Original Research Article

The Impact of Education for Sustainable Development on the Palestinian Economy and the Behavior of Business Students

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.

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 or 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].

Several universities have started putting various principles into practice to help higher education managers find and use complex solutions for future responsible management and to ensure that students acquire the knowledge and skills necessary to support sustainable development and sustainable lifestyles through education [14]. One of the "keys to success" for responsible leaders working together to achieve sustainable growth in managerial education, and indirectly, economic education [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].

By influencing students' sustainable behaviours and knowledge through curriculum, on-campus events, and teaching staff members engaged in sustainability-related themes, the current study seeks to outline how an economic university might amplify the benefits of (ESD). The research attempts to show how the most representative economic studies institution in the Middle East encourages its students to behave responsibly both at home and internationally by using the tools provided by (ESD). The dearth of studies that examine economic and business higher education and the need to identify the best research methodologies are the driving forces behind the demand for this type of study.

Our study is founded on the idea that every person's behaviour is the product of his or her views, which are formed by many factors and circumstances, to provide pertinent solutions to this complex issue. The current study takes a two-step approach in this context: first, we assess 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, and then we look into any possible relationships between these perceptions and current students' behaviour.

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

The Brundtland Report (1987) and the Rio Conference (1992), which both highlight the necessity of integrating sustainable development into tertiary economic education, have brought attention to higher education for sustainable development. In general, six levels can be used to trace the development of (ESD) in higher education. These levels deal with issues related to (a) policy, administration, and planning; (b) education (courses and study programs); (c)

research; (d) operation of the university campus; (e) services; and (f) evaluation and reporting at the institutional level [17].

Participatory teaching and learning approaches that engage and empower students to modify their behaviour and take action for sustainable development, according to (UNESCO), are necessary for (ESD) [18]. According to economists, (ESD) teaches people how to contribute creatively to a more sustainable society and helps students comprehend the limitations of conventional business approaches that are centred on process efficiency and profit maximization [19].

Universities can demonstrate that the theory of sustainability and reality are closely related by reducing the impact of their activities [20], increasing their commitment to activities related to campus management and specific operations, planning, design, construction, and rehabilitation of their buildings and infrastructures, purchasing practices, mobility, and participation 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].

While the creation of activities specifically geared toward sustainable development typically necessitates time and logistical organization [41], students may not always have the time or resources to put what they have learned in class into practice [40]. It gets disassociated from the context of courses and disciplines and does not offer a cohesive and communal experience that occurs both inside and outside the classroom when students do come to recognize their engagement as an individual activity [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].
Critical comprehension of how people make decisions and act on themselves, how they think, influence and interact with each other, and how they acquire beliefs and attitudes [51] is necessary to achieve sustainable development goals. Active learning is appropriate for (ESD) because it includes real-world challenges that call for pragmatic solutions and hands-on experience, as shown by (Kalamas Hedden et al., 2017) [52] and (Shephard, 2008) [53].
Stakeholder engagement in social learning initiatives and real-world experiences can assist promote responsible environmental and societal behaviour [54]. Students must go through the experience to appreciate the complexity and interdisciplinary character of sustainability concerns [55], and this is only feasible by utilizing teaching techniques that bring them closer to reality. Researchers have suggested experiential learning [54], field-based travel courses, and outdoor adventure excursions for learning, among other things [56], in this regard.
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?
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.
This study [146, 107] found that the Birzeit University (BZU) curriculum covers a variety of topics that are unique to sustainable development (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].

Furthermore, according to a second study done on Birzeit University (BZU) [107], the institution is home to a sizable number of research projects that concentrate on sustainable development, symposiums, conferences, and summer schools on the subject are often hosted on campus [59]. While our study goes a step further by examining the possible results of particular students' actions and behaviour, these studies primarily focus on inputs in sustainable development initiatives and how they are viewed by students.

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 Data for Characteristics Related to Education for Sustainable Development (ESD)

Variables	Obs.	Min	Max	Media	SD	VAR	Skewness	Kurtosis
On-campus actions for sustainable development (v_1)	1026	1	5	2.44	1.06	1.22	0.11	-0.73
Teaching staff involvement (v_2)	1026	1	5	2.23	1.22	1.13	0.23	-0.77
Curricula (v_3)	1026	1	5	2.11	1.02	1.07	0.31	-0.71

Source: Authors' Calculations.

