2. Many individuals who hold administrative positions in the universities are afraid of making those changes and they are stick to daily routines.

2.6 Previous studies

In this study, the researchers reviewed two Arab studies that dealt with the issue of green education and its importance in the academic institutions.

Alwan and Qasim, 2006 (The impact of adopting green human resource management practices in improving the application of environmental management at Al-Taif University) aimed at investigating the extent to which the university carries out green strategies in terms of employment, training and development, performance and management, improving energy use, and improving water use. A questionnaire was designed to collect data from (222) employees selected in a simple random way. The results showed that the level of adopting green human resource management practices and the extent of improving the application of environmental management in general are of the average level but they do not efficiently contribute to improving the application of environmental management.

Iman and Mohammed, 2021 (Promoting the dynamics of transformation in Egyptian universities towards sustainable green universities in the light of

their functional foundations: a case study on Benha University) on the other hand also used a questionnaire to collect data from the faculty members. The researchers used the descriptive approach to analyse the data in a case study in Benha University, analyze and interpret it, and concluded that the green knowledge and cultural foundations came At a weak level according to the opinions of the members of the targeted sample, while the rehabilitation and transformational foundations achieved a medium level, so the study ends with a proposal to enhance the dynamics of transformation at Benha University and other Egyptian universities towards sustainable green universities in the light of their administrative foundations.

It is worth saying that:

1. Both studies contribute to setting the parameters of the structure of the current study by providing it with theoretical information and realistic facts on the merits of the green education variable and how to employ it in the academic institutions.
2. Both studies help to identify the theoretical structure of the variable of the current study.
3. They define the areas of the study tool and how to process the data obtained from the answers of the faculty members to the questionnaire.
4. They also show how to deal with the statistical means according to the objectives of the study and its variables.

Chapter Three

Methodology and procedures

This chapter introduces the methodology and procedures that were followed to design the questionnaire of sustainable green education strategies and the limits of their application in the scientific and administrative departments in the College of Education, Ibn Rushd / University of Baghdad, the methods of calculating its validity and reliability and the procedures of applying the questionnaire with reference to the statistical treatments used.

3.1 Methodology

In order to achieve the aims of the study, the researchers used the descriptive method associated with the analytical method according to real events that can be analyzed and measured as they are without researchers intervene in the course of its data in order to guarantee objectivity.

3.2 Community

The study population consists of (252) faculty members at the College of Education, Ibn Rushd / University of Baghdad; (114) males and (138) females for the academic year 2022/2023 as shown in Table 1.

Table 1: Community

Gender	Number	Percentage
Male	114	46%
Female	138	54%
Total	252	100%

3.3 Sample

The study sample was selected by drawing a simple random sample from the original study population to include (100) instructors; (55) males and (45) females, i.e. (40%) of the community, which is considered an acceptable percentage to get objective results that reflect the educational setting and can be relied upon in drawing generalizations of the results. Tables (2), (3) and (4) show the distribution of the study sample according to the variables of gender, years of service, and the academic title.

Table 2: Gender

Gender	Number	Percentage
Male	55	46%
Female	45	54%
Total	100	100%

Table 3: Years of Service

Years	Total	Percentage
1- 5	7	7%

5 - 10	22	22%
10 - 20	40	40%
More than 20	31	31%
Total	100	100%

Table 4: Academic Title

Title	Male	Female	Total	Percentage
Prof. Dr.	22	10	32	32%
Assist. Prof. Dr.	25	27	52	52%
Inst. Dr.	7	6	13	13%
Assist. Inst.	1	2	3	3%
Total	55	45	100	100%

3.4 Tool

According to aims of the study, the researchers adopted a questionnaire addressed to the faculty members of the College of Education, Ibn Rushd / University of Baghdad for the academic year 2022/2023 as a tool for data collecting as follows:

A- The questionnaire was designed in its initial form according to the data of the theoretical background and previous studies and they developed its main fields formulated in a form of paragraphs in which the sequence, the scientific and linguistic formulation and the extent of belonging to the fields were taken into account.

