

The Effects of Education and Sustainable Development on the Palestinian Economy and Business Student Behaviour

Abstract

Researchers and policymakers have long been interested in education for sustainable development (ESD). Despite a sizable body of research, more thorough empirical investigations are needed to comprehend how sustainable development goals are applied in higher education and how (ESD) could be used to influence sustainable behaviour. The two main drivers behind this sort of study are the lack of studies examining economic and business higher education and the requirement to accurately measure the relationship between (ESD) principles and students' behaviour. In light of this justification, the current study seeks to offer an overview of how students' perceptions of sustainable campus efforts, teaching staff engagement, and curriculum influence their sustainable behaviour. The statistical and econometric analysis performed on survey data of students from Birzeit University (BZU) (N = 1062) reveals insights into the degree to which students' knowledge of topics relating to sustainable development is obtained via education results in sustainable behaviour. According to the findings, we contend that a greater emphasis on sustainable development subjects along with efforts by teaching staff to increase student understanding of sustainability concerns are essential to promoting sustainable behaviour in students. On-campus activities are unlikely to alter behaviour unless they are elective rather than mandated. Our findings confirm the essential need for consistency in developing higher education to sustainability challenges, as education is one of the key drivers of sustainable development.

Keywords: Education, Sustainable Development, Sustainability, Palestinian Economy, Economic Development, Responsible Behavior.

JEL Classifications: A20, A11, I22, I23, I25, O20, Q01, M21.

1. Introduction

The UN Agenda (2030) states that universality is necessary for sustainable development, which seeks to alter the world. The term "Universality" refers to the idea that sustainable development not only fulfils regional economic, social, and environmental objectives but also addresses global issues like global inequality and climate change. Governments and international organizations must address these complicated challenges to allow for necessary "transformative" changes in our way of life and the preservation of the environment [1].

In light of this, it was discovered that education, from elementary to higher education, plays a unique function in all of its forms. Expanding global education for sustainable development (ESD) is a great opportunity made possible by the United Nations Sustainable Development Goals (SDGs) [2]. (ESD) is described as a method of education or a learning process based on standards and principles that prepares various types of individuals to plan, deal with, and solve issues that endanger the sustainability of our world [3].

Furthermore, there have been several definitions of (ESD) up until this point, but none are now regarded as generally recognized. Walls, however, believes that a variety of strategies are essential to guaranteeing that (ESD) develops appropriately at the local level while taking into account important cultural variations [4]. As a result, there is no need to seek agreement on a definition of (ESD). Instead, it is reasonable to presumptively accept a set of fundamental principles that describe the nature, intent, and practices of (ESD) [4].

Since at least five of the SDGs specifically address the topic of education, it might be argued that education is strongly related to every (SDG) [3]. The growing number of academic programs for sustainability (at the University of Arizona, Harvard University in the United States, Lund University in Sweden, Maastricht University in the Netherlands, Leuphana University in Lüneburg, Germany, and the Technical University of Catalonia in Barcelona, Spain, Stellenbosch University in South Africa, the University of Tokyo in Japan, etc.) is another indicator of the current prominence of (ESD) [5].

Moreover, the individual, on the other hand, is also a part of sustainability, and their behaviour has to be modified to match the demands of sustainability. The increased demand for goods and services including food, water, lumber,

minerals, and fuel can be linked to the effects of people's consuming habits. It is common knowledge that our earth is changing irrevocably due to excessive resource usage and environmental harm. More than 60% of global greenhouse gas emissions and between 50% and 80% of all land, material, and water usage are attributed to household use [6].

According to the Food and Agriculture Organization of the United Nations, one-third of the food produced worldwide around 1.5 billion tonnes is wasted [7]. Additionally, as the population grows and resource demand rises, it is predicted that in less than 15 years, the water demand will be 40% higher than the supply [8].

Limiting unsustainable behaviour can help promote sustainable development while also slowing the rate of environmental harm. Education is crucial because it has the power to influence people's behaviour. It is widely accepted that respecting the fact that environmental conceptualization starts in childhood is necessary for the healthy development of attitudes, values, responsibilities, and abilities [9].

According to [10], teenagers and young people are more open to learning sustainable behaviours and are more likely to disseminate such behaviours to others. Students should be seen as present and future customers who can make a big difference and pick up and maintain excellent behaviours [11]. They will also serve as the future planners, decision-makers, and instructors of the new economy's marketing strategies [12] as well as future environmental management policymakers [13].

In order to support higher education managers in finding and utilizing complex solutions for future responsible management and to guarantee that students gain the knowledge and skills required to support sustainable development and sustainable lifestyles through education, several universities have begun putting various principles into practice [14]. In order to promote sustainable progress in management education and, inadvertently, economic education, responsible leaders must collaborate [14].

Although many institutions and international organizations make a clear commitment to promoting sustainable development, institutional and cultural practices in higher education have remained the same despite this promptness. While the value of (ESD) may be widely understood at the governmental level, more work must be done to accomplish the envisioned objectives. Even while (ESD) has a specific role in social science research, it is clear that there are not nearly enough studies investigating how (SDGs) are used in higher education and how (ESD) models students' behaviours [15].

This study aims to describe how an economic university may increase the advantages of sustainability by influencing students' sustainable behaviours and understanding through curriculum, on-campus activities, and teaching staff members involved in sustainability-related subjects (ESD). The study aims to demonstrate how the most prominent economic studies school in the Middle East encourages its students to act ethically both domestically and abroad by utilizing the resources offered by (ESD). The demand for this kind of study is driven by the scarcity of studies that look at economic and business higher education as well as the necessity to find the best research methodology.

In order to offer applicable solutions to this difficult problem, our study is based on the notion that every person's behaviour is a result of their ideas, which are shaped by a variety of events and circumstances. The present study adopts a two-step methodology in this context: first, we evaluate students' perceptions of their knowledge of sustainable development issues acquired through university education with a focus on curricula, teaching staff involvement, and on-campus initiatives; second, we investigate any potential connections between these perceptions and current students' behaviour.

Furthermore, the empirical study is based on information gathered from Birzeit University (BZU) undergraduate students. Since Birzeit University (BZU) is the most significant institution in Palestine for economic studies, coming in at number one in Palestine and ranked 801–1000 globally in the Times Higher Education World University Ranking (2021), this study may be a pertinent case study [16]. Additionally, Birzeit University (BZU) ranks among the biggest institutions in the Middle East with an economic and business character thanks to the sizeable cohort of students enrolled in the undergraduate cycle (15,107) [16].

