

Article

Integrating Energy Saving Awareness into Student Engagement-Based Teaching and Learning Process

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Abstract: Higher education institutions have always focused on improving quality assurance; from regular student surveys, it can be noted that they repeatedly request more practical activities as part of their courses. The gap between some projects' implementation and current requirements for teaching and learning highlighted the need for a proper balance between curricular and extracurricular activities. The purpose of this paper is to describe the process of integrating an energy saving awareness marketing campaign that was run on campus into the syllabus of a marketing class as an efficient way of changing behaviors from sporadic participation to active engagement. The methodology is based on a conceptual description of an awareness campaign within a Horizon 2020 project and literature review, as well as on a focus group and a quantitative analysis based on a questionnaire addressed to students in one of the universities involved as a project beneficiary. The main findings show that students are more likely to change their energy saving behaviors when they actively participate in designated activities, especially when these are incorporated into teaching and learning. Conclusions indicate that formal rules well explained as part of the students' requirements are the key to a change in energy saving behavior.

Keywords: energy saving; teaching and learning strategy; student participation; awareness and engagement; curricular and extracurricular activities

1. Introduction

Higher education institutions are more and more active in the relationship with society and active engagement. The contemporary environment has become incredibly dynamic, hence higher education institutions must redefine their functions and reconsider the "third mission" seeking integration within society, with cooperation with different and many stakeholders and also the social engagement of different entities also becoming most important [1]. In such a context, a new type of higher education institution appears as the most visible and appreciated by all interested parties: the "civic university", which denotes a new type of relation between university and community; moreover, the civic university deals with different knowledge, different entrepreneurs and different methods of resource allocation [2,3]. In addition, universities have a high potential of engagement in local areas and in sustainability initiatives, through social partnerships and common initiatives; therefore, universities educate, research and impact [4].

Several studies linked civic engagement to students' success, not only because they learn more, but because they develop important skills and increase their emotional intelligence [5–7]. In addition, public participation is often considered a motivational driver for citizens towards a sustainable lifestyle as participants consider the campaign to be credible, and thus they are more likely to take action [8,9].

The aim of this paper is to demonstrate how an energy saving awareness campaign run on campus can become more efficient when integrated into the syllabus of marketing teaching and learning process of students from different specializations within the University of Bucharest. The research question of this paper is how the students should be approached in order to achieve a higher level of participation in energy saving campaigns. Moreover, the more frequent the students' participation is, the more engaged they become.

The energy saving campaign was part of a Horizon 2020 grant: Students Achieving Valuable Energy Savings (SAVES 2) [10]. This is relevant for developing teaching and learning processes based on student participation and engagement. Moreover, we consider that in the processes of saving energy on campus, universities need commitment from both staff and students in order for the results to clearly show an example of good practice. Therefore, the study is significant not only for professors open to integrate practical activities into teaching and assessment, but also for project managers and academic leaders in universities who value the cooperation between staff and students. In addition, the participation of students in similar initiatives can be improved.

The next section of this paper includes an explanation of the context specific to higher education institutions, followed by the Literature Review section, which describes the main concepts related to the energy saving awareness campaign. Next, the Methodology section from the questionnaire design and data processing, alongside the Results section, points out the differentiation of student engagement level in the energy saving awareness campaign based on whether or not the activity is integrated in the syllabus and, therefore, in the curriculum. The article concludes with a summary and an overview of the limitations, as well as possible future research development opportunities.

2. Context of Higher Education Institutions

There is a current interest in all higher education institutions to provide mechanisms of continuous improvement in relation to teaching, research and social engagement, and most importantly, to connect the three university missions, considering the shift towards an ecosystem. This implies that universities pay attention to networking and collaboration and consider sustainability issues and a variety of social engagement possibilities [11].

Combining teaching and learning with the efforts of inspiring the young generation to become good citizens is most crucial nowadays. According to Linney, QS ranking managed in 2019 The International Student Survey, where 75,000 pre-enrolled students took part, and 38% of them mentioned that they were looking for courses with an increased graduate employment rate, while 29% declared that a work placement was what they wanted at their university; in addition, the author described the importance of learning opportunities based on work integration and that universities should consider providing real-life experiences to their students [12]. Sometimes, learning in an informal way through working is more important than formal training; in addition, learning to do practical things is a way of adapting to the future work environment [13,14]. The importance of the same message was generated from the EUA's Learning and Teaching Initiative in 2017, where the European University Association included in the report recommendations for universities to review their curricula and adapt teaching and learning methods focusing on combining transversal skills with knowledge-based disciplines such as service learning [15]. Teaching and learning processes differ between groups of students, however the importance of keeping them engaged is crucial for the development of all students. Students become actively involved in a specific learning experience when professors develop an interaction with their students which is conducive to activities that students enjoy; in addition, there is a direct link between motivational orientation and academic achievement [16,17]. Therefore, high motivation is a direct driver of academic success as students, when motivated, participate in all sorts of activities. When the actions students take generate impact, then they become engaged [18].