B- The questionnaire was submitted to (5) specialists in educational and psychological sciences, history and the Arabic language in order to verify its validity and reliability and also to judge the extent to which its paragraphs are consistent with the fields. The final form of the questionnaire fields and items is shown in Table 5.

Table 5: Fields and Items of the Questionnaire

No.	Title	Items
1	Situation-based Learning Strategy	9
2	Virtual Instruction Strategy	10
3	Task-Performance Strategy	10
4	Competitive Learning Strategy	9
5	Project-based Learning Strategy	10
6	Creative Problem-solving Strategy	10
Total		58

3.5 Psychometric characteristics of the questionnaire

A- The validity of the questionnaire: Validity means the extent to which the tool measures what it is designed for (Obeidat, 1988: 15). The validity of the questionnaire was confirmed through its face validity which is one of the most important standard characteristics that must be available in educational and psychological standards. (Al-Nemah and Al-Ajili, 2241: 2014)

B- The reliability of the questionnaire: Reliability means that the tool gives almost the same results every time it is repeated on the same group (Abu Libdeh, 1982: 261). The internal consistency method (Alpha-Krumbach) was adopted, and its value was (0.93) which is considered reasonable in human and social studies.

3.6 Procedures

1. The questionnaire was given to the targeted study sample in the College of Education, Ibn Rushd / University of Baghdad.

2. The responses were converted into scores that were classified according to the 5-scale Likert in a formula of (very large, large, medium, low, does not apply to me) given the weights (1,2,3,4,5) respectively.

C- The statistical treatment was carried out and the results were calculated as a prelude step analysis and interpretation in the next chapter.

3.7 Statistical analysis methods

The researchers used the following statistical means:

- The (SPSS) statistical package to verify the aims of the study.
- The t-test for one sample to find out the differences among the responses of the study sample.
- The t-test for two independent samples to find out the differences among the responses of the study sample according to the gender variable.
- Unilateral analysis of variance to find out the differences among the responses of the study sample according to the variables of years of service and academic titles.
- Cronbach'a alpha formula to verify the reliability of the questionnaire.
- The arithmetic mean of a criterion to judge the degree of verification and its rank in the light of the sample's opinions, as shown in Table 6.

Table 6: Degree of Application

Arithmetic Mean		Degree of Application
from	to	
1	1.80	Doesn't apply
1.81	2.60	Low
2.61	3.40	Medium
3.41	4.20	Large
4.21	5.00	Very large

Chapter Four

Analysis and Interpretation of the Results

The results of the field study are presented and interpreted below after applying the statistical analysis of the data collected by the questionnaire.

4.1 The first aim: To investigate the strategies for sustainable green education and the limits of their applications in the scientific and administrative departments of the College of Education, Ibn Rushd / University of Baghdad in the light of the faculty members' viewpoints, six areas were stated to represent this aim as follows

1. Situation-based Learning Strategy

Nine items of the questionnaire represent this strategy as shown in Table 7.

Table 7: Faculty members' viewpoints about the application of the Situation-based Learning Strategy

No.	Item	Arithmetic Mean	Standard Deviation	Rank	Degree of Application
1	The Deanship directs students to accomplish specific tasks to be carried out in specific real situations.	2.37	0.68	3	Low
2	They coordinate with the Ministries of Education, Environment, Media and Agriculture, and with other agencies concerned with sustainable development to ensure the sustainability of the green environment.	2.43	0.76	1	Low
3	They use the media to raise people's awareness of sustainable environmental projects and their	2.51	0.69	2	Low

	development.				
4	They provide the appropriate design of the teaching and learning situations with all its components in order to achieve sustainable environment quality.	2.25	0.74	4	Low
5	They strengthen the relationship of students and professors to the digital libraries to enable them get information and data related to sustainable environment.	1.87	0.85	6	Low
6	They provide public discussion forums for students to exchange opinions, ideas and critical dialogues about sustainable environment.	1.79	0.83	7	Low
7	They enrich the seminar sessions with topics related to sustainable environment.	1.78	0.82	8	Low
8	They assign graduate research projects with topics related to sustainable environment.	2.01	0.86	5	Low
9	They share field studies related to sustainable environment with	1.72	0.83	9	Low