The study's findings offer a fresh viewpoint on how events at the university may influence students' present and future behaviour while promoting awareness of sustainable development challenges.

2. Literature Reviews

“Higher education for sustainable development has received attention as a result of the Brundtland Report (1987) and the Rio Conference (1992), which both stress the importance of including sustainable development within tertiary economic education. The growth of (ESD) in higher education may generally be tracked using six stages. These levels address concerns with (a) institutional policy, management, and planning; (b) education (courses and

study programs); (c), research; (d), administration of the university campus; (e), services; and (f) institutional evaluation and reporting” [17].

“According to (UNESCO), (ESD) requires (participatory) teaching and learning methodologies that engage and empower students to change their behaviour and take action for sustainable development” [18]. “Economists claim that (ESD) helps students understand the limitations of traditional business practices that are focused on process efficiency and profit maximization” [19] and educates individuals on how to creatively contribute to a more sustainable society.

“Universities can show that the theory of sustainability and reality are closely related by reducing their impact” [20], “increasing their commitment to activities related to campus management and specific operations, planning, designing, building, and renovating their buildings and infrastructures, purchasing practices, mobility, and involvement in community life” [21]. Critical thinking, cutting-edge technology, and open communication between research, industry, and society are required to address such problems [22].

According to (Barros et al., 2020)[21], the institution must care about the behaviour of both its students and teaching staff to attain a greater degree of sustainability [23]. However, several components are necessary to fulfil the sustainability goals and implement (ESD). Thus, (Ahamad and Ariffin, 2018)[22] demonstrate that simply teaching students about sustainable behaviours is insufficient since having a lot of information does not guarantee that they would act sustainably. The ability of the teaching staff to influence and direct students toward implementing the information in the form of actions is what matters most in this situation [24].

Students may lack the drive to put their knowledge into practice, as demonstrated by (Moh and Manaf, 2014) [25]. Some pupils may recognize that they are unable to make a complex correlation between the advantages of recycling and its drawbacks, according to (Prestin and Pearce's, 2010) research [26]. (Ahamad et al., 2018) [22] suggested that several environmental preservation measures, such as lowering home trash and energy consumption, may be carried out by anyone, whether or not they have any prior environmental knowledge [27]. Additionally, according to several studies and academics, people will behave more responsibly as they become more knowledgeable about environmental problems and their causes [28].

“Because it includes both individual ethical decisions and the upholding of both individual and communal good, studies reveal that (ESD) entails, by its very definition, an education based on respect for ethics and morals” [17]. (Parkes et al., 2017)[27] stress that the outcomes of education give both students and their instructors the chance to have an impact on how companies think and what they will do in the future [29]. Given that both lecturers and researchers have compelling arguments for educational institutions, the teaching staff's attention to concerns relating to sustainable development is crucial [30].

(ESD) has an impact on education outcomes in addition to courses. (Sibbel) contends that conventional approaches to teaching economics, which is centred on discrete subjects and one-way education processes, do not provide students with the skills necessary to tackle challenging sustainability-related challenges. Therefore, it is crucial to encourage students to actively participate in community life rather than only absorb knowledge [32]. This suggests a new culture of learning based on collaborative processes and new teaching strategies, such as various ways based on experiential and action-based learning approaches, according to (Barth et al., 2007) [33].

The importance of using students as change agents has thus far been somewhat undervalued [34]. According to (Blewitt, 2010) [35], “the emphasis should be shifted to determining the most effective teaching strategies for influencing students' attitudes about sustainability and their capacity to perceive sustainable possibilities”.

According to (Trencher et al., 2014) [36], “there is a fundamental need for universities to promote exactly those subjects that encourage innovation, creativity, and critical thinking to provide students with the skills they need to put sustainable practices into practice”.

According to (Brunstein and King, 2018) [35], “many sustainable development initiatives are often visible and promoted at the level of a specific department, course, or field and are not being sufficiently integrated into the curriculum to achieve recognition at the collegiate or national levels” [37]. These behaviours also have a weak correlation to the university curriculum [38] and occasionally may only be traced at the neighbourhood level [39].

Students might not always have the time or resources to put what they have learned in class into practice [40], “even though the development of activities expressly aimed toward sustainable development often requires time and logistical planning” [41]. “When students do learn to see their involvement as an individual activity, it becomes disassociated from the context of courses and disciplines and does not give an unified and community experience that happens both within and beyond the classroom” [41].

Studies have also been done on the carbon footprint of transporting students and teachers, the propensity for using bicycles or public transportation, energy-efficient gadgets, the practice of turning off the lights in unoccupied rooms, etc. [42, 43]. At the same time, emphasis is placed on initiatives aimed at lowering water usage [44], treating water

at institutions [45], and planting trees [46]. Other strategies make an effort to outline the primary obstacles to including sustainability-related subjects in the academic curriculum [47].

Students should learn how to comprehend and solve social, environmental, and economic problems at the university level, as well as how to undertake coordinated activities [39]. From the standpoint of education, this entails engaging students in the consulting activity, developing business strategies, planning events and lectures, and setting an example via your activities [39]. Along the academic road, it also entails recognizing and developing strong interpersonal connections that result in meaningful learning to address socio-environmental problems [48].

Universities have a negative influence on how young people behave [49], employing initiatives like on-campus resource consumption competitions and sustainability initiatives. National contests to encourage sustainable behaviour include (RecycleMania) and university-hosted energy conservation initiatives [50]. Given the scope of today's environmental problems, sustainable development must take into account aspects of human transformation, particularly behaviour change [50].

To attain sustainable development goals, it is important to have a critical understanding of how people think, behave, and interact, as well as how they affect and interact with one another [51]. According to (Kalamas Hedden et al., 2017) [52] and (Shephard, 2008) [53], active learning is suited for (ESD) because it incorporates real-world difficulties that necessitate practical answers and hands-on experience.

Participant involvement in social learning projects and practical experiences can help to advance ethical environmental and societal behaviour [54]. Students must have firsthand knowledge of sustainability issues in order to understand its complexity and multidisciplinary nature [55], and this can only be done by using educational strategies that make sustainability issues more relatable to students. For learning, researchers have advised field-based travel courses, outdoor adventure excursions, and experiential learning [54], among other things [56].

