

Perceptions and Attitudes of Nigerian undergraduates to sustainable development in some selected universities

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Abstract

United Nations advocates the use of education as a tool to drive sustainable development. This study aims to examine the impact the introduction of Education for Sustainable Development (ESD) has had on undergraduates in Nigeria. A survey involving 536 undergraduates from four selected Nigerian universities was conducted, to examine their perceptions and attitudes toward sustainable development concepts. The result revealed that the inclusion of sustainable development into the curricula of the selected universities brought about positive perceptions of the sustainable development concepts, as seen in the responses of a large proportion (> 74%) of the respondents. Respondents' attitudes to the sustainable development concepts were largely positive (> 69%), thus showing that desired behaviour that promotes sustainability would be adopted. This study recommends the creation of sustainability centres in Nigerian universities to encourage undergraduates to undertake research that promotes sustainability. Also, the National Universities Commission should ensure that all Nigerian universities include ESD in their curricula.

Keywords: Attitudes, education, perceptions, undergraduates, sustainable development

Introduction

The rapid deterioration of the environment and the continuous threats that anthropogenic activities pose to the environment have led to increased calls for humans to take greater responsibility for the well-being of our environment and planet. At the 1972 United Nations Conference on the Human Environment held in Stockholm, Sweden; countries of the world were urged to strengthen environmental management policies, while at the same time promoting economic growth. The conference was one of the major global conferences that heralded the concept of sustainable development (Sachs, 2015; Sun, 2012 cited in Shi, 2019)

Leading up from the 1972 United Nations Conference on the Human Environment, the concept of sustainable development emerged and gained much prominence in the 1980s, promoting the organized development of three spheres: economy, society, and environment (Shi, 2019). Diverse definitions of the term sustainable development have surfaced in many publications, however, the Brundtland commission which was set up by the United Nations defined in its 1987 report, which is now widely used- " Sustainable Development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs."(Brundtland, 1987). To entrench this concept in people, the United Nations embarked on many initiatives one of which was the launch in 2002 of the Decade of Education for Sustainable Development (UNDESD), spanning 2005-2014 with the overall goal being:

...to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. This educational effort will encourage changes in behaviour that will create a more sustainable future in terms of environmental integrity, economic viability, and just society for present and future generations (UNESCO, 2005).

Education plays a pivotal role in driving sustainable development, as it could promote the right perception and attitudes towards sustainable development; as necessary knowledge, skills, and values are passed within the walls of classrooms. In addition, it would deliver technologies and infrastructures that would lead to sustainability (Jasper, 2008; Alam, 2018). All these would increase man's ability to deal with the adverse consequences of decades of poor environmental decisions made in the past (Akeel, Bell & Mitchell, 2018; Kioupi & Voulvoulis; 2019; Balakrishnan, Tochinai & Kanemitsu, 2020).

In Africa, Decade of Education for Sustainable Development was launched in March of 2006, with its regional Strategy of Education for Sustainable Development for Sub-Saharan Africa (SSAESD) at the Association for the Development of Education in Africa (ADEA) Biennial meeting held in Libreville, Gabon (United Nation Education, Scientific and Cultural Organization, 2007). In Nigeria, the agency responsible for the regulation of university education, developing the curriculum and setting the minimum academic standards for all the programmes taught in Nigerian universities is the National Universities Commission (NUC). NUC adopted the UNDESD initiative by introducing a general studies course- "Environment and Sustainable Development" in its benchmark minimum academic standard document, and this is expected to guide institutions in their curricula development for their academic programmes (National Universities Commission, 2014). The actual implementation has varied across Nigerian universities: some universities have incorporated some sustainability concepts into existing courses, some others have shown full commitment by adopting the course "Environment and Sustainable Development" in its entirety, and some institutions are yet to take it up.

Owing to the United Nations UNDESD initiative, research on how people relate to sustainable development has been conducted in different countries of the world. This research assessed the impact of education on sustainable development on people's perceptions and attitudes to sustainable development. Much research has drawn their respondents from tertiary schools (e.g. Jasper, 2008; Khmel, 2011; Olkinuora, 2014; Kioupi & Voulvoulis; 2019; Balakrishnan, et.al, 2020). However, in Nigeria, there is a lack of studies on the impact of Education for Sustainable Development (ESD) in universities' curriculum has had on learners (Akeel, 2018). Furthermore, some of the studies available limited their scopes to testing sustainability literacy in only a small component of Nigerian undergraduates; and not the whole spectrum of undergraduates (e.g Akeel, Bell & Mitchell, 2018; Okafor & Egenti, 2021; Ogunjemilua 2021).