	other state institutions, especially the educational institutions.				
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It is clear that all the items get low degree of application. None of the items gets medium or large degree. The lowest degree of application goes to item number (2), the deanship coordinates with the Ministries of Education, Environment, Media and Agriculture, and with other agencies concerned with sustainable development to ensure the sustainability of the green environment, with an arithmetic mean of (2.43) and a (0.76) standard deviation.

Item number (9) ranked ninth with a low degree of application, its arithmetic mean is (1.72) and the standard deviation is (0.83).

It is noted that there is low degree of application of the Situation-based Learning Strategy due to lack of the study sample individuals' awareness of the concept and application of this strategy, as well as the weak consolidation of green culture among students, as culture is considered The most important pillars of accomplishing tasks and tasks in any institution

2. Virtual Instruction Strategy

This area aims to investigate the faculty members' opinions about the degree of application of virtual instruction strategies in scientific and administrative departments units in the College of Education, Ibn Rushd / University of Baghdad. It includes (10) items as shown in Table 8.

Table 8: Virtual Instruction Strategy: Degree of Application

No.	Item	Arithmetic Mean	Standard Deviation	Rank	Degree of Application
1	The Deanship organizes scientific trips by advertising on the Internet.	2.53	0.72	2	Low
2	They organize trips and virtual means to provide	2.28	0.78	5	Low

	students with more scientific experience and skills related to dealing with environmental problems.				
3	They direct students to use environmental-friendly materials to reduce harmful effects.	2.28	0.71	6	Low
4	They provide technological systems concerned with measuring the availability of green education in the educational environment.	1.99	0.81	10	Low
5	Websites enrich students' research projects with all that is new in the field of environment and sustainable development.	2.28	0.38	4	Low
6	They switched to e-learning and officially have e-platforms for all the administrative and scientific departments.	2.12	0.84	9	Low
7	There is cooperation with the concerned authorities, to digitize the school curricula as one of the requirements for applying green education.	2.37	0.69	3	Low
8	They follow up the publications of the virtual library.	2.24	0.79	8	Low
9	They use electronic	2.31	0.71	7	Low

	culture in the lectures and urge the instructors to do so.				
10	They share e-learning applications and productions with the corresponding departments in other universities.	2.57	0.67	1	Low
Total		2.30	0.76	Low	

All the items receive a low degree of application, i.e. none of the items achieved a medium or large degree of application. Item number (10) has the lowest degree of application of (2.57) arithmetic mean and a standard deviation of (0.67) which confirms the lack of virtual instruction strategy, thus calls for more supportive measures to provide scientific output that takes into account applying this strategy.

3. Task-Performance Strategy

This questionnaire area asks the faculty members about the degree of applying the task-performance strategy in their departments. It includes (10) items as shown in Table 9.

Table 9: Task-Performance Strategy: Degree of Application

No.	Item	Arithmetic Mean	Standard Deviation	Rank	Degree of Application
1	The Deanship tries to connect educational settings to students' real life.	2.23	0.72	9	Low
2	They encourage students to master critical thinking skills and to solve environmental problems in a scientific manner.	2.42	0.71	4	Low
3	They provide opportunities for	2.57	0.64	1	Low

	students to involve in the environment assessment process.				
4	They organize workshops for students and staff to develop their experiences in promoting the concepts of green education and its importance in keeping pace with advanced institutions.	1.82	0.80	10	Low
5	They impose effective administrative regulations that confront the violations of the environmental, scientific and research standards.	2.42	0.78	3	Low
6	They organizing seminars to develop religious and ethical values related to the environment to preserve green spaces and protect the environment.	2.23	0.81	8	Low
7	They provide the central library and department libraries with scientific publications and resources on the environment and sustainable development.	2.30	0.85	6	Low
8	They make use of research results dealing with issues related to green education in partnership with other institutions.	2.46	0.63	2	Low
9	They urge specialized	2.40	0.68	5	Low

	scientific departments to propose new studies on the sustainable environment.				
10	They hold discussion seminars on sustainable development.	2.27	0.80	7	Low
Total		2.31	0.74	Low	