The literature study identifies that the subject is of interest to more people than just academics and sparks a substantial number of discussions because there is still no universal agreement. Additionally, this subject is the subject of in-depth research, particularly when it comes to the attitudes and behaviours of students with an economic and business background regarding the implementation of (ESD) principles.

3. Methods and Materials

The literature evaluation indicates that, despite significant analysis of the (ESD) issue, more research is needed to understand how students' perceptions of how they learned to understand sustainability during their university years affect their behaviour in daily life. This study attempts to evaluate the impact of (ESD) on students' present and future behaviours in this environment. To achieve this goal, the research gauges students' judgments of how university education has been able to focus their attention on sustainable development in the first phase and their opinions of their current behaviour that is focused on sustainable development in the second phase.

Therefore, the primary research question that this study aims to address is: To what degree does students' increased knowledge of concerns related to sustainable development as a result of their education translate into sustainable behaviour?

Numerous micro- and macroeconomic studies have demonstrated that rising levels of education boost both personal and societal income. Extreme poverty must be eradicated through a multifaceted strategy with education as its foundation. People in extreme poverty can obtain the essential skills and become more employable if they have access to basic, secondary, and higher education. However, there is a point to be careful about because getting an education and finding skilled work frequently depend on both its quality and accessibility [66].

The well-being of all people of a nation may not always grow with an increase in (GDP) or (GDP) per capita, nor does it necessarily mean that wealth is divided fairly and equally among everyone. Numerous economists who specialize in the study of inequality have statistically demonstrated that a country's high level of education greatly decreases income disparity and strengthens the middle class. The most important factors influencing fair economic growth are universality, accessibility, and educational quality [67].

People with higher education tend to be more entrepreneurial, and the knowledge and skills they learn in school are crucial for creating successful company concepts. A society's population, especially those living in severe poverty, benefits from the creation of additional employment by its entrepreneurs [68]. An additional year of education in the classroom boosts entrepreneurial revenues by 6%, according to another research. This conclusion is backed up by several research, which shows that women experience more benefits from entrepreneurship education than men do [57].

It is common knowledge that multinational corporations invest in countries with trained labor. One of the most important factors in luring Foreign Direct Investment (FDI) to a country is education, particularly high-quality

education in science and engineering. A country's economic growth is higher the more foreign direct investment it draws [137].

The National Strategy for Sustainable Development of Palestine (2026), which went into effect in (2016), establishes the foundation for 11 sustainable development objectives based on the economic, social, and environmental pillars. This model maintains that higher education has autonomy and a duty to the public as reflected in the university charter, equality, and the regulations governing university ethics as outlined in the Code of Ethics and Professional Ethics [58].

(ESD) is still in its infancy among Palestinian economics students, according to previous empirical investigations; nonetheless, (ESD) is more successfully developed at economic and business universities. Our empirical examination in this situation focuses on one of these universities. Since the chosen organization Birzeit University (BZU) is one of the most representative institutions for economics and business studies in terms of size (over 15,144 students and 9 faculties) and rating, we believe that this research is important for a better knowledge of the subject.

Additionally, in recent years, Birzeit University (BZU) has made large expenditures to keep up with emerging trends in sustainable development, including selective recycling, water and energy conservation, a decrease in paper usage, and a more adaptable and effective structure. (MoHESR, BZU., 2021) [146, 107] studied students' perceptions of how current curricula address general and specific ideas connected to sustainable development in a previous study done at the same university.

The curriculum of Birzeit University (BZU) includes a variety of subjects that are particular to sustainable development, according to this study [146, 107]. (sustainable growth, sustainable production, resource efficiency, circular economy, poverty, green economy, justice and cohesion, equity, diversity, human rights, global warming, greenhouse effect, resource conservation, biodiversity, pollution, etc.).

However, Birzeit University (BZU) has not yet established any training modules that specifically address challenges related to sustainable development. According to (MoHESR, BZU., 2021) [146, 107], third-year students have more understanding of sustainable development than first-year students, but subjects believe that generally, their knowledge of these issues is below average [146, 107]. As expected, participants reported having more awareness of the economic aspects of sustainable development [146, 107].

Additionally, a second study on Birzeit University (BZU) [107] found that the university is home to a significant number of research projects that focus on sustainable development and that symposiums, conferences, and summer schools on the topic are frequently held there [59]. These studies mainly concentrate on the inputs of sustainable development programs and how they are seen by students, however our study takes a step further by assessing the potential outcomes of specific students' actions and behavior.

We employed a survey as the tool for gathering data, with 12 items measured on a 5-point Likert scale (1-"Not at all" to 5-"To a very big extent"). This survey gauges students' thoughts on acquiring (ESD) and the subsequent activities they have taken. Between 06 February and 11 March 2021, 1026 randomly chosen Birzeit University (BZU) students filled out the questionnaire on pencil and paper in front of a researcher. Using Cochran's calculation, the sample size offers an acceptable margin of error (3 per cent, p 0.05), given that the population as a whole is 22,662.

The sample is evenly balanced since it includes the following demographics: 33.62 per cent of students in their first year of study (8,276), 26.73 per cent in their second year (6,123), and 22.76 per cent in their third year (5862). Respondents were informed that the survey was optional and that the information they submitted would be used to analyze students' perceptions of (ESD). We believe that the sample is sufficiently representative to enable the investigation of patterns linked to the beliefs and actions of Palestinian economics and business students given the exploratory nature of this study.

Our study employs the following measures to gauge students' knowledge of university initiatives to promote (ESD), by other studies and ongoing campus initiatives at Birzeit University (BZU): (a) On-campus initiatives for sustainable development; (b) the engagement of the faculty in promoting these themes; and (c) the extent to which sustainable development concerns are covered in university courses. In our study, these were regarded as independent input variables. Table 1 displays the descriptive statistics of the obtained data corresponding to the three variables.

Table 1 - Descriptive Information on Characteristics Associated with Sustainable Development Education (ESD)

Variables	Obs.	Min	Max	Media	SD	VAR	Skewness	Kurtosis
On-campus actions for sustainable development (v1)	1026	1	5	1.22	0.96	0.82	0.08	-0.43

Teaching staff involvement (v2)	1026	1	5	1.76	0.82	0.73	0.18	-0.57
Curricula (v3)	1026	1	5	1.66	0.74	0.77	0.22	-0.41

Source: Authors' Calculations.