Apart from their mission in educating students on subject-specific fields, higher education institutions have an increasing role in supporting their students to become more active citizens engaged with their community. In the report of Campus Compact, universities are seen as vital agents

“committed to educating students for responsible citizenship in ways that both deepen their education and improve the quality of community life” [19] (p. 73). In order to do this, many universities have entered different partnerships based on already established projects and alliances. In the current context of the European Universities Initiative, two calls for projects announced that 17 alliances (out of 54 applications) in 2019 and 24 (out of 64 applications) in 2020 have been successfully considered as being able to reinforce The European Education Area [20]. These alliances have generated project-based consortia aimed at fulfilling specific objectives in the framework of the Erasmus program from 2021 to 2027. In addition to these, institution-specific rankings based on indicators have been set up to reveal higher education performance in relation to sustainable goals. Two examples are the Times Higher Education Impact Rankings, which make the universities’ performance visibly relate to the United Nations’ Sustainable Development Goals, and the UI Green Metric World University Rankings, with a methodology based on three areas—environment, economics and equity [21,22].

In this context, studies demonstrate that universities are model entities for sustainable energy-consuming communities. They state that universities need to commit to sustainability, especially regarding their energy usage; energy consumption per unit area is different in different geographical regions, lower in Europe and Asia, comparative to the USA, while there are also differences depending on activities performed by universities (for example, research-intensive universities have higher energy consumption due to the use of laboratories and research equipment) [23–25]. According to Cotton et al., there is a huge difference between students’ attitudes and energy conservation behaviors among institutions and different national contexts; the study reveals the importance of the national context and institutional policies in the UK comparative to Portugal [26].

3. Conceptual Analysis and Literature Review

The study focuses on student participation in extracurricular and curricular activities which becomes a transformative factor of their behavior, increasing their level of engagement. An intensive engagement experience is that in which an environment is created by the participants; in addition, students become inspired by transforming their experiences, or in other words, their engagement transforms them [27]. Engagement is about action and people are encouraged to take action; consequently, behaviors change [28]. This is why engagement is considered as relevant to achieve behavioral changes amongst students. Teaching and learning is a complex process which becomes effective in the case of student participation; in this case, the process should contribute to changes in behaviors.

3.1. Engagement-Based Teaching and Learning Process

The literature review shows different perspectives related to student engagement. On one hand, academic engagement is explained in relation to learning tasks, while on the other hand, institutional engagement is given a social perspective; Bedard et al. described that in between these two types of engagement, a new one might be considered, called curricular engagement, which is an innovative practice demonstrating that students are more engaged in the curriculum when they have the opportunity to learn from real-life problems [29–31].

Khan explained that students tend to focus more on achieving higher grades than on long-term learning, as grades will help them in their career development, while course grades are clearly stated in different cases as indicators of academic performance [32,33]; in addition to this, a supportive learning environment must be considered important by the university management as a way of showing high-quality education [34]. The learning process, as Prozesky describes it in Table 1, focuses on types of learning, categories of things that are learned, types of learners and learning methods, as well as on the importance of motivation being connected to the pressure of passing exams [35]; in addition, the teaching process reveals the importance of the assessment, as a demonstration of students’ progress. Therefore, when students become motivated, they begin to increase their interest in activities generating higher grades; the learning environment can stimulate different types of learning, including

active learning where students reflect on activities they were part of. In addition, when students are motivated, their participation increases, then they become engaged and the impact on their behavior is observed to be highly positive.

Table 1. Learning process—literature review [35].

Learning	Teaching
Formal/informal learning	Professors decide what students should learn/not what it would be relevant to learn
Knowledge and facts/skills and attitudes	Student-centered/not teacher-centered
Learners: receivers/detectives/generators	Assessments show the students' progress
Superficial/deep learning	Open and trusting relationships with students
Motivation—important driver	
Lifelong learning	

Source: authors' own contribution.