On the other side, nine factors were used to gauge students' perceptions of how their behaviour corresponded with particular sustainable development goals: (a) electricity savings to conserve resources and the environment; (b) paper/glass recycling; (c) selective waste collection; (d) the purchase of eco-friendly or fair trade products; (e) community service; (f) donations to charitable organizations; (g) avoidance of environmentally harmful packaging; (h) use of energy-saving light bulbs; and (i) avoiding overindulging in food purchases. Table 2 displays the descriptive statistics of the correspondingly gathered data.

Table 2 - Descriptive Statistics of Behavioural Variables

Variables	Obs.	Min	Max	Media	SD	VAR	Skewness	Kurtosis
Electricity savings (b_1)	1026	1	5	2.45	1.06	1.02	-0.78	0.05
Paper/glass recycling(b_2)	1026	1	5	2.24	1.11	1.25	-0.19	-0.56
Selective waste collection(b_3)	1026	1	5	2.67	1.12	1.26	-0.03	-0.58
Purchase of eco-friendly or fair trade products(b_4)	1026	1	5	2.53	1.16	1.21	0.6	-0.56
Volunteering in the community(b_5)	1026	1	5	2.34	1.26	1.45	0.38	-0.56

Donations to social causes(b_6)	1026	1	5	2.77	1.22	1.37	0.03	-1.01
Avoiding environmentally harmful packaging(b_7)	1026	1	5	2.57	1.33	1.89	-0.03	-1.11
Use of energy-saving light bulbs(b_8)	1026	1	5	2.89	1.28	1.73	-0.32	-0.76
Avoiding excessive food purchases(b_9)	1026	1	5	2.97	1.17	1.28	-0.56	-0.26

Source: Authors' Calculations.

Exploratory factor analysis was used to reduce the relatively high number of factors that define students' behaviour in order to pinpoint the key trends in their sustainable behaviour. In the case of the nine variables, the Kaiser-Meyer-Olkin (KMO) value was (0.836), which was higher than the reference value (0.800). A Chi-square value of (3006.949) with 36 degrees of freedom and a significance level of (0.00) was achieved after running the Bartlett sphericity test.

These numbers together show that factor analysis can be performed on the data. Nine factors were discovered as a result of the factor analysis; their eigenvalues and cumulative probabilities are shown in Table 3. According to Table 3, there are three primary components that together account for around 64 per cent of the overall variance in the data and have eigenvalues larger than or near 1.

Table 3 - Factors Resulting from Exploratory Analysis

Factor	F1	F2	F3	F4	F5	F6	F7	F8	F9
Eigenvalue	2.867	1.078	0.727	0.567	0.464	0.389	0.345	0.372	0.262
Variability (%)	30.642	11.213	8.321	5.876	4.897	4.258	3.978	3.662	3.123
Cumulative (%)	30.642	44.623	52.453	62.578	62.544	72.677	70.426	73.789	81.000

Source: Authors' Calculations.

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

Table 4 - Contribution of Variables to Factors (%)

Variables	F1	F2	F3
Electricity savings(b_1)	8.477	11.066	0.055
Paper/glass recycling(b_2)	12.863	2.048	31.497
Selective waste collection(b_3)	12.805	4.833	30.459
Purchase of eco-friendly or fair trade products(b_4)	13.781	0.075	0.002
Volunteering in the community(b_5)	8.715	25.961	12.809
Donations for social causes(b_6)	9.229	20.807	16.916
Avoiding environmentally harmful packaging(b_7)	12.931	4.606	1.379
Use of energy-saving light bulbs(b_8)	12.859	6.905	3.972
Avoiding excessive food purchases(b_9)	8.339	23.698	2.910

Source: Authors' Calculations.

Table 4 makes it clear that the first factor (F1) is primarily composed of variables describing behaviours intended to protect the environment (e.g., conserving energy and using energy-efficient lightbulbs, avoiding environmentally harmful packaging), so this factor has been dubbed Environmental Protection Actions in the analysis.
The second factor, which denotes the behaviour toward Actions of Involvement in Community Life, is primarily the result of the variables describing the involvement of students in community life to ensure the sustainable development of the community (volunteering, donations for social causes, and avoiding excessive food purchases). Selective Recycling/Collection Actions, the third component, is a result of the significant contribution of the variables that define the activities of recycling and selective garbage collection. The following equations are used to build these three primary components, which are integer values derived from linear combinations of variables:

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

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

$$\boldsymbol{F3} = 0.001b_1 + 0.315b_2 + 0.305b_3 + 0.128b_5 + 0.169b_6 + 0.014b_7 + 0.040_b + 0.029b_9; \quad (3)$$

Table 5 displays the descriptive statistics of the integer values of the behaviour factors derived from factor analysis.