On the other hand, nine criteria were employed to measure students' assessments of how their actions correlated with certain SDGs: (a) electricity reductions to protect the environment and resources; (b) recycling of paper and glass; (c) selective waste collection; (d) the purchase of eco-friendly or fair trade goods; (e) community service; (f) donations to charitable organizations; (g) avoiding the use of environmentally harmful packaging; (h) using energy-saving light bulbs; and I avoiding overindulging in food purchases. The descriptive statistics of the pertinently obtained data are shown in Table 2.

Table 2 - Behavioural Variables: Descriptive Statistics

Variables	Obs.	Min	Max	Media	SD	VAR	Skewness	Kurtosis
Electricity savings (b1)	1026	1	5	1.75	0.86	0.82	-0.58	0.03
Paper/glass recycling(b2)	1026	1	5	1.12	0.91	0.95	-0.13	-0.35
Selective waste collection(b3)	1026	1	5	1.49	0.92	0.86	-0.01	-0.49
Purchase of eco-friendly or fair trade products(b4)	1026	1	5	1.62	0.86	0.91	0.4	-0.44
Volunteering in the community(b5)	1026	1	5	1.21	0.86	0.85	0.28	-0.38
Donations to social causes(b6)	1026	1	5	1.35	0.82	0.97	0.03	-1.01
Avoiding environmentally harmful packaging(b7)	1026	1	5	1.19	0.83	0.79	-0.01	-0.97
Use of energy-saving light bulbs(b8)	1026	1	5	1.71	0.78	0.96	-0.21	-0.48
Avoiding excessive food purchases(b9)	1026	1	5	1.75	0.77	0.99	-0.44	-0.18

Source: Authors' Calculations.

In order to identify the major trends in students' sustainable behavior, a relatively large number of components that describe their behavior were reduced using exploratory factor analysis. The Kaiser-Meyer-Olkin (KMO) value for the nine variables was (0.923), which was greater than the reference value (0.707). After performing the Bartlett sphericity test, a Chi-square value of (2026.727) with 36 degrees of freedom and a significance level of (0.00) was obtained.

Together, these tables demonstrate that the data may be subjected to factor analysis. The factor analysis identified nine components; their eigenvalues and cumulative probability are displayed in Table 3. According to Table 3, there are three main components with eigenvalues greater than or close to 1 that together account for around 64% of the total variation in the data.

Table 3 - Findings from the Exploratory Analysis

Factor	F1	F2	F3	F4	F5	F6	F7	F8	F9
Eigenvalue	1.657	0.048	0.667	0.476	0.388	0.288	0.298	0.278	0.222
Variability (%)	26.446	09.321	6.543	3.655	3.675	3.11	2.756	2.426	2.142
Cumulative (%)	28.482	33.866	42.23	46.354	44.782	52.457	55.214	51.664	62.000

Source: Authors' Calculations.

Table 4 displays the variables' percentage contributions to the three components.

Table 4 - Variables' Contribution to Factors (per cent)

Variables	F1	F2	F3
Electricity savings(b_1)	6.265	08.266	0.0633
Paper/glass recycling(b_2)	09.642	1.086	28.275
Selective waste collection(b_3)	07.966	3.622	27.389
Purchase of eco-friendly or fair-trade products(b_4)	10.559	0.098	0.011
Volunteering in the community(b_5)	6.563	22.842	08.607
Donations for social causes(b_6)	7.426	16.603	12.732
Avoiding environmentally harmful packaging(b_7)	09.713	2.806	0.898
Use of energy-saving light bulbs(b_8)	08.679	4.709	2.694
Avoiding excessive food purchases(b_9)	6.557	17.879	1.862

Source: Authors' Calculations.

The first factor (F1) has been dubbed Environmental Protection Actions in the analysis because Table 4 makes it clear that it is primarily made up of variables describing behaviors intended to protect the environment (e.g., conserving energy and using energy-efficient lightbulbs, avoiding environmentally harmful packaging).

The factors indicating students' engagement in community life to guarantee the community's sustainable growth mostly contribute to the second element, which implies behavior toward actions of involvement in community life (volunteering, donations for social causes, and avoiding excessive food purchases).

The third component, Selective Recycling/Collection Actions, is a result of the variables that determine recycling and selective rubbish collection making a major contribution. These three fundamental elements, which are integer values produced from linear combinations of variables, are constructed using the following equations:

$$F1 = 0.085b_1 + 0.129b_2 + 0.128b_3 + 0.137b_4 + 0.087b_5 + 0.092b_6 + 0.129b_7 + 0.129b_8 + 0.083b_9; \quad (1)$$

$$F2 = 0.111b_1 + 0.020b_2 + 0.048b_3 + 0.001b_4 + 0.260b_5 + 0.208b_6 + 0.0460b_7 + 0.069b_8 + 0.237b_9; \quad (2)$$

$$F3 = 0.001b_1 + 0.315b_2 + 0.305b_3 + 0.128b_4 + 0.169b_5 + 0.014b_7 + 0.040b_8 + 0.029b_9; \quad (3)$$

The descriptive statistics of the integer values of the factor analysis-derived behavior factors are shown in Table 5.

Table 5 - Output Variable Statistics in Summary

Variables	Obs.	Min	Max	Mean	Std. Deviation	Variance
Environmental Protection Actions ($F1$)	1026	1	5	1.759	0.732	0.614
Actions of Involvement in Community Life ($F2$)	1026	1	5	1.312	1.262	0.079
Selective Recycling/Collection Actions ($F3$)	1026	1	5	1.765	0.798	0.732

Source: Authors' Calculations.

According to the research question, the study's primary goal was to analyze the impacts of input factors on the three components that were derived from behaviour variables. The extent to which sustainable development issues are covered in university curricula has been examined using a Multinomial Logistic Regression (MLR) to model the effects of the three independent variables (v_1 - on-campus sustainable development activities; v_2 - teaching staff

willingness to promote sustainable development topics; and v_3 - the extent to which sustainable development issues are covered in university curricula).