It is apparent from Table 9 that the task-performance strategy is not being applied well as all the ten items receive low degrees of application. Item number (3) has the lowest degree of application with an arithmetic mean of (2.57) and a standard deviation of (0.64), which confirms that students do not get opportunities to be involved in the environment assessment process. Item number (8) gets the second rank with a low degree of application as the arithmetic mean is (2.46) and the standard deviation is (0.63), which reveals that the college department do not make use of research results dealing with issues related to green education in partnership with other institutions.

Accordingly, the researchers believe that there is a serious need to apply the task-performance strategy due to its importance in sustaining the tasks of the departments in accordance with the requirements of the sustainable development aims.

4. Competitive Learning Strategy

This point aims to investigate the faculty members' opinions (the target group) about the degree of application of the competitive learning strategy in scientific and administrative departments in the College of Education, Ibn Rushd / University of Baghdad. Nine items represent this field as shown in Table 10 below.

Table 10: Competitive Learning Strategy: Degree of Application

No.	Item	Arithmetic Mean	Standard Deviation	Rank	Degree of Application
1	The Deanship directs all the departments to divide the students into	2.19	0.72	9	Low

	active groups to conduct the process of legitimate competition with the counterpart institutions.				
2	Instructors are directed to include issues of environment and sustainable development in their instruction.	1.72	0.74	8	Low
3	The students deal with environmental and sustainable development issues in their research projects.	2.31	0.84	5	Low
4	Competitions are organized at the university level to choose the best university applying green education strategies and highlighting the programs it offers in this field.	2.37	0.76	4	Low
5	Students have to accomplish tasks through collective work and competition with other groups.	2.12	0.73	7	Low
6	The scientific departments are encouraged to compete in establishing a sustainable environment.	2.42	0.65	3	Low
7	Joint work project with corresponding departments outside the university is called for.	1.88	0.89	9	Low
8	Evaluation of the scientific departments	2.51	0.61	2	Low

	on the basis of the sustainable environment is annually conducted.				
9	Research on sustainable environment in has a reasonable concern in the annual plan of the departments.	2.54	0.67	1	Low
Total		2.23	0.74	Low	

All the nine items of competitive-learning strategy receive a low degree of application. Item number (9) has the lowest degree of application (2.54) arithmetic mean and a (0.67) standard deviation which signifies the importance of enriching the instructors' research with topics related to sustainable environment in the annual plan of the departments.

The researchers call on universities to enhance the integration of skills, standards of competitive-learning strategy in their curricula to support knowledge about the sustainable environmenta.

5. Project-based Learning Strategy

This area of the questionnaire asks the faculty members about the degree of application of the project-based learning strategy in their departments. Ten items compose this area as shown in Table 11.

No.	Item	Arithmetic Mean	Standard Deviation	Rank	Degree of Application
1	The Deanship provides technology and information resources to students to carry out their projects.	2.57	0.70	1	Low
2	They provide a healthy and safe environment for students by following environment-based management of human resources.	2.42	0.74	4	Low
3	Allocations in the fund	1.65	0.77	10	Low

	to support and finance students' educational projects are being increased.				
4	They utilize the resources provided by the local community to support students' current and future projects.	2.21	0.66	8	Low
5	They reward students and instructors whose researches contribute to improving the environment to which they belong.	2.22	0.86	7	Low
6	Instructors are told to shed light on Arab and international universities that have applied green education and to get benefit of their experience.	2.40	0.75	6	Low
7	Training workshops on solar energy, wind energy, water consumption, waste recycling are regularly held.	2.42	0.74	5	Low
8	Researchers are encouraged to publish topics about sustainable environment in Scopus and other magazines.	2.51	0.76	2	Low
9	Student-researchers are urged to submit practical proposals and recommendations for a sustainable environment.	2.18	0.78	9	Low
10	Researchers in the field of sustainable environment get	2.43	0.66	3	Low

	facilities more than the others.			
Total		2.30	0.74	Low

As expected, none of the items obtained a medium or large degree of application. Item number (1) (which investigates whether or not the deanship provides technology and information resources for students to carry out their projects) has the lowest degree of application with an arithmetic mean of (2.57) and a standard deviation of (0.70).