Therefore, learning as a formal process is generated from curricular activities, while informal learning is a result of extracurricular activities; motivation is what makes students faster or more dedicated learners, whether the program they are attending is curricular or extracurricular. From the teaching characteristics, the assessment mechanisms are the most relevant for the learning process as they are a real contributor to the level of motivation. Formal learning is also described as all learning opportunities that take place in a formal setting and official systems, while informal learning is related to all kinds of learning that take place outside educational units, being related to the everyday learning generated from daily activities [35–38]. According to Livingstone, there is also non-formal learning, but this has to do with the willingness of learners to study voluntarily with a professor's assistance, using an organized curriculum [39].

The literature review reveals other different concepts related to student engagement learning: active learning and service learning. Active learning is related to acting and doing, is relevant for lifelong learning and, most importantly, has students' reflection integrated into its assessment; in addition, active learning is also relevant for effective learning, involving relevant engagement in real-life contexts which can be provided to students through projects. Active learning also means work based on content and when this is done effectively, students' learning is improved [40,41]. Active learning is an effective practice connected to the process of giving students the right experiences in order to help them construct new knowledge; working with students in class but also outside of class is a way of engaging with them in active learning [42]. In fact, once student engagement is improved, their experience and outcomes also improve, meaning time and effort students allocate towards effective learning is decreased; in addition, student engagement is also generated in the context of a learning environment and, therefore, this is the role of higher education institutions [43].

Service learning is considered a curricular pedagogy that is integrated in a course, generating an experience for students through reflection on service and also contributing to gaining knowledge and better understanding the course content; therefore, this is a teaching method that correlates academic training with service to the community [44,45]. Henry stated that service learning has an important educational role, contributing to enhancing academic learning, developing experiences and increasing the motivation for learning and, finally, growing students; the advantages are multiple not only for students, but also for the institution and community. Based on service learning, teaching and learning become effective processes focused on real-world situations, collaboration and also interaction, such as teamwork, making and reflection and better understanding the course content [46,47].

3.2. Energy Saving Awareness Campaign in SAVES 2

Students Achieving Valuable Energy Savings 2 (SAVES 2) is a Horizon 2020-funded European project running between 2017 and 2020 supporting “students in minimising their carbon footprint in their university and private accommodation, raising awareness about energy efficiency and smart

metering, and installing good sustainability habits which last beyond their time in education” [48]; the aim of the project is to reduce students’ energy usage and their exposure to fuel poverty, saving together energy and money through simple, logical and smart actions. The grant was implemented through an energy saving awareness campaign which consisted of two components:

1. Student Switch Off campaign—this campaign focused on encouraging students living in halls to save energy by taking simple actions to minimize their carbon footprint in their university;
2. Student Switch Off+—this campaign focused on students’ energy usage in private accommodation by raising awareness on smart meters and energy efficiency certification for appliances, as well as providing regular information through newsletters on energy saving tips.

The project is a partnership with universities and national student unions in the UK, Lithuania, Greece, Cyprus, Ireland, Romania and Bulgaria which has generated several outcomes for each country, as well as a joint contribution to the general objectives, such as: revealing trends in rental accommodation markets, quantifying the behavior and energy saving attributable to the Student Switch Off campaign and increasing the energy awareness of students living in private accommodation [49,50].

In general, the Students Switch Off campaign aimed to reach 38,000 students living in university halls every academic year, raising awareness through different approaches such as face-to-face training and Facebook competitions, including small prizes as incentives when students demonstrated energy-efficient behaviors. The main energy saving actions were: switching off lights and appliances when not in the room, putting a lid on when cooking, not overfilling the kettle and putting on a layer of extra clothing rather than turning up the heating; for each country, particular advice was then provided [51].

As for the *Students Switch Off campaign+*, students living in private homes who signed up for the campaign were informed on energy efficiency actions they could implement immediately such as: changing their energy tariff and/or changing their supplier, using a smart meter, buying appliances that are energy-efficient and switching off appliances when not in use [52].