The response variables are represented by the three principal components ($F1$ - Environmental Protection Actions; $F2$ - $F3$.(MLR) is a helpful technique for the analysis of discrete datasets with multiple response categories. The objective, in this case, is to model and further predict the response variables based on the values of the independent variables, which are believed to be predictors of the education for sustainable development.

The three cases that we concentrated on when designing three (MLR) models to provide precise and efficient data analysis were the impact of input variables on predicting Environmental Protection Actions ($MLR-F1$), the impact of input variables on predicting Actions of Involvement in Community Life ($MLR-F2$), and the impact of input variables on predicting Selective Recycling/Collection Actions ($MLR-F3$).

The values of a number of indices relating to the models' goodness of fit are shown in Tables 6 and 7.

Table 6 - Goodness-of-fit Statistics

Statistic	MLR-F1		MLR-F2		MLR-F3	
	Independent	Full	Independent	Full	Independent	Full
Observations	426	426	426	426	426	426
Sum of weights	422.000	422.000	422.000	422.000	422.000	422.000
Degrees of freedom	424	406	424	406	422	406
-2 Log(Likelihood)	1733.762	1348.537	1686.324	1372.143	1246.574	1286.508
R ² (Cox and Snell)	0.000	0.168	0.000	0.169	0.000	0.118
R ² (Nagelkerke)	0.000	0.453	0.000	0.386	0.000	0.399
AIC	0.000	0.442	0.000	0.398	0.000	0.386
SBC	1437.146	1036.594	1658.324	1126.133	1884.558	154.639
Iterations	0	14	0	12	0	14

Source: Authors' Calculations.

Table 7 - Test of the Null Hypothesis

Hypothesis	MLR-F1H0; Y = 0.196			MLR-F2H0; Y = 0.295		MLR-f3H0; Y = 0.244	
	DF	Chi2	Pr > Chi2	Chi2	Pr > Chi2	Chi2	Pr > Chi2
-2 Log (Likelihood)	08	442.487	< 0.0001	354.154	< 0.0001	346.112	< 0.0001
Score	08	1123.175	< 0.0001	1102.453	< 0.0001	1021.751	< 0.0001
Wald	08	22.762	< 0.0001	62.557	< 0.0001	43.467	< 0.0001

Source: Authors' Calculations.

The factors taken into consideration in each of the three scenarios produce significant information, as demonstrated in Table 7 where the probability corresponding to the Chi-square test on the log ratio is less than (0.0001).The next section goes into further depth about the empirical findings and related topics.

4. Results and Discussion

Following the original research topic and using the special multinomial logistic regression approach, the study's conclusions were mostly focused on the following issue: How likely is it that a little change in perceived (ESD) will cause pupils to behave differently, moving from the bottom to upper bound of the scale?

By using three separate (MLR) models, we examine the extent to which shifts in students' perceptions of campus activities, university staff involvement, and courses may alter their behaviour with regard to sustainable development.

In particular, we investigate whether students are more likely to display "Total Agreement" behaviour in connection to environmental protection acts ($MLR-F1$), community participation behaviours ($MLR-F2$), and selective recycling/collection behaviours than total disagreement behaviour ($MLR-F3$). The parameters for the overall

agreement status for each of the three models are displayed in Tables 8, 9 and 10. Additionally, odds ratios with a (0.95) probability level are displayed to help readers comprehend the results.

Table 8 - Conditions for the Status of Total Agreement

Logistic Multinomial Regression MLR-F1									
Source	Value	Standard Error	Wald Chi-Square	Pr > Chi ²	Wald Lower Bound (95%)	Wald Upper Bound (95%)	Odds Ratio	Odds Ration Lower Bound (95%)	Odds Ratio Upper Bound (95%)
Intercept	-0.336	0.267	1.246	0.106	-1.321	0.023			
V ₁	-0.244	0.122	2.031	0.064	-0.280	-0.006	0.573	0.433	0.760
V ₂	0.289	0.112	5.431	0.005	0.133	0.422	0.879	0.988	0.967
V ₃	0.133	0.112	0.477	0.266	-0.101	0.298	0.897	0.622	0.876

Source: Authors' Calculations.

Table 9 - Conditions for the Status of Total Agreement

Logistic Multinomial Regression MLR-F2									
Source	Value	Standard Error	Wald Chi-Square	Pr > Chi ²	Wald Lower Bound (95%)	Wald Upper Bound (95%)	Odds Ratio	Odds Ration Lower Bound (95%)	Odds Ratio Upper Bound (95%)
Intercept	-0.226	0.188	0.433	0.266	-0.622	0.178			
V ₁	-0.032	0.112	0.123	0.467	-0.198	0.137	0.745	0.589	0.987
V ₂	0.142	0.122	1.247	0.101	0.007	0.230	0.895	0.798	0.878
V ₃	-0.026	0.116	0.062	0.539	-0.169	0.171	0.737	0.571	0.942

Source: Authors' Calculations.

Table 10 - Conditions for the Status of Total Agreement

Logistic Multinomial Regression MLR-F3									
Source	Value	Standard Error	Wald Chi-Square	Pr > Chi ²	Wald Lower Bound (95%)	Wald Upper Bound (95%)	Odds Ratio	Odds Ration Lower Bound (95%)	Odds Ratio Upper Bound (95%)
Intercept	-0.433	0.187	2.137	0.053	-0.993	-0.049			-0.466
V ₁	-0.031	0.112	0.046	0.533	-0.144	0.129	0.743	0.565	-0.033
V ₂	0.122	0.111	1.162	0.142	-0.008	0.231	0.626	0.748	0.126
V ₃	0.118	0.121	0.473	0.262	-0.122	0.211	0.086	0.644	0.113

Source: Authors' Calculations.

The following model equations are provided through parameter interpretation:

$$MRL-F1: \text{Log} \{P(\text{Response Variable} = 5 / P(\text{Response Variable} = 1))\} = -0.336 - 0.244_{v_1} + 0.289_{v_2} + 0.133_{v_3}. \quad (4)$$

$$MRL-F2: \text{Log} \{P(\text{Response Variable} = 5 / P(\text{Response Variable} = 1))\} = -0.226 - 0.032_{v_1} + 0.142_{v_2} + 0.026_{v_3}. \quad (5)$$

$$MRL-F3: \text{Log} \{P(\text{Response Variable} = 5 / P(\text{Response Variable} = 1))\} = -0.433 - 0.031_{v_1} + 0.122_{v_2} + 0.118_{v_3}. \quad (6)$$

Where v_1 , v_2 , and v_3 represent the independent variables.