The deanship has to activate the project-based learning strategy in all the departments in order to avoid probable environment problems.

6. Creative Problem-solving Strategy

This part investigates the faculty members' opinions (the target group) about the degree of applying the creative problem-solving strategy in their departments. It consists of (10) items as shown in Table 12.

Table 12: Creative Problem-solving Strategy: Degree of Application

No.	Item	Arithmetic Mean	Standard Deviation	Rank	Degree of Application
1	The Deanship works to develop students' creative problem-solving skills in a sustainable way to protect them from falling into problems they may face in their academic and practical lives.	2.50	0.80	3	Low
2	They encourage students to form teams to find creative ideas that contribute to promoting sustainable environmental behaviour within their local environment.	2.37	0.68	7	Low

3	They reinforce the scientific research with environment issues and allocate awards for excellent and creative topics.	2.55	0.61	2	Low
4	They ask students carry out their scientific researches and projects related to the green environment in cooperation with local community organizations.	2.46	0.66	4	Low
5	They direct students and teachers to use competition skills, collect data and sources related to environmental problems, and try to solve them.	2.13	0.72	8	Low
6	They choose from the creative problem-solving strategy what suits the real problem and situation.	2.40	0.75	6	Low
7	They work on developing the human resources' skills of how to deal with the problems they face in their academic stages and the new challenges in order to find several positive solutions.	2.05	0.89	10	Low
8	They arrange competitions for departments to get advanced ranks in the sustainable environment process.	2.55	0.61	1	Low

9	They coordinate with other state institutions to honour creative researchers; instructors and students.	2.46	0.66	5	Low
10	You yourself made an assessment of your achievements during your career.	2.13	0.72	9	Low
Total		2.36	0.71	Low	

The analysis of the data obtained from the faculty members shows that all the items of the creative problem-solving strategy got a low degree of application. Item number (8) came first with the lowest degree of application. Its arithmetic average is (2.55) and the standard deviation is (0.61).

Table (13) shows the analysis of the opinions of the faculty members (the target group) about the application degree of each of the six strategies of green education in the scientific and administrative departments of the College of Education, Ibn Rushd.

Table 13: The Application Degree of each of the Six Strategies of Green Education

No.	Strategy	Arithmetic Mean	Standard Deviation	Rank	Degree of Application
1	Situation-based Learning Strategy	2.08	0.78	6	Low
2	Virtual Instruction Strategy	2.30	0.76	3	Low
3	Task-Performance Strategy	2.31	0.74	2	Low
4	Competitive Learning Strategy	2.23	0.74	5	Low
5	Project-based Learning Strategy	2.30	0.74	4	Low
6	Creative Problem-solving Strategy	2.36	0.71	1	Low

It can be concluded that all the six strategies obtained a low degree of application; the creative problem-solving strategy got the first rank with an arithmetic mean of (2.36) and a standard deviation of (0.71), whereas the situation-based learning strategy got the sixth rank with an arithmetic mean of (2.08) and a standard deviation of (0.78).

As a result of the previous analysis and interpretation, the researchers call on the deans of colleges to consider those strategies by integrating the concepts of sustainable green education concept in the curricula to empower students coexist with the environmental variables in their universities and to think of possible creative solutions.

In order to verify the main aim of this study, the statistical significance at the level of (0.05) between the arithmetic mean and the hypothetical mean and the statistical differences between the calculated mean and the tabular mean were analysed as shown in Table (14).