3.3. Teaching and Learning about Energy Saving; SAVES 2 Practices

The SAVES 2 project was designed to raise awareness among students on how to save energy when living in university halls or in private accommodation; this was conducted by demonstrating that simple actions can make a difference and save students both energy and money. The main characteristic of the project during the implementation stage was creativity as the coordinator, and the National Union of Students in the UK set up the general framework in the beginning. This then allowed partners to be flexible, original and different to be able to learn from each other. The teaching and learning process within SAVES 2 was clear from the application, as observed in Table 2; in this table, a new concept is used—a student ambassador with the role of helping the team to promote the project among their peers through distribution of promotional materials and communication of events (i.e., halls visits and inspections, training, questionnaires, quizzes or social media competitions). Communication with students, apart from the halls visits, was mainly carried out online; an important aspect of this was the registration phase, when students decided to sign up for the campaigns.

Table 2. Teaching and learning process about energy saving in SAVES 2.

Project Team	Students
Learning from specialists	Learning from the project team
Learning from project partners	Learning from specialists
Learning from articles and official documents	Learning from student ambassadors
Sharing the knowledge learned with students	Learning from each other

Source: authors’ own contribution.

A general description of the teaching and learning process within SAVES 2 shows that the project allowed multiple learning for all participants from different sources, which is different from classical teaching where one (professor) delivers information to many (students); in addition, students who decided to become ambassadors also became a great source of information for their peers.

The main energy-related themes as part of the learning process are described in Figure 1.

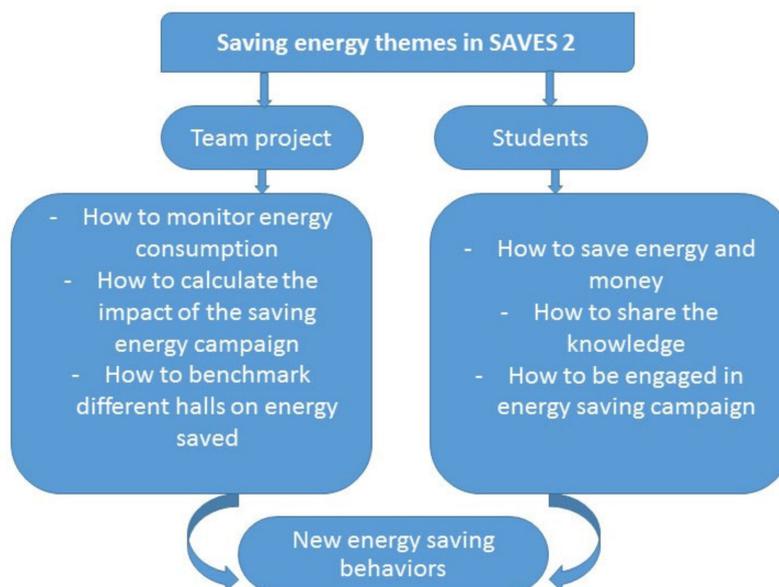


Figure 1. Energy themes in SAVES 2 for staff and students. Source: authors' own contribution.

SAVES 2 is an example of teaching and learning in the context of a project where partners have the opportunity and capacity to adapt to the institutional culture and mechanisms in order to achieve the objectives. Student engagement has been the key factor in the project implementation from the very beginning. At the University of Bucharest, a project beneficiary in SAVES 2, the approach changed in the three years during which the project was implemented, from voluntary student participation to curricular obligation as part of a marketing course, and from “nice to do” to reasonable, logical and curricular-motivated activities.

4. Materials and Methods

The research is based on a focus group and a questionnaire addressed to a large group of students for whom we measured their level of engagement using 4 indicators; these indicators were based on actions students had to take in the energy saving campaigns.

4.1. Energy Saving Awareness Campaign in SAVES 2: From Voluntary Participation to Curricular Activity

The study refers to the particularities of running the energy saving awareness campaigns at one of the project's beneficiaries: the University of Bucharest (UoB)—where the project manager decided to improve the students' participation year over year. As a SAVES 2 beneficiary, the University of Bucharest started the implementation of the project in the 2017/2018 academic year by initially running just the Student Switch Off campaign (SSO), inviting students living in halls to register and take part in the energy saving campaign. In the 2018/2019 academic year, in parallel with SSO, the university started to run the Student Switch Off+ campaign (SSO+) aimed at students living in private accommodation. In the last year of project implementation (2019/2020), both SSO and SSO+ were run within the university. Based on project engagement reports in the first two academic years, the numbers of students participating in different activities were as follows [53,54]:

- In 2017/2018: 4288 students living in halls taking part in SAVES 2; 43 students attending training sessions and engaging as ambassadors; 14 Facebook competitions with 41 entries and 3000 likes; and 308 students participating in quizzes. During this year, students were contacted through halls visits, posters, flyers and ambassador opportunities. SSO+ was not run in the first year of the project implementation as students were supposed to first learn about saving energy in their halls and then to look for a rented house. This was the time when the project management team asked for a conversation with the students in order to understand their level of participation and engagement. Student ambassadors involved in the project were invited to take part in the focus group and where they had been unable to attend, they had been allowed to invite other colleagues on their behalf. These ambassadors were real promoters of the campaigns among their colleagues;
- In 2018/2019: 4347 students living in halls taking part in SAVES 2; 43 students attending training sessions and engaging as ambassadors; 12 Facebook competitions with 24 entries and 739 likes; and 314 students participating in quizzes. During this year, SSO+ started for students living in private halls, allowing us to reach 1137 students through e-mails and 7554 students through social media. Compared to the previous year, students attending the marketing course participated in SAVES 2 on a voluntary base with the marketing professor introducing the campaigns as an opportunity for students to receive additional points to their final grade. This was the time when the marketing professor proposed to the faculty management to integrate the energy saving campaigns as a compulsory task for students in the next academic year. Students from the faculty were invited to take part in a survey in order to prepare the campaigns for the next academic year;
- In 2019/2019, SSO and SSO+ were run by being incorporated in the marketing course, with compulsory tasks for students. The results are presented in a later section of this article.

According to the national grading system, it is important to mention that students receive a grade from 1 to 10 (10 being the maximum and 5 being the passing grade); the system considers both final and continuous assessment. In most of the course evaluations, students mention their interest for practical activity and the need for less theoretical focus in their studies.

4.2. Focus Group and Questionnaire Design

The focus group was conducted in June 2018 and the questionnaire was addressed to students in May 2019; the results generated showed an improved level of student participation in energy saving campaigns.

At the end of the 2017–2018 academic year, the marketing professor, also involved in the project team, decided to investigate why only 16% of students in the marketing classes engaged in the SSO campaign. In the focus group, 12 students participated. According to Barna, a focus group is beneficial when researchers look for additional explanations, as it is a way of getting more in-depth feedback from participants on a specific topic; it is a qualitative approach used to get a better understanding of the issues raised, with participants being purposely selected [55–57].

The 12 participants were recruited with the help of the student ambassadors, with one exception (no ambassador from the managerial and administrative assistance program was part of the campaign) where the participant was invited by the marketing professor. The discussion was in Romanian language and conducted around the following theme: “We have gathered today to discuss about your level of engagement in the *Student Switch Off energy awareness campaign*”. The facilitator was the marketing professor who also took notes of the discussion. The main questions addressed were as follows:

1. When did you decide to sign-up for the SSO campaign?
2. What was most powerful message that made you decide to take part in the campaign?
3. Have you participated in the Facebook competitions?
4. What were the most important energy saving themes for the social media competitions?

5. What is your opinion on the main strengths, weaknesses, opportunity and threats of the campaigns?
6. Which of the following mechanisms will encourage you (and your colleagues) to actively participate in the campaign in the next academic year: continuing the marketing activities in halls, changing the marketing channel from halls visits to drop-in sessions during classes; using both places as channels to address students: halls visits and drop-in sessions in class. Explain why.

The answers provided were centralized using a flipchart and considered for the next academic year, and they are discussed in the next session.

In 2018–2019, the research to better understand the level of student participation and engagement in the campaigns continued, with the following question in mind: is the student engagement level going to increase if the voluntary participation changed to compulsory participation as part of the requirements of the marketing class? A questionnaire was designed to reveal the importance of energy saving actions addressed through Facebook competitions and the students' perception on the impact of the energy saving campaigns when integrated into the official syllabus of the marketing class. Questionnaires are usually used to find out more about opinions, attitudes, behaviors and preferences, having a high number of participants and being piloted by using a smaller sample sometimes called a convenience sample; in addition, a participatory pilot survey is recommended as a first step in conducting a survey which contributes to an improved version of the questionnaire [58,59].