Universities may contribute to sustainable development through a variety of on-campus programs that have a good effect on the environment (like recycling or restricting water, paper, and power usage) and society (like lowering bureaucracy and fostering healthy working conditions). Students' involvement in sustainable practices on campus boosts their motivation to participate in campus events, strengthens their feeling of connection to the institution, and promotes faith in each person's ability to drastically modify their behaviour [60].

Our study's findings do show that students' opinions of on-campus programs for sustainable development have a detrimental influence on all types of sustainable behavior that were examined. For one-unit change in the variable v_1 , the log ratio of the two probabilities will decrease by (0.236) (p 0.005) for environmental protection efforts, (0.054) (p 0.005) for community participation actions, and (0.036) (p 0.005) for selective recycling/collection actions.

Therefore, our study shows that students are less likely to adopt a sustainable development behavior for a one-unit shift in their perception of campus activities linked to sustainable development when they are business and economics majors. These findings support the idea that despite major efforts, particularly for selective recycling and water consumption reduction, sustainable development campus activities, at least in the case of our sample, are still in the early phases of expansion. For instance, even though trash cans for selected collections have been placed in the campus halls at Birzeit University (BUZ), this move was regrettably not supported by a communication campaign to encourage students to act responsibly.

“Students may also decide not to act appropriately owing to serious issues with Palestine's waste management strategies, such as a gloomy outlook or a lack of legal sanctions for disobeying the law. Despite continued efforts by Palestinian institutions to organize events, conferences, symposia, and carry out research projects related to sustainability” [59], “stressing poor student involvement in on-campus activities and a lack of awareness, our findings are consistent with those of” [107, 146].

Our results, however, do not support the claims made by (Dagiliute et al., 2018) [57], who contend that students' participation in on-campus sustainability projects is strongly correlated with their environmental knowledge. Our findings imply that a university's capacity to offer the required infrastructure for separate garbage collection, water conservation, and power savings is directly related to that university's sustainability [57].

Additionally, despite the fact that a considerable number of activities inside the institution have been fully digitalized, students may not view these initiatives as significant milestones toward sustainable growth. Additionally, students' perceptions of their engagement in sustainable development behaviours may be greatly changed if they perceive that specific on-campus activities and events are, in some ways, more required than voluntary.

Therefore, these findings provide the idea that colleges should place more focus on students' voluntary participation in on-campus sustainable development activities and events. Although contributions by students to extracurricular activities and campus operations are crucial to influencing how sustainability is seen [58], any kind of restriction may have the opposite impact.

Similar to this, it is crucial for students to work together with many stakeholders to facilitate sustainability activities on campuses [59]. For instance, Canada Runs, the Sustainability, Youth Coalition is one of the most significant non-profit groups focused on social justice and environmental problems [60]. Furthermore, we shouldn't ignore the campaign against fossil fuel consumption being led by college students in the US [61]. These are only a few examples of acts and activities that could serve as a useful benchmark for programs that are offered on campuses to encourage sustainable growth.

Additionally, our research shows that teaching staff involved in the promotion of sustainable behaviour has a positive impact on student behaviour. Our research shows that for every unit change in the variable v_2 , the log ratio of the two probability will increase for environmental protection measures by (0.387) (p 0.005), community participation actions by (0.220) (p 0.005), and selective recycling/collection actions by (0.180) (p 0.005). The results show that professor lectures may significantly improve students' environmental protection behaviours.

“These results are also in line with past studies on the issue. Institutions should start by focusing on small-scale initiatives like increasing public awareness of unsustainable human behaviour, recycling campaigns, courses with a sustainability focus, and the gradual transition to integrating sustainability into the entire system”, according to (Krizek et al., 2012) [62].

“So, a professor's quick presentation to the class on the need to reduce excessive paper use in order to save trees might be seen as the first step in raising awareness. Our findings support (Avila et al., 2017), who stress the need for greater awareness from staff and students” [63] and emphasize the idea that the involvement of the entire academic community is detrimental to overcoming sustainability barriers in universities. This reasoning is supported by the findings of this study.

Thus, the goal of (ESD), according to some writers [5,64], is to influence people's behaviour toward sustainable development, and figuring out who can accomplish this is crucial. Here, it's important to distinguish between mental adoption and acceptance of a concept's significance and its successful application.

This requires changing routines and behaviours in addition to just listening to lectures from professors. When discussing the daily impact of each of our actions, as demonstrated by (Macdiarmid et al., 2016) [65], “three patterns can be seen: the propensity to minimize the importance of personal habits in the context of global socio-ecological problems; a serious lack of knowledge about the effects of our consumption on the environment; and resistance to changing socially ingrained consumption patterns. Moreover, previous research has shown that students' attitudes and behaviours toward activities that are specifically related to sustainable development tend to change” [66,67] and that attitudes often take time to translate into actions [67]. Because they believed that issues with sustainable development (such as pollution, climate change, the preservation of endangered species, etc.) were beyond their control and, therefore, not personally their responsibility, participants in an Australian study on economics and business studies [68] tended to be reluctant to change their own lifestyles.

“Students at the University of Plymouth in the UK were willing to alter their lifestyles (changing their shopping and commuting habits, recycling, and conserving water and energy, for example) even if they were unaware of the precise concepts of sustainable development” [69]. In this regard, our results demonstrate that students' perceptions of the amount of sustainability issues covered in curricula have a positive impact on environmental protection actions (0.142, $p < 0.005$) and selective recycling/collection actions (0.126, $p < 0.005$) while having a marginally negative impact on involvement in community life (0.032, $p < 0.005$).

Furthermore, these findings highlight the necessity of including sustainability problems in economic and business faculty curricula as a necessary first step in rethinking studies and business models in general [30]. There is no question that a topic of this nature may readily find a place in any curriculum given that concerns related to sustainable development are relevant to all elements of society. In this regard, (Dagiliute et al., 2018) assert that curriculum may have a major effect on pupils in terms of environmental awareness and responsibility, which may extend to their environmental behaviour [57].