Table 14: The Analysis of Sustainable Green Education Strategies (T-test for one sample)

Variable	Sample	Hypothetical Mean	Arithmetic Mean	Standard Deviation	Calculated T-value	Degree of Freedom	Statistical Significance
Sustainable Green Education Strategies	100	174	149.61	10.85	-22.470	99	Significant in favor of the hypothetical mean

The tabular t-value is (1.66) and the level of significance is (0.05).

The arithmetic mean is (149.61) and the standard deviation is (10.85) whereas the hypothetical mean is (174). The calculated t-value is (-22.470) which is greater than the tabular value of (1.66) at (0.05) level of significance when the degree of freedom is (99). This means that there are statistically significant differences between the hypothetical mean of the questionnaire

responses and the arithmetic mean, and that the observed differences between the two means are real differences. Since the arithmetic mean is less than the hypothetical mean, the difference is in favour of the sample mean. This result indicates that the faculty members have weak knowledge of the environmental culture, as well as they are not good enough how to apply those strategies and to shift from traditional tasks to developmental ones in accordance with the objectives of sustainable green education development requirements. This result coincides with (Alwan and Qasim, 2006) which indicates that the management practices of green human resources do not contribute to improving the applications of environmental management.

4.2 The second aim: To identify (the statistically significant differences in the responses of the study sample members due to the gender variable, the researchers used the t-test for two independent samples to find out if there are statistically significant differences between the means estimates of the study sample individual estimate of the questionnaire as shown in Table (15).

Table 15: Arithmetic means and standard deviations according to gender

Variable	Sample	Arithmetic Mean	Standard Deviation	Calculated T-value	Degree of Freedom	Statistical Significance
Male-instructor	55	149.7091	11.3475	0.1	98	Not-significant
Female-instructor	45	149.4889	10.75264			

The tabular t-value is (1.98) at a significance level of (0.05).

The data shown in Table (14) indicate that the arithmetic mean of the male instructors is (149.7091) and the standard deviation is (11.03475) with (98) degree of freedom whereas the arithmetic mean of the female instructors is (149.4889) and the standard deviation is (10.75264). The t-test for two independent samples show that the calculated t-value is (0.1) is smaller than the tabular t-value of (1.98) and thus it is not significant, explaining that the

study sample (males and females) are not concerned with the strategies of sustainable green education, and thus prevented the application of the variable in the college Accordingly, no statistically significant differences appeared in their responses due to the gender variable (male and female instructors).

4.3 The third aim: To identify the statistically significant differences in the responses of the study sample due to the variable of years of service, the arithmetic means and standard deviations were calculated in terms of the four categories (see table 3). The means for the sustainable green education variable ranges from (149 to 154.85) and the standard deviations ranges from (9.53 to 13.69), as shown in Table 16.

Table 16:

Arithmetic means and standard deviations according to the variable of years of service

Years of Service	Total	Means	Standard Deviations
1- 5	7	154.85	13.69
5 - 10	22	150.86	9.53
10 - 20	40	149	10.93
More than 20	31	148.32	11.06
Total	100	149.61	10.85

It is noted from table (15) that there is a variation in the means of the sustainable green education variable according to years of service, and for the purpose of ensuring that the observed differences reflect differences between the four categories, a one-way analysis of variance was used, as shown in Table 17.

Table 17: One-way analysis of variance for years of service

Variance	Sum of squares	Degree of freedom	Mean square	F-value	Calculated significance	Statistical significance
Between	293.568	3	97.85	0.82	0.483	Not

-group			6	6		significant
Within-group	11370.22 2	96	118.4 4			
Total	11663.79	99				

The tabular t-value is (2.68) and the level of significance is 0.05.

It is noted from table (17) that the f-value is (0.826), which means that it is greater than the tabular t-value of (2.68) at degrees of freedom that range between (3-96) at a (0.05) level of significance. It is found out that there are no differences between the groups according to the variable of years of service. Despite the large differences in the number of years of service for faculty members, all their responses indicate the weakness in their application of sustainable green education strategies in their departments. This result coincides with (Iman and Juma, 2021).