The questionnaire was addressed to students during the marketing class exam (first semester) from one program to be piloted as an appendix to the examination paper. The participants to the pilot process were informed from the beginning that their role was to provide comments and suggestions in relation to the questionnaire, including difficulties in understanding the questions or the meaning of the topic. Most of the open questions remained superficial and revealed difficulties in providing answers, so two questions were reconsidered for the final survey. The first question, "How do you see a curricular integration of the SSO campaign?", was changed into "Do you think that the integration of the energy saving campaign into the Marketing course requirements would increase the students' participation?" The second question, "What message would appeal most to students in Facebook competitions on energy saving topics?", was entirely removed. The survey was then conducted during the second exam session and addressed to students across 4 study programs, all at undergraduate level. The rate of respondents was 95% (206 out of 218 participants at the exam).

The questionnaire was designed considering a Likert scale; a Likert scale contributes to the measurement of the participants' attitudes by their level of agreement with a question or statement or the degree of compliance of the respondents towards those statements [60,61]. The scale was set for 5 levels of importance and agreement (from 1 being "not very important" to 5 being "very important"), as such: "not very important", "not important", "neutral", "important" and "very important". The importance was required in relation to the topics of the energy saving themes used in 2018–2019 in the SSO campaigns to understand the students' opinion on this matter and generate possible influence drivers on their engagement level (Table 3).

Table 3. Respondents' opinion on the importance of energy saving themes for the Facebook competitions.

Crt. No.	Topic of the Facebook Competitions	Likert Score
1.	An encouragement message on saving energy	3.25
2.	Turn off the light	4.44
3.	Put a lid on it	4.55
4.	Don't overfill the kettle!	2.74
5.	Dress up for the season!	3.82
6.	Do not leave the plug in the socket!	4.65
7.	Better laptop than PC!	3.78
8.	Natural light is healthier!	4.97
9.	Adjust humidity in the room!	2.93
10.	Change the incandescent bulb to an economic one or led!	3.45
11.	Do not leave the mobile phone charger plugged in!	4.13

Source: authors' own research.

The respondents were then asked what percentage of the final grade should campaign participation account for, in order to motivate students enough to take part in the campaign. This question was only addressed to students who considered that they would have been far more engaged if SSO or SSO+ had been part of their final grade as a compulsory activity and not only voluntary-based; in this instance, we had 158 respondents out of the overall 206 (77%).

Some open questions allowed all respondents (206) to provide solutions on how to increase the level of engagement of their peers. Some of their relevant answers are described in the next section.

4.3. Participation and Engagement of Students

In the third year of the project implementation (2019/2020), when the marketing course was developed in a way to consider the participation of students in the energy saving campaigns, the next figures characterized SAVES2 in Romania: 3790 students living in halls taking part in SAVES 2; 24 students attending training sessions and engaging as ambassadors; 12 Facebook competitions with 115 entries and 2386 likes; and 721 students participating in quizzes. As for SSO+, there were 2366 students reached through e-mails and 14,749 students reached through social media. Students in the marketing class participated much more in this academic year in the SSO and SSO+ campaigns compared to previous years. For their contribution, students had to:

- Sign up for the campaigns (by filling in a form);
- Participate in Facebook competitions;
- Participate in quizzes;
- Share the video with energy saving advice;
- Be active on Facebook through likes and shares;
- Attract new colleagues in the campaigns.

Student engagement was measured by the following four indicators:

- Percentage of Facebook entries in 2019/2020 compared to previous years;
- Percentage of likes in 2019/2020 compared to previous years;
- Percentage of students participating in quizzes in 2019/2020 compared to previous years;
- Percentage of social media outreach in 2019/2020 compared to previous years.

5. Results

In 2017–2018, students living in UoB halls were invited to take part in the SSO campaign with strong messaging on the importance of saving energy. In the next year, 2018–2019, similar to the previous year, both students in halls and living in private accommodation were invited to SSO+. This

year, for the first time, classes at some faculties (three) where the marketing professor gave students the opportunity to earn extra points by getting involved in the campaigns were implemented. The focus group was intended to clarify the perception of students on the campaigns in order to improve the next academic year campaigns. The main answers are presented in Table 4 below:

Table 4. Focus group—results.

Subject Discussed	Answers
Moment of signing up for the campaign	After the halls visits in the beginning of the academic year (4/12); after student ambassadors' presentation (4/12); after considering the posters displayed during the semester (3); do not know a specific moment (1/12).
Most powerful message to sign up for the campaign	Saving money (8/12); saving energy (4/12).
Participation in Facebook competitions	Yes (10/12); No (2/12).
Most important Facebook competition themes	"Turn off the light!" (4/12); Do not leave the mobile phone charger plugged in! (5/12); Dress properly for the season! (2/12); All of them (1/12).
Mechanisms to increase the engagement level	Halls and class integration of the campaigns (not necessarily compulsory) will increase the level of engagement (12/12)

Source: authors' own research.