“More specifically, (Ceulemans and De Prins) point out two general approaches for integrating sustainability into the curriculum. The vertical strategy necessitates separate sustainability university courses, but the horizontal technique, based on a systemic and holistic perspective, introduces sustainability challenges as subjects to be addressed in the current curriculum” [71]. In this regard, (Stubbs and Cocklin) contend that the optimal approach is to explicitly incorporate certain sustainability-related themes into foundational courses rather than just including them incidentally [71]. Simply said, if sustainability themes are only included in pre-existing courses (such as corporate finance or strategic management), they will only receive cursory treatment in economic higher education [72].

Additionally, it appears that students want discrete sustainability specialities, therefore, (75.3%) of Palestinian students and (64.8%) of them agree with this idea, according to (Yuan and Zuo, 2013) [73] and (BZU, 2021) [107]. But we're far from done with this topic. (Ramos et al., 2015) list many significant barriers to integrating (ESD) into courses and emphasize that these barriers might occasionally lead to knowledge fragmentation [74]. “The teaching staff's propensity to see sustainability topics as necessary but unimportant to curricula, the faculty's lack of knowledge and experience in integrating sustainability issues, the lack of incentives or individual priority, the limited institutional support, agglomerated curricula, and stakeholders' limited commitment are additional significant barriers that have been discussed in the literature” [75].

“Additionally, Cebrian et al. emphasize that the mismatch between (ESD) pedagogy and academics' attitudes toward teaching sustainability is the root of the difficulties in overcoming the idea of incorporating sustainability concerns into most courses” [75]. “Another challenge in teaching sustainability concepts is the need to switch from a teacher-centred to a student-centred approach” [76].

“In terms of incorporating sustainable development topics, several trends have been observed: (a) the incorporation of concepts into one or more existing courses [77]; (b) the addition of a dedicated cour” [78]; (c) “the insertion of (ESD) principles into regular courses while adapting to the specifics of each course” [77, 79]; and (d) “the inclusion of sustainable development as a distinct potential specialization within a faculty” [79].

In addition, in order to promote contact and interdependence across fields and, consequently, between individuals, an interdisciplinary approach is also required [81]. The inclusion of sustainability-related subjects in the curriculum requires interdisciplinary direction and cross-disciplinary collaboration from several departments and faculties [82]. Transdisciplinary case studies are cited by (Stephens et al., 2008) as an effective method of incorporating (ESD) concepts and principles into courses [83]. (Vann et al., 2006) came to the conclusion that if an e-learning course on sustainability were to be introduced, its content should cover environmental ethics, ecology, and environmental economics [84].

Moreover, any endeavour to reform the curriculum, though, can only be successful if the teaching staff is open to it [85]. (Eckel and Kezar, 2003) assert that the following factors must be taken into account: comprehension of the change process, comprehension of the reasons why change is required, and the successful implementation of change [86]. To complete the circle, (BZU, 2021) found that the majority of business and economic students supported including sustainability-related topics in the curriculum as an effective way to increase student understanding of and encourage sustainable development behaviour [107].

5. Conclusions

One may argue that education is one of the main driving factors behind sustainable development since it has the ability to alter attitudes and behaviors, advance scientific and technological knowledge, and promote favorable social norms and economic circumstances. However, our case study's comprehensive literature review and empirical results highlight the urgent need for more consistency in reforming education to more effectively address sustainability concerns and shape students' behavior.

According to prior research, sustainability initiatives (such as training programs to promote (ESD) principles, on-campus initiatives, or curricula development) tend to engage minority groups, fail to reach the core of all university staff, students, and stakeholders, or leave a meaningful mark on organizational culture, despite their potential to shape minds and practice.

Furthermore, despite having a high degree of knowledge, students might not have the resources or the motivation to act in compliance, according to past research and our own findings.

Our study's objective was to ascertain how students interpret various (ESD) activities in this environment and, therefore, how these perceptions impact students' sustainable behaviour. Our findings generally confirm the idea that promoting students' sustainable behaviour requires teaching staff members who are actively involved in raising student awareness of sustainability issues and increasing the proportion of topics that focus on sustainable development. Given that it presents a meter for students' sustainable behaviour, the current study provides a solid framework for decision-makers to assess the effectiveness of various instruments that universities employ in line with the principles of (ESD).

While interactions with the teaching staff directly and personally may give the impression that each person's seemingly insignificant gesture matters for sustainable development, campus activities, actions, events, and programs may give the impression that collective action is more important than individual action. Our research shows that the professional and personal qualities of teaching staff members can be effective tools for influencing students' sustainable behaviour.

Students may learn varying degrees of information, attitudes, and behaviours about sustainable consumption at different universities, each of which may have its own set of environmental initiatives. Similar to this, tangible practical effects depend not only on the university's sustainability performance but also on individual and group initiatives.

Since it provides a useful case study of how (ESD) principles may affect students' behaviour, our analysis supports the claim that universities must undergo institutional reforms, with significant changes in policies and procedures, to foster their sustainable growth. Universities need to switch from their current incomplete and fragmented approach of strategy adoption to one of proactive assessment of the current mode of operation and mentality creation to ensure the achievement of sustainable development goals.

To sum up, in this specific case study, our findings indicate that Birzeit University (BZU) still faces a pressing need for better integration(ESD) in curriculum, research projects, and ongoing on-campus initiatives despite persistent efforts to follow the (ESD) principles. In actuality, Birzeit University (BZU) must completely handle every aspect of (ESD), beginning with theoretical ideas and extending to on-campus efforts and the influence of teaching staff members' role models. In accordance with our results, we suggest that the institution address more practical as well as theoretically sound sustainable development issues such as a more thorough integration of (ESD) into the courses' on-campus initiatives that involve students, teaching staff, (NGOs) and companies.

Since our study shows that teaching staff participation is essential in influencing students' behaviour, incentives for faculty who are willing to participate in initiatives to raise awareness among students should also be taken into account. Although we are aware that putting (ESD) principles into practice is not a simple process, a well-thought-out plan with specific activities might result in a major shift in students' attitudes and long-lasting behaviour.

A global perspective on sustainable initiatives carried out by a sizable number of universities may also provide insightful advice on how to (a) implement an environmental management system [21]; (b) encourage environmental protection actions like encouraging tree planting [46], the use of stainless-steel water bottles in place of disposable bottles [87], reduce water consumption [42], etc.); or (c) fund sustainability initiatives [88].