Therefore, this study examines Nigerian undergraduates' attitudes to sustainable development concepts; as the action or inaction of this segment of the people could influence the well-being of the environment (Alam, 2018; Alsharif 2020). The objectives of this study are to (i) assess Nigerian undergraduates' perceptions of sustainable development concepts (ii) examine their attitudes towards promoting the well-being of the environment, and (iii) examine the level of difference in attitudes between groups in the universities.

Materials and Methods

A multi-stage sampling technique was adopted in this study. In the first stage, four Nigerian universities located in four states out of the thirty- six states of Nigeria were selected. The four universities were purposively selected for the ease and cost-effectiveness of the data collection. The selection was made from among universities that have either had sustainability concepts as part of courses they have been taught or those that offered courses wholly tailored to the environment and sustainable development. The universities selected were the Air Force Institute of Technology, Kaduna (AFIT); Bayero University, Kano (BUK); Abubakar Tafawa Balewa University, Bauchi (ATBU) and the Modibbo Adama University of Technology, Yola (MAUTECH). The selection of the undergraduates was unbiased, hence, in the second stage, one hundred and fifty undergraduates in the second to the fourth year of study were randomly selected by lecturers from each of the four selected schools. Undergraduates in the first year of study were excluded from the survey because the review of the Benchmark Minimum Academic Standard document (National Universities Commission, 2014) which guides the teaching of programmes in Nigerian universities does not contain the items to be tested in the first year curriculum.

In the survey of Nigerian undergraduates' perceptions and attitudes to Education for Sustainable Development, a questionnaire was administered to one hundred and fifty undergraduates in each of the selected tertiary institutions from June – August 2021; with the assistance of lecturers who teach at the schools. The number of questionnaires returned was AFIT, 137; ATBU, 118; BUK,149; and MAUTECH, 134. The completed questionnaire in the study was 536, representing 89.3% of the administered questionnaire.

The questionnaire was used to obtain data on the respondents' demographics, perceptions of sustainable development concepts and attitudes to sustainable development. Olaniyi (2019) posits that the Likert scale provides a good technique for gathering information on perceptions and attitudes. According to Singh (2006) cited in Joshi et al. (2015), the original Likert scale enables research participants to show their level of agreement (from strongly disagree to strongly agree) with a given statement on a metric scale. Therefore, to quantify perception and attitudes in this study; a multiple-item Likert-type scale was adopted for the questionnaire. The responses provided in the Likert scale were five: strongly agree, agree, neutral, disagree, and strongly disagree.

The reliability for internal consistency of the statements in the questionnaire was conducted using Cronbach’s Alpha Reliability Coefficient test. Generally, the closer the alpha value is to 1.0 the greater the internal consistency of the items in the scale. George & Mallery (2003) cited in Gliem & Gliem (2003), provided a categorization of alpha values, ranging from excellent to unacceptable: “ > 0.9 – Excellent, > 0.8 – Good, > 0.7 – Acceptable, > 0.6 – Questionable, > 0.5 – Poor, and < 0.5 – Unacceptable”.

After the questionnaire responses were received, they were tested for reliability using the Cronbach Alpha Coefficient test, and a value of .769 was obtained. This value falls within the acceptable range, and the internal consistency of the questions (items) used in the questionnaire is adjudged reliable as a tool for gathering information on the perceptions and attitudes of Nigerian undergraduates toward sustainable development.

Statistical Analysis

Using *Statistical Package for Social Scientists* (SPSS) software, both descriptive and inferential analyses were conducted on the data obtained in the survey. Frequency, range and percentages were the descriptive statistics tools used in this study. This helped to summarize and simplify the data. The inferential analysis adopted in the study to test for significant variance in responses between groups in the selected universities was a Multivariate analysis of variance (MANOVA). The significance level for the MANOVA is an alpha value of .05. The p values obtained in this study were compared to the alpha value, to determine if the differences between the groups are significant.