Table 5 - Summary Statistics of Output Variables

Variables	Obs.	Min	Max	Mean	Std. Deviation	Variance
Environmental Protection Actions (*F1*)	1026	1	5	2.597	0.916	0.836
Actions of Involvement in Community Life (*F2*)	1026	1	5	2.216	1.026	1.056
Selective Recycling/Collection Actions (*F3*)	1026	1	5	2.583	0.977	0.956

Source: Authors' Calculations.

The study's analysis of the effects of input variables on the three components that were drawn from behaviour variables was its main objective, in accordance with the research question. A Multinomial Logistic Regression (MLR) has been carried out in this situation to model the impact 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 of coverage of sustainable development issues in university curricula) on the response variables, represented by the three principal components (***F1***-Environmental Protection Actions; ***F2***-Action; ***F3***-Selective Recycling/Collection Actions). For the analysis of discrete datasets with several answer categories, (MLR) is a useful method. In this instance, the goal is to model and further forecast the response variables based on the values of the independent variables, which are thought to be predictors of the education for sustainable development.
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 were the three cases that we focused on when designing three (MLR) models to provide accurate and effective data analysis (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-F!		MLR-F2		MLR-F3	
	Independent	Full	Independent	Full	Independent	Full
Observations	627	627	627	627	627	627
Sum of weights	627.000	627.000	627.000	627.000	627.000	627.000
Degrees of freedom	626	611	626	611	626	611
−2 Log(Likelihood)	2953.564	1969.319	2468.542	1916.165	2468.336	1944.306
R^2 (Cox and	0.000	0.241	0.000	0.224	0.000	0.212

Snell)						
R^2(Nagelkerke)	0.000	0.631	0.000	0.586	0.000	0.566
AIC	0.000	0.641	0.000	0.597	0.000	0.578
SBC	2619.328	2072.374	2476.542	1948.165	2468.336	1976.306
Iterations	0	18	0	14	0	18

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**	
Statistic	DF	Chi2	Pr > Chi2	Chi2	Pr > Chi2	Chi2	Pr > Chi2
-2 Log (Likelihood)	12	624.245	< 0.0001	552.376	< 0.0001	524.030	< 0.0001
Score	12	1445.259	< 0.0001	1406.237	< 0.0001	1301.573	< 0.0001
Wald	12	44.980	< 0.0001	83.779	< 0.0001	65.289	< 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

The study's findings were concentrated on the following issue, which followed the original research question and the methodology unique to multinomial logistic regression: What are the chances that a marginal change in perceived (ESD) could shift students' behaviour from the lower to the upper bound of the scale? We investigate the extent to which changes in students' views of campus activities, university staff participation, and courses potentially affect their sustainable development behaviour by applying three different (MLR) models.

We especially examine whether students are more likely to exhibit "Total Agreement" behaviour in relation to environmental protection actions (MLR-F1), actions of involvement in community life (MLR-F2), and selective recycling/collection actions than total disagreement behaviour (MLR-F3). Tables 8, 9 and 10 show the parameters for the total agreement status for each of the three models. For a better understanding of the outcomes, odds ratios with a (0.95) probability level are also shown.

Table 8 - Parameters for Total Agreement Status

Multinomial Logistic 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	-0.555	0.356	2.426	0.119	-1.141	0.031	-	-	-
V_1	-0.236	0.136	3.015	0.082	-0.460	-0.012	0.790	0.631	0.988
V_2	0.387	0.144	7.251	0.007	0.151	0.642	1.473	1.163	1.866
V_3	0.125	0.151	0.688	0.407	-0.123	0.374	1.134	0.884	1.454

Source: Authors' Calculations.

Table 9 - Parameters for Total Agreement Status

Multinomial Logistic 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	-0.284	0.353	0.650	0.420	-0.865	0.296	-	-	-
V_1	-0.054	0.137	0.158	0.691	-0.280	0.171	0.947	0.756	1.186
V_2	0.220	0.141	2.429	0.119	0.012	0.451	1.245	0.988	1.570
V_3	-0.042	0.149	0.080	0.777	-0.287	0.203	0.959	0.750	1.225

Source: Authors' Calculations.