4.4 The fourth aim: To identify the statistical significance of the differences in the responses of the study sample due to the variable of the academic titles of the faculty members, the arithmetic mean for each of the four categories are calculated. It is found out that the means of their understanding of sustainable green education ranged from (146 - 152.21) and the standard deviations ranged from (10.06 - 11.31), as shown in Table 18.

Table 18:

Arithmetic means and standard deviations according to the variable of academic titles

Title	Total	Means	Standard Deviations
Prof. Dr.	32	152.21	13.69
Assist. Prof. Dr.	52	146.80	9.53
Instructor Dr.	13	150	10.93
Assistant Instructor	3	150.66	11.06
Total	100	149.61	10.85

It is noted from Table (18) that there is a discrepancy in the arithmetic means and standard deviations of the degrees of sustainable green education strategies according to the variable of academic titles. To judge that the observed differences reflect differences between the groups; a one-way analysis of variance was used, as shown in Table 19.

Table 19: One-way analysis of variance to find out the differences according to the academic titles

Source	Sum of squares	Degree of freedom	Mean square	F-value	Calculated significance	Statistical significance
Between	619.576	3	206.525	1.795	0.153	Not significant
Within	11044.214	96	115.044			
Total	11663.79	99				

The tabular t-value is (2.68) and the level of significance is (0.05).

The results shown in Table (18) indicate that the t-value is (1.795), which is less than the tabular t-value of (2.68) at (0.05) level of significance, confirming the absence of differences the faculty members regardless of their academic titles. They all do not apply green education strategies in their departments.

Chapter Five

Conclusions, Recommendations and Suggestions

5.1 Conclusions

1. Green education is a comprehensive educational process which aims at preparing a generation capable of discovering societal problems related to the environment and then defining their challenges and then working on developing strategies for objective solutions as well as to prevent new problems from emerging. The current study proved in its results that higher education institutions did not pay this type of education the required attention, unlike many countries that have reached advanced stages in this field.

2. The green-environment university is associated with the updates of modern educational settings that seek sustainable development and keep pace with technological development to be used in all the elements of the educational process with high efficiency for remarkable results according to the standards of the friendly environment.

5.2 Recommendations

The researchers present the following recommendations:

1. The college deanships are requested to consider the importance of including the principles of green education in the curriculum for the purpose of presenting knowledge of global environmental challenges and changes, and to integrate sustainable development issues with students' university to inculcate their cognitive awareness of the environment.
2. Higher committees presided by the dean should be formed to manage water and energy resources, and to add extra activities focusing on preserving environmental resources as well as directing the staff to rationalize the use of natural resources.
3. It is highly recommended to expand the use of clean technology in all activities, by using alternatives such as smart boards.
4. Development and training centres are to be established in cooperation with other institution. The mission is to train and develop students during the summer holidays for the purpose of providing them with professional, cognitive and mental skills in all fields, especially in the field of self-learning by using information technology in accordance with the goals of sustainable development.
5. It is important to create settings for creativity and innovation where deans and heads of departments can work collaboratively to fulfil the requirements of green education.
6. The councils of the scientific departments are requested to assign research topics related to sustainable green education, especially in the departments of geography, biology and educational and psychological sciences.

7. It is seriously needed to reconsider the issue of extra-curricular activities such as organizing scientific trips for students and faculty members to green sites and demonstrating the importance of keeping the environment clean.

8. Reinforcing the interaction with green education, including changing the furniture of offices and decorating them with trees or landscapes to add a style of green impact on individuals' behaviour.

5.3 Suggestions

The researchers suggest holding several panel discussions and workshops in the departments of the college to emphasize the importance of applying green education strategies in their departments with the participation of students. Classrooms and corridors should also be decorated with plants, natural or artificial, to add positive impact of interaction with the study materials. Graduation research topics, theses and dissertations should deal with green education and sustainable development.

References

Abu Libdeh, Sebea (1988) Principles of Psychological Measurement and Educational Evaluation, University of Jordan, Amman.