Results and Discussion

Respondents’ Demographics

The National Bureau of Statistics (2020a) in its report showed that there was an unequal representation of gender in educational attainment in Nigeria. For post-primary education in the country, males had about 18% while the proportion of females with that level of education was about 6%. The demography of the respondents in this study, where males are more than females in Nigerian universities is, therefore, representative of what the norm is in the country. Most of the respondents fell within the age groups of 15-20 years and 21-25years. The average number of years spent on primary and secondary education is 12 years in Nigeria, as a result, most of the students in Nigeria universities fall within the age bracket of 17 years – 25 years, and these groups were adequately represented among the respondents undertaking first-degree programs in the country.

Table 1: Summary of Respondents’ Demographics in the Selected Nigerian Universities

Respondents’ Demography	Group	Frequency	Percent (%)
Gender	Female	227	42.4

	Male	309	57.6
	Total	536	100.0
Age	15- 20	127	23.7
	21- 25	243	45.4
	26-30	139	25.9
	Above 30years	27	5.0
	Total	536	100.0
Faculty	Arts/Humanities/Education	153	28.5
	Engineering	91	17.0
	Environmental Science	127	23.7
	Applied/Life/Natural Science	165	30.8
	Total	536	100.0

Source: Field data, 2021

Perceptions of Sustainable Development Concept

Education for Sustainable Development (ESD) aims to increase people's awareness of sustainable development concepts. In this survey, eight (8) questions were put to the respondents on how they perceive sustainable development concepts. In Nigerian universities, course contents are guided by specifications made in the benchmark minimum academic standard document of the National Universities Commission (National Universities Commission, 2014). Hence, the courses have common contents wherever they are taught. A large proportion of the respondents (87%) saw the usefulness of offering the course that educated them on matters of the environment and sustainable development, as they chose strongly agree and agree on options when asked (see Table 2). In addition, 88% of the respondents largely agreed and strongly agreed that knowledge of the environment and sustainable development is one way to have a healthier environment. This reinforces the notion that awareness — which UNDESD hopes to achieve — of issues relevant to the environment, society and economy is crucial; if a healthy environment is to be nurtured and sustainable development is to be achieved (see Table 2). The respondents in this study show that exposure to undergraduates to courses with sustainability-related topics has a major impact on their perceptions.

Generally, in this study, the respondents' perceptions of the sustainable development concept were positive, as the categories of responses largely agreed and strongly agree with statements that gauged their perceptions of the three spheres of sustainable development. Similar observations were made in the studies carried out on students' perceptions of sustainable concepts conducted in Malaysia by Balakrishnan, et al.(2020) and in Egypt by Khalil, Ramzy & Mostafa (2013). In surveys where perceptions were poor, it was observed that respondents had not been

exposed to educational programmes in their tertiary institutions that contain sustainable development concepts and related topics (Khmel, 2011; Zainordin, et al., 2017).

Akeel (2018) who carried out a study on sustainability literacy in the Nigerian engineering community found that the majority of the engineering undergraduates lack basic knowledge of ESD, which was attributed to the students not being exposed to ESD. A failure on the part of NUC to put a mechanism in place that would have ensured that all Nigerian universities implement UNESD. However, In this study respondents (who have been selected from universities where ESD is being taught) correctly linked climate change, biodiversity loss and challenges to the well-being of the environment to man's activities and the increasing human population, as shown by their responses to statements 2,3,4,5,6 and 7 in Table 2. The percentage of those who chose strongly agree and agree on the diverse ways man impacts the environment ranged from 78.9% to 86.2% (Table 2). Sachs (2015) and Yusufu & Abenu (2019) observe that globally, issues of climate change, biodiversity loss and environmental degradation are on the increase; and are principally human-induced. Sachs (2015) went further to posit, as much literature on sustainable development has, that sustainable development would only be achieved when the relationship between the three spheres of sustainable development (environment, economy and society) is balanced. Hence, having the correct perceptions (as the majority of respondents in this survey have) on man's impact on the well-being of the environment and roles in promoting sustainable development is a step in the right direction, in curtailing the excesses of man.