Table 10 - Parameters for Total Agreement Status

Multinomial Logistic 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	-0.644	0.351	3.365	0.067	-1.221	-0.067	-	-	-0.644
V_1	-0.036	0.137	0.068	0.794	-0.260	0.189	0.965	0.771	-0.036
V_2	0.218	0.141	2.380	0.123	-0.014	0.450	1.243	0.986	0.218
V_3	0.124	0.149	0.695	0.404	-0.121	0.370	1.132	0.886	0.124

Source: Authors' Calculations.

The following model equations are provided through parameter interpretation:

MRL-F1: Log {P (Response Variable = 5 / P (Response Variable = 1} = $-0.555 - 0.236_{v1} + 0.387_{v2} + 0.125_{v3.}$ (4)

MRL-F2: Log {P (Response Variable = 5 / P (Response Variable = 1} = $-0.284 - 0.054_{v1} + 0.22_{v2} + 0.042_{v3.}$ (5)

MRL-F3: Log {P (Response Variable = 5 / P (Response Variable = 1} = $-0.644 - 0.036_{v1} + 0.18_{v2} + 0.124_{v3.}$ (6)

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

Through a wide range of on-campus initiatives that have a positive impact on the environment (such as recycling or limiting water, paper, and electricity consumption) and society (such as reducing bureaucracy and promoting healthy working environments), universities can make their mark on sustainable development. Students' engagement in sustainable practices on campus strengthens their sense of commitment to the institution, increases their willingness to take part in campus activities, and fosters confidence in each individual's capacity to significantly alter their behaviour [60].

The results of our study indicate that, nevertheless, all investigated forms of sustainable behaviour are negatively impacted by students' perceptions of on-campus initiatives for sustainable development. The log ratio of the two probabilities will fall by (0.236) (p 0.005) in the case of environmental protection actions, (0.054) (p 0.005) in the case of community involvement actions, and (0.036) (p 0.005) in the case of selective recycling/collection actions for one unit change in the variable v_1.

Therefore, our study demonstrates that, in the case of business and economics students, students are more unlikely to adopt a sustainable development behaviour for one unit change in their view of Campus activities related to sustainable development. These results corroborate the notion that sustainable development campus activities at least in the case of our sample are still in the early stages of growth, despite significant efforts having been done, notably for selective recycling and water use reduction. 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.

Additionally, due to significant problems with Palestine's waste management tactics, such as a pessimistic mindset or a lack of legal penalties for breaking the law, students may choose not to behave in a proper manner. Our findings are in line with those of [107, 146], despite ongoing efforts by Palestinian institutions to arrange events, conferences, symposia, and carry out research projects linked to sustainability [59], emphasising low student engagement in on-campus activities and a lack of understanding.

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. These findings do not entirely support the claims made by Dagiliute et al. that recycling does not have a significant impact on pupils [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.

Further, our research demonstrates that the participation of teaching staff in the promotion of sustainable behaviour has a beneficial effect on student behaviour. According to our study, the log ratio of the two probabilities will rise by (0.387) (p 0.005) for environmental protection actions, (0.220) (p 0.005) for community involvement actions and (0.180) (p 0.005) for selective recycling/collection actions for every unit change in the variable v_2. According to the findings, professor lectures might greatly enhance students' environmental protection behaviours.

Furthermore, these findings are consistent with earlier research on the subject. According to (Krizek et al., 2012) [62], institutions should start by concentrating on small-scale activities like raising awareness of unsustainable human actions, recycling campaigns, courses with a sustainability focus, and the gradual shift to incorporating sustainability into the whole system.

As a result, a professor's brief speech to the class on the issue of preserving trees by reducing excessive paper consumption might be considered a first step in creating awareness. Following the same line of reasoning, our findings are in line with (Avila et al., 2017) who emphasize the need for increased awareness from both staff and students [63] and stress the idea that the involvement of the entire academic community is detrimental in overcoming sustainability barriers in universities.

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 goes beyond merely hearing a lecture from a lecturer and entails altering habits and routines. The tendency to downplay the significance 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 are three patterns that can be seen when discussing the daily impact of each of our actions, as demonstrated by (Macdiarmid et al., 2016) [65].