Abu Rumman, Jumana Bashir and Abdul-Rahman Ghassan Al-Siddiqi, The Impact of Adopting Green Human Resource Management Practices in Improving the Application of Environmental Management at Al-Tayif University, A research published in the Journal of Economic Studies, Issue (38) 2019.

Ahmed, Ibrahim Ahmed (2004) Organizational Development in the Educational Institution, First Edition, Alexandria, Dar Wafaa for Printing and Publishing, Egypt.

Al-Amiri, Mahdi Salih (2008) Management and Business, first edition, Dar Wael for Publishing and Distribution, Amman: Jordan

Al-Bardi, Abdullah (2013) Teaching Sustainability in Arab Universities, Monitoring International Experiences and Proposing a Scientific Model, The First Scientific Symposium of the Centre for Sustainable Development (Editor) Al-Qassim University, Centre for Sustainable Development.

Al-Husseini, Faiza Ahmed (2020) Green Education is a Future Orientation in the Digital Age, Journal of Human Sciences, Volume (3), Issue (3).

Al-Nadiri, Salem (2008) The Role of Higher Education in Human Development, yesser.ab.ma152553.htm/https

Al-Nama, Taha and Sabah Al-Ajili (2014) Introduction to Psychology, issued by Iraqi Academy of Sciences, Department of Human Sciences, Introduction to Human Sciences Series, Iraqi Academy of Sciences Press, Baghdad.

Alwan, Qasim (2006) Total Quality Management and the Possibility of Applications in Challenge, the Fifth Conference on the Quality of the University Education, University of Bahrain, College of Education (535-595).

Antoine, Zahlan (2011) The Arabs and the Cultural Challenge, the Role of the University in the Development Process, Arab Future Magazine, Centre of the Arab Unity Studies, 7th year, issue (267).

Beers, Seo (2014) Teaching Twenty-first Century Skills: Working Tools, translated by Muhammad Bilal Al-Jayousi, Arab Education Bureau for the Gulf States, Riyadh, Saudi Arabia.

Habib, Safaa Tariq and Shaiyma Salah (2016) Developing the Competencies of the Performance of University Faculty Members and their implications for achieving Total Quality in Higher Education Institutions, Journal of the College of Education for Girls, University of Baghdad, Volume 27, Issue 6, College of Education for Girls, University of Baghdad.

Iman, Jumaa M. Abdul-Wahhab (2021) Promoting the Dynamics of Transformation in Egyptian Universities towards Sustainable Green Universities in the Light of their Functional Foundations, a Case Study on Benha University, a Research Published by the Journal of the Faculty of Education in Benha, Issue (128), October, (Part 3), 2021.

Kufaine (2014) Competitive Strategies in Higher Education: Case of Universities in Malawi, The International Journal of Social Sciences and Humanities Invention, 1(71). 2349-2031.

Obeidat, Salman (1988) Educational Measurement and Evaluation, Dar Al-Shorouk for Publishing and Distribution, Amman, Jordan.

Okeil, Saeed (2011) Technological Innovation to Achieve Sustainable Development and Enhancing Competitiveness, Al-Obaikat for Publishing and Distribution, Riyadh, Saudi Arabia.

Rumaid, Sabah Mahdi (2017) Graduation Research Projects and International Quality Standards, Departments of History in Iraqi Universities, Al-Ustadh Journal, Special Issue, Quality Research Conference, College of Education, Ibn Rushd / University of Baghdad.

Rumaid, Sabah Mahdi and Muhammad Amer Jamil (2021) The Contributions of School Administrations in Employing Electronic Culture and its Results at the Level of the Teaching and Learning Processes: Preparatory Schools in Iraq as a Model, Al-Ustadh Journal, Volume 60, Number 1, College of Education, Ibn Rushd University of Baghdad.

Zarqoun, Mohamed and Boukheder Rawani (2007) Environmental Management System, as an Introduction to Achieving Competitive Excellence in the Economic Enterprise, The Second National Forum on: Enterprise Management, Algerian Institution, University of May 80, 1945, Faculty of Economics and Management Sciences.