It is not unusual to see that respondents are ambivalent about certain items used in a questionnaire. The outcome of the results in this study shows that the proportion of most of the ambivalent responses were all less than two digits except for two statements: ' tackling poverty and inequality would improve the environment'; and 'well-being of the environment should be considered before economic development ' with 12.1% and 13.1% of the respondents being neutral respectively. Dauda and Oyeleke (2021) opined that Nigeria is very low on the sustainable development index (having a position of 160th out of 205 countries in the year 2020); and attribute this to the high level of poverty and inequality gap, among other factors. The results of this study indicate that the respondents (who are regarded as informed persons, because of their level of education) who are ambivalent on the relationship between poverty and sustainable development would not be rightly positioned to counsel others (who have not been exposed to ESD) to be mindful of the environment; and not over-exploit natural resources in their bids to meet their basic needs. The proportion of respondents who were ambivalent when asked if the "well-being of the environment should be considered before economic development" was very similar to the responses given for 'tackling poverty and inequality would improve the environment'. These statements fall in the realm of economic theme, which is a significant theme that must be addressed if sustainable development is to be achieved; as the quest to attain a higher level of economic growth should not result in the degradation of the environment.

Table 2: Perceptions of Respondents to Sustainable Development Concept in the Selected Universities

S/N		Strongly				
		Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
1.	The study of the environment and sustainable development is useful	3.5	2.2	7.3	26.9	60.1
2.	Man's activities have led to climate change and biodiversity loss	2.2	4.9	9.0	38.0	45.9
3.	The world population poses a challenge to the well-being of the environment and sustainable development	2.6	3.9	8.6	43.5	41.4
4.	Tackling poverty and inequality would improve the environment	3.0	6.0	12.1	32.8	46.1
5.	The well-being of the environment should be considered before economic development	2.6	5.2	13.1	39.9	39.2
6.	The environment needs to be nurtured by man	2.2	3.2	9.0	30.4	55.2
7.	Protection of the environment is a joint responsibility of the government and individuals	3.0	2.6	8.2	25.4	60.8
8.	Knowledge of sustainable development would promote a healthier environment	2.6	3.0	6.4	28.7	59.3

Source: Field data, 2021

Attitudes to Sustainable Development Concept

'Learning to change for a better world' is a common phrase linked to ESD (Ryan & Tilbury, 2013). Expectedly, every learner exposed to ESD should be ready to embed changes that promote a better world for the whole of humanity. One way to gain insight into the changes people are willing to take up is by studying their attitudes and behaviour. Ajzen (1989) posits that people's attitudes are their inclination to react positively or negatively to issues. The

responses in this study reflect the respondents' feelings, and how they plan to act concerning the knowledge they have acquired.

In Table 3, items 1-5 shows that respondents on the whole have positive attitudes toward the sustainable development concept. The proportion of respondents (82.3%) willing to take up activities and lifestyles that would promote the well-being of the environment was significantly higher than those (5.4%) who were not ready to make changes to their lifestyles and activities. A similar level of response was recorded when asked about the likelihood of them sharing the knowledge they have with others (84.7% in favour) and those willing to join a conservation group were comparatively high (74.3% were up for it, as indicated in their choice of options, agreed and strongly agreed.). While the results were principally impressive, as the majority of outcomes that support sustainability (items 1,2,4 and 5) were in the regions of 74% - 86 %, the lowest figure (69.4%) was recorded when respondents were asked if they were willing to undertake research or take up career that has at its core, environmental or sustainable development concept. The relatively low percentage of respondents who would want to conduct research related to sustainable development could be an indication that the knowledge they have acquired in classrooms has not sufficiently inspired them to explore areas in their different disciplines where they could undertake research that promotes sustainability. Challenges of funds or some students' inclination to only see ESD as simply a means to gain knowledge and nothing more (having not fully understood their roles in promoting sustainable development); could have contributed to their responses being ambivalent. The National Bureau of Statistics (2020b) in its report states that 27.1% of Nigeria's adult population is unemployed as of the second quarter of 2020, this level of high unemployment; could therefore explain why some respondents do not see sustainable development as a factor to consider in the choice of a career. In Eddins (2013) and United Nations (2018) issues around the choice of livelihood were recognised as crucial as they have far-reaching implications for sustainability; one practical way for people to promote sustainable development is for them to embrace environmentally friendly careers.