Some of the participants' answers related to the mechanism to increase the level of engagement: "At faculty, students pay more attention to posters than events organized in halls"; "In accommodation, there are few events and students prefer to be absent"; "Team-work is managed in class"; "Students are paying more attention when a professor is communicating a message to them, this being either about curricular or extracurricular activities"; "In halls, I simply go home, I do not want other things to bother me".

Consequently, in the next academic year, both channels, halls and classes, were used to invite students to sign up, participate in Facebook competitions and take part in project-related questionnaires and quizzes. The study shows the engagement level of students taking the marketing class, although other professors also agreed to promote the project and the campaigns in their faculties: geography, geology and history.

The level of students' engagement increased from 16% to 31% in the case of voluntary participation as part of their course through direct communication in the marketing class and posters displayed in visible places around the faculty building.

In addition, the focus group participants expressed their opinion on the strengths, weaknesses, opportunities and threats of the two campaigns. The results are shown in Table 5 below.

Table 5. SAVES 2 SWOT (strengths, weaknesses, opportunities, threats) analysis of the Student Switch Off (SSO) campaign.

Strengths	Weaknesses
Relevant messages on energy saving	Annual changes of student ambassadors
Efficient social media communication	Limited students' engagement
Effective partnerships and collaboration	Different motivations among students
Sustainable behavioral changes	
Efficient managerial coordination	
Opportunities	Threats
Energy saving monitoring after the project end	Not enough academic leadership support
Extended energy saving messages to other student communities	Limited funding for activities
Integrated energy saving initiatives into the university sustainability strategy	More declarative support and less engagement from companies

Source: authors' own research.

In 2018–2019, the questionnaire-based research revealed that the average (mean) of all energy saving actions was 3.78 on the Likert scale, showing a high level of importance, with differences from one theme to another; the most important issue for students was “Natural light is healthier!”, followed by “Do not leave the plug in the socket!”, “Put a lid on it” and “Turn off the light”, as observed in Figure 2.

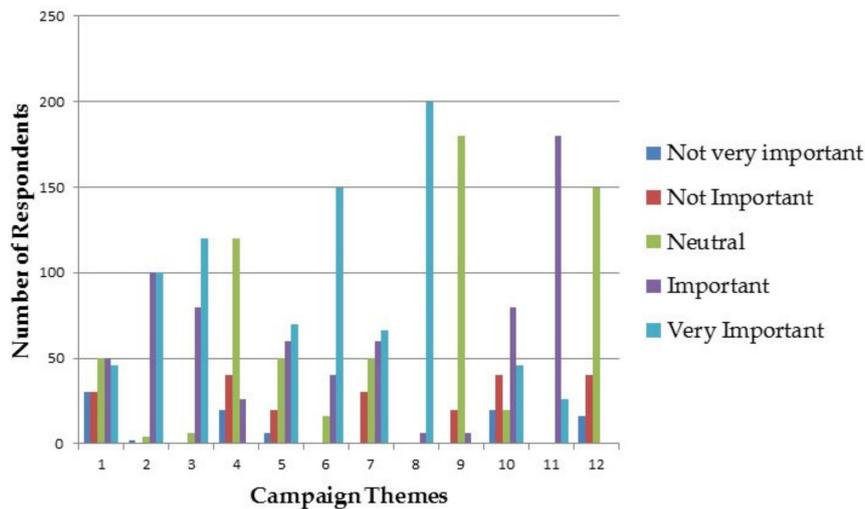


Figure 2. Energy themes in SAVES 2 for staff and students. Source: authors’ own research.

With regard to the question on whether the energy saving campaign should be considered as part of the final grade of the marketing class as a possible solution to increase the level of student engagement, most of the respondents agreed, as seen in Figure 3: 77% agreed, 19% were neutral and 4% were against.