In this case, the effective transfer of knowledge based on earlier endeavours to a more global level may serve as a benchmark for future attempts. Even if the research has certain limitations, more investigation is necessary for such a challenging topic.

Despite the size, the sample's design which was restricted to students from one university might give the present poll more prominence. However, this study provides a framework for further investigation, which is likely to result in a more in-depth and accurate understanding. Future research should focus further on the challenges that this scenario presents for knowledge transition into sustainable behaviour.

6. Policy Recommendations of the Study

Our research explored and showed that, contrary to what the (ESD) definition and studies suggest, the pluralistic approach to teaching and the holistic approach to dealing with the subject matter of (ESD) is not always associated in reality. The efficacy of (ESD) in methods where the relationship between holism and pluralism is a dependent variable might be the subject of future research projects. In this context, it is possible to hypothesize that teaching and learning are more in line with the definition of (ESD) and, as a result, are more successful in fostering students' sustainability consciousness in classrooms where holism and pluralism are related more firmly.

Future research examining the effectiveness of (ESD) must additionally take into account ideas like temporal perspective, risk perception, self-determination, and self-efficacy, in addition to students' sustainability awareness. A rising corpus of recent work backs the authenticity of such ideas as significant effects of (ESD).

A significant inference that can be made from our findings is that they provide empirical support for the efficacy of (ESD). We are aware of no other large-scale study that has done this before. As seen in the final report, the (ESD) has led to the implementation of an increasing number of educational projects under the banner of (ESD), but there hasn't been a corresponding rise in a study on their results and efficacy. The discourse around (ESD) lacks empirical investigations since choices and implementation plans are mostly reliant on practitioners' intuition and policy suggestions.

In addition, the findings we offer in this study represent a significant advancement in responding to the request in the (ESD) final report and for the efficient use of (ESD). If modified for use in a self-evaluation setting, the assessment measures we utilized in this study might prove to be useful tools for schools and supporting organizations to monitor and guide efforts in the implementation of (ESD).

Moreover, we may conclude that our innovative method for researching the efficacy of (ESD) has yielded important fresh knowledge. Our findings demonstrate that (ESD) has the potential to be successful, but they also demonstrate that there is no one magic bullet for all problems and that educational practices must be tailored particularly to the audiences they are intended for. Thus, our findings support the important part that (ESD) may play in resolving (SD) and ensuring a sustainable future for future generations.

7. Limitations of the Study and Suggestions for Future Studies

By evaluating the current study model and the process of data analysis, the study sheds light on the impact of education in sustainable development (ESD) on the Palestinian economy, on the other hand, the behaviour of business students, has a more positive impact on the Palestinian economy, and on the other hand, it negatively affects the Palestinian financial stability and development in the event of a lack of financial support for the education sector for sustainable development (ESD) for the economic renaissance of the country.

The time frame of the study was chosen to achieve the objectives of the study based on the availability of data on the studied factors. It should be noted that previous research dealing with the title of the current study and the most relevant findings, conclusions and recommendations from previous studies should be noted.

As a result, the current study has some important limitations, such as its reliance on previous studies and a scientific approach appropriate to the problem of the study and the process of data analysis, and the use and analysis of qualitative and quantitative data from reliable official government sources, and the study reached positive conclusions about the impact of the education sector on sustainable development (ESD) and its impact on the Palestinian economy through the behaviour of business students in universities.

However, based on the data evaluated by the authors, the results and suggestions are appropriate, and another major limitation is that this study used both qualitative and quantitative approaches to the data completely, while the qualitative technique was used less.

In addition, future research will benefit from this study that summarizes and writes down the data, conclusions, and suggestions in the most meaningful way possible. Moreover, the methodology and scientific methodology used to address and investigate the subject of study are relevant and valuable for future studies and research and researchers

interested in such research. Moreover, one of the most important determinants of this study is that it revealed the real impact of the education sector on the sustainable development of the Palestinian economy, and the impact of this relationship on the process of Palestinian economic growth and sustainable development in the country.

In terms of the short and long term, it showed the impact of each of the studied factors on the educational process and Education of sustainable development (ESD) in Palestine, and the study supported this claim with data from the existing situation in the country, and the current Palestinian economic situation, and as a result, the results, conclusions and suggestions of the current study will help in studies and research in the future, it will assist the authors and other researchers in this field to conduct larger studies related to the topic and difficulties of the current study.

Finally, the results of the study are restricted in terms of data quality, and the inconsistency and inaccuracy in the data provided by many government agencies, private sector institutions and even different departments in the country contribute to this limitation, moreover, there is a lack of data in this study due to lack of available sources, and we cannot use this data as we should due to the length of the study period.

The Novelty of the Study

The novelty of the study is focused on the new findings, conclusions and suggestions that we presented, which actually benefit the decision-makers in the state and help the decision-making process in another way. Moreover, the analysis of the study data and the examination of the qualitative and quantitative content of these data showed that the impact of education in sustainable development (ESD) on the Palestinian economy had a positive impact on the Palestinian economy, although this effect was not of a significant positive impact. In addition to the impact of the behaviour of business students and its relationship to this direct impact on sustainable development, as well as there is an impact of sustainable development on the internal financial stability of the country.

The novelty of this research lies in the fact that it shows and reveals the real impact of education on the sustainable development (ESD) of the Palestinian economy through the relationship between business students and their behaviour in the university educational sector, such as economic universities in Palestine. The study shows the type of relationship between education in sustainable development (ESD) and the behaviour of business students on economic growth in Palestine.

Finally, the results of the study, in addition to the conclusions and recommendations presented by this study, reveal this scientific novelty, and this novelty is a useful model for future studies in this field, as well as a useful and appropriate component for decision-makers and national economic policies.

Declarations

The views, conclusions, and recommendations derived here are the narratives concluded by the authors, based on the data (Facts/Tables) derived in this paper, which do not reflect the official views and perspectives of the organizations where the authors are associated now. In addition, this study was conducted in early (2022), the third year of the onset of (COVID-19).

Data Availability Statement

The data and materials that support the findings of this study are available from the corresponding author upon request. Datasets are derived from public resources and made available to the author. Data analyzed in this study were a reanalysis of existing data, which are openly available at locations cited in the references section.

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