'I will like to do a research/ career that contributes to sustainable development' and 'I will gladly join a conservation group promoting a healthier environment' were statements in the questionnaire that elicited the highest proportion of ambivalent responses with 20.9% and 16.8% respectively. Higher institutions are centres of research and when about one-fifth of the respondents who are undergraduates are ambivalent about the possibility of doing research that promotes sustainability, it indicates a disconnect between learning and research for respondents whose responses were ambivalent. The statement, 'I will gladly join a conservation group promoting a healthier environment' was the second statement that had the second highest proportion of ambivalent responses in the study. While there are conservation or advocacy groups advancing programmes that promote sustainable development, they are not widespread in Nigeria. Government agencies at federal and state levels in Nigeria put out information on tree planting, information on the need to maintain a clean environment and conduct seminars on days like World Environment Day, World Water Day, Earth Day etc; their engagement with the public is not structured as to elicit

permanent arrangement where citizens can actively participate continuously. These could have been responsible for the ambivalent responses provided by the respondents in the study.

Table 3: Respondents' Attitudes to Sustainable Development in the Selected Universities

S/N		Strongly			Strongly	
		Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Agree (%)
1.	I will recommend that everyone should learn about their environmental responsibilities	3.4	2.8	7.6	36.0	50.2
2.	I will engage in activities/lifestyles that would improve the quality of the environment	2.6	2.8	12.3	39.9	42.4
3.	I will like to do research/ career that contributes to sustainable development	4.7	5.0	20.9	39.0	30.4
4.	I will gladly join a conservation group promoting healthier environment	3.7	5.2	16.8	34.0	40.3
5.	I will share with others, my knowledge of the environment and sustainable development	2.2	1.7	11.4	34.3	50.4

Source: Field data, 2021

The difference in Attitudes Between Groups in the Universities

Descriptive and inferential statistics were used to assess the difference in attitudes of the respondents in this study. Mean values were presented under the descriptive statistics while in the inferential statistics MANOVA, using Wilks' Lambda test, was conducted to test whether there were significant differences in the mean scores of the responses respondents provided to statements put forward to appraise their attitudes. The responses to the given statements were on a metric scale, where strongly agree =5, agree=4, neutral=3, disagree=2, and strongly disagree=1.

Table 4 shows the result of the descriptive test on the attitudes of undergraduates to sustainable development based on gender, while the mean values vary between the males and females, on Table 6 the result of the MANOVA test shows that the existing difference was not statistically significant in the study, Wilk's = $F(5, 530) = .200, p .962$. With this outcome, it shows that the composite of the responses of both groups in gender to gauge their attitudes was not significantly different. Table 3 have shown that the majority of the respondents' attitudes are

positive, indicating the inclusivity of all gender in the matter of sustainable development in the selected universities. Dissimilar findings were made by Gökmen (2021) and Diakite et al. (2020) when females were observed to have a higher positive environmental attitude than males. While participants used in the studies conducted by Gökmen (2021) and Diakite et al. (2020) were not drawn from schools, in Kose et al.'s (2011) study the respondents from a tertiary institution revealed that females have a more positive attitude to the environment than males.

Ryan & Tilbury (2013) observed that sustainable development began to feature in the higher education curriculum in the 1980s, starting with Geography, Landscape Architecture and Development Studies. Currently, the trend globally in ESD shows an inter-disciplinary and multi-disciplinary approach to the study of sustainable development. The result of the descriptive analysis shows that the mean values vary in all the items tested across the different faculties. The faculty of Arts/Humanities/Education had lower mean values compared to all the other faculties (engineering; environment/earth science; and applied/life/natural Science) in all the items tested (see Table 5). However, the result of the inferential test (MANOVA) examining whether the differences in mean scores among the four groups under faculties (arts/ humanities/education; engineering; environment/earth science; and applied/life/natural Science) was significant or not shows Wilk's $\lambda = F(15, 1.458) = 1.549, p .081$. This indicates that there were no statistically significant differences among the faculty groups in their responses to statements on attitudes to sustainable development concepts. Contrary findings were made by Kose et al. (2011) where the mean differences were significant across different faculties; as Faculty of Medicine had a significant mean difference compared to undergraduates in Faculties of Engineering and, Economic and Administrative Sciences.