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]. For instance, participants in an Australian study on economics and business studies [68] tended to be reluctant to alter their own lifestyles because they felt that issues with sustainable development (such as pollution, climate change, the preservation of endangered species, etc.) were outside of their control and, therefore, not personally their responsibility.

While they were unfamiliar with the precise principles of sustainable development, students at the University of Plymouth in the UK were eager to modify their lifestyle (changing their commuting and shopping habits, recycling, and saving water and energy, for example) [69]. In this context, our findings show that students' perceptions of how much sustainability issues are covered in curricula have a positive impact on environmental protection actions (0.125, p 0.005) and selective recycling/collection actions (0.124, p 0.005) while having a slightly negative effect on involvement in community life (0.042, 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].

Students also appear to be hoping for distinct sustainability disciplines. Thus, according to (Yuan and Zuo, 2013) [73] and (BZU, 2021) [107], (75.3) per cent of Jordanian students, as well as (64.8) per cent of Palestinian students, concur with this notion. This subject is far from being finished, though. (Ramos et al., 2015) note a number of key obstacles to integrating (ESD) into courses and stress that these obstacles might occasionally cause knowledge to become fragmented [74]. Other significant barriers discussed in the literature include the teaching staff's tendency to view sustainability topics as required but irrelevant to curricula; faculty's lack of knowledge and expertise in integrating sustainability issues; lack of incentives or individual priority; limited institutional support; agglomerated curricula; and stakeholders' limited commitment [75].

Additionally, Cebrian et al. stress that the difficulty in overcoming the notion of incorporating sustainability concerns into most courses stems from the misalignment between (ESD) pedagogy and academics' perspectives on teaching sustainability [75]. Teaching conceptual components of sustainability presents another difficulty since it calls for a change from a teacher-centred to a student-centred approach [76].

In terms of integrating sustainable development topics, several trends were actually found: (a) the inclusion of concepts in one or more existing courses [77]; (b) the addition of a dedicated course [78]; (c) the insertion of (ESD) principles in regular courses while adapting to the particularities of each course [77, 79]; and (d) the inclusion of sustainable development as a distinct potential speciality within a faculty [79].

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].

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

Since education has the power to change attitudes and behaviours, develop scientific and technical abilities, and foster the right social norms and economic conditions, it may be said that education is one of the key forces behind sustainable development. The thorough literature assessment and empirical findings of our case study, however, demonstrate the urgent need for more coherence in reshaping education to more effectively address sustainability challenges and influence students' behaviour.

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.

In this context, the goal of our study was to determine how students perceive various (ESD) activities and, as a result, how these views affect students' sustainable behaviour. Our data essentially supports the notion that teaching staff members who are actively involved in improving student knowledge of sustainability concerns and an increased percentage of sustainable development subjects are essential to fostering students' sustainable behaviour.

The current study gives a good framework for decision-makers to evaluate the efficacy of various tools that universities use in accordance with the principles of (ESD) since it presents a meter for students' sustainable behaviour.
The activities, actions, events, and programs that take place on campus could give the impression that collective action is more significant than individual action, while interactions with the teaching staff directly and personally could give the impression that each person's seemingly insignificant gesture matters for sustainable development. Our research demonstrates that teaching staff members' professional and personal attributes may be useful instruments 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. Our analysis supports the assertion that universities must go through institutional reforms, with considerable changes in policies and practices, to nurture their sustainable growth since it offers a pertinent case study on how (ESD) principles might impact students' behaviour. Universities need to change their existing strategy of adopting strategies in a partial and fragmented fashion to one of being proactive, assessing the current mode of operation, and creating mentalities to assure the attainment of sustainable development targets.
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.
Additionally, a global perspective on sustainable initiatives implemented by a significant number of universities may offer insightful guidance on how to (a) implement an environmental management system [21]; (b) encourage environmental protection actions such as 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 situation, a standard for future efforts may be set by the successful transfer of knowledge based on prior endeavours to a more global level. Although the research has some limits, further research is required for such a complicated subject. Despite the size, the structure of the sample, which was limited to participants from one university, might focus on the current survey. However, this study offers a foundation for more research that is anticipated to produce a more thorough and precise view. Future studies should look more closely at the obstacles to knowledge transformation into sustainable behaviour in this scenario.

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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