Table 4: Descriptive Statistics on Attitudes to Sustainable Development Based on Gender

	Gender	Mean	Std. Deviation	N
I will recommend that everyone should learn about their environmental responsibility for the well-being of the environment	Female	4.2775	.98105	227
	Male	4.2621	.94623	309
	Total	4.2687	.96025	536
I will engage in activities (e.g recycling or reusing) / lifestyle that improves the quality of the environment	Female	4.1410	.96736	227
	Male	4.1845	.90540	309
	Total	4.1660	.93151	536
I like to do research/ career that has an environmental or sustainable development concept at its centre	Female	3.8282	1.07732	227
	Male	3.8738	1.04147	309
	Total	3.8545	1.05605	536
I will gladly join a conservation group promoting a healthier environment.	Female	4.0264	1.11673	227
	Male	4.0129	1.01282	309
	Total	4.0187	1.05708	536

I will share what I have learned about the environment and sustainable development with other people	Female	4.2775	.96742	227
	Male	4.2977	.84248	309
	Total	4.2892	.89670	536

Source: Field data, 2021

Table 5: Descriptive Statistics on Attitudes to Sustainable Development Based on Faculty

	Faculties	Mean	Std.	N
			Deviation	
I will recommend that everyone should learn about their environmental responsibility for the well-being of the environment	Arts/Humanities/Education	4.1699	1.08088	153
	Engineering	4.4725	.77947	91
	Environmental/Earth Science	4.2598	.92764	127
	Science/Medical Science/Agricultural	4.2545	.94775	165
	Total	4.2687	.96025	536
I will engage in activities (e.g recycling or reusing) / lifestyle that improves the quality of the environment	Arts/Humanities/Education	4.0719	1.05197	153
	Engineering	4.2418	.67232	91
	Environmental/Earth Science	4.2835	.82518	127
	Science/Medical Science/Agricultural	4.1212	1.00479	165
	Total	4.1660	.93151	536
I will like to do research/ career that has an environmental or sustainable development concept at its centre	Arts/Humanities/Education	3.7516	1.21548	153
	Engineering	3.7802	.90434	91
	Environmental/Earth Science	4.0315	.96722	127
	Science/Medical Science/Agricultural	3.8545	1.03154	165
	Total	3.8545	1.05605	536
I will gladly join a conservation group promoting a healthier environment	Arts/Humanities/Education	3.8105	1.21261	153
	Engineering	4.1209	.78649	91
	Environmental/Earth Science	4.1024	1.02998	127
	Science/Medical Science/Agricultural	4.0909	1.03487	165
	Total	4.0187	1.05708	536
I will share what I have learned about the environment and sustainable development with other people	Arts/Humanities/Education	4.1503	1.01807	153
	Engineering	4.2857	.80672	91
	Environmental/Earth Science	4.3465	.83929	127
	Science/Medical Science/Agricultural	4.3758	.85790	165
	Total	4.2892	.89670	536

Source: Field data, 2021

Table 6: Extract of Multivariate Test Results

	Effect	Value	F	Hypothesis df	Error df	Sig.
Gender	Wilks' Lambda	.998	.200	5.000	530.000	.962
Faculty	Wilks' Lambda	.957	1.549	15.000	1.458E3	.081

Source: Field data, 2021

Conclusion

The perceptions and attitudes of respondents to the sustainable development concept were generally positive in this study. It, therefore, means that the policy initiative of the United Nations to use education to create awareness and encourage behavioural changes that promote sustainable development is yielding the right results. However, some respondents were not too willing to do research or career that contributes to sustainable development. The creation of sustainability centres, Chaired by persons who are research-driven, in Nigerian universities could encourage greater interest among undergraduates to undertake research that promotes sustainability. Seeing the impact ESD has played on the perceptions and attitudes of undergraduates, NUC should ensure that Nigerian universities that are yet to include ESD in their curricula do so. Also, structures should be put in place by government agencies that could lead to the establishment of conservation groups in every region in Nigeria, this could lead to more people becoming interested in conservation activities. The undergraduates who have benefitted from ESD could also establish groups that promote conservation and advocacy programmes, that would lead to sustainable development in their various localities.

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