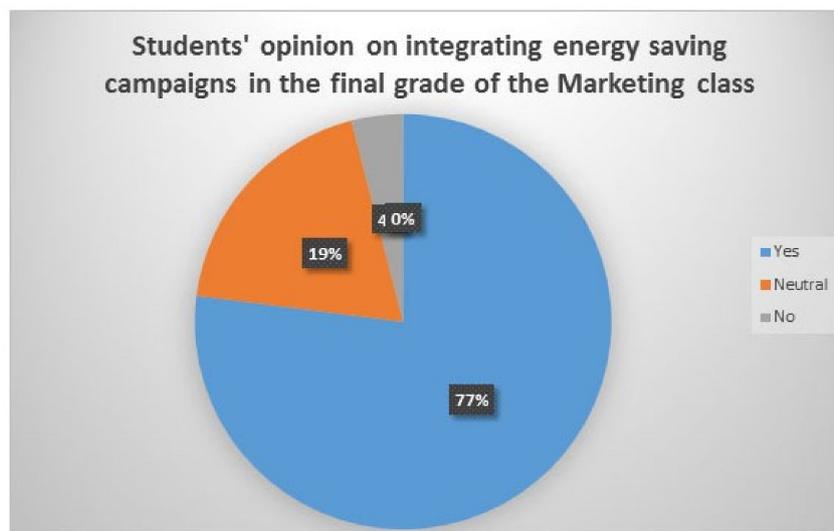


Figure 3. Respondents distribution. Source: authors’ own research.

The respondents who considered integration of the campaigns (SSO and SSO+) in the final evaluation of the marketing class were then invited to give their opinion related to the percentage of this contribution: 10%, less than 10% and more than 10%, giving an explanation for their answer. The main answers are presented in Table 6.

Table 6. Respondents' opinion on the percentage of integrating energy saving campaigns in the final grade of the marketing class.

Percentage of the Final Grade Allocated to the SSO and the SSO+ Campaigns	Number of Students (Percentage)	Explanations
10%	132 (84%)	"It is a reasonable contribution". "We will be motivated to engage". "We can be involved in several activities, as this is neither high, nor low level". "I do not know if I can engage in this activity".
Less than 10%	6 (3%)	"Engagement should be voluntarily" Saving energy should not considered part of responsible behavior and not curricular activity".
More than 10%	20 (13%)	"It is easy to be engaged in such campaign, so a higher contribution in the final grade will motivate me" Saving energy is very important and our engagement is like a practical knowledge".

Source: authors' own research.

The questionnaire-based survey showed that most of the respondents considered the 10% weight a reasonable contribution to the final grade of the marketing course as motivation to get engaged in the energy saving campaigns.

In 2019–2020, students were invited to sign up using the dormitories channels, however a key change was that the marketing professor integrated the SSO and the SSO+ campaigns in the syllabus, making them weigh 10% of their final grade; therefore, their engagement in the campaigns would have to be monitored by the professors and considered in the calculation of the final grade in their assessment. This dynamic can be observed in Table 7.

Table 7. Students of the marketing class who signed up for SSO or Student Switch Off+ (SSO+).

Study Program	Total Number of Students in the Marketing Class/Number of Students Who Signed Up		
	2017–2018	2018–2019	2019–2020
	No Message in Class—Halls Participation	Messages in Class—Voluntary Participation	Messages in Class—Curricular Participation
Marketing	112/30	108/48	128/94
Business Administration (2 programs)	226/48	232/86	264/224
Public administration	170/28	156/45	162/135

Changing the approach of engagement from voluntary-based in 2018–2019 to curricular engagement through the marketing class in 2019–2020 had a significant impact on the number of students that took part in SSO and SSO+ in the third year of the SAVES 2 project.

The statistics show that the number of students increased in the second year compared to the first one after simply communicating additional information related to the campaigns to students in class, besides their accommodation and inviting them to sign up for the campaigns on a voluntary base; therefore, the percentage of the students who decided to get engaged increased from 16% to 31%. In addition, in the last year of the project implementation, students engaged even further as part of the programs where the marketing course was taught; the campaigns were integrated in the syllabus and

became mandatory assignments. Therefore, the percentage of the students who signed up and were finally assessed increased to 86%.

In the final year of the SAVES 2 implementation, student engagement in all kinds of activities increased as follows (selection based on most attractive activities/indicators):

- Facebook entries: increased by 71% in 2019–2020 compared to 2018/2019;
- Number of likes: increased by 223% in 2019–2020 compared to 2018/2019;
- Participation in quizzes: increased by 130% in 2019–2020 compared to 2018/2019;
- Total number of social media outreach: increased by 95% in 2019–2020 compared to 2018/2019.

Figure 4 represents a synthetic construct of the evolution of the energy saving campaign during the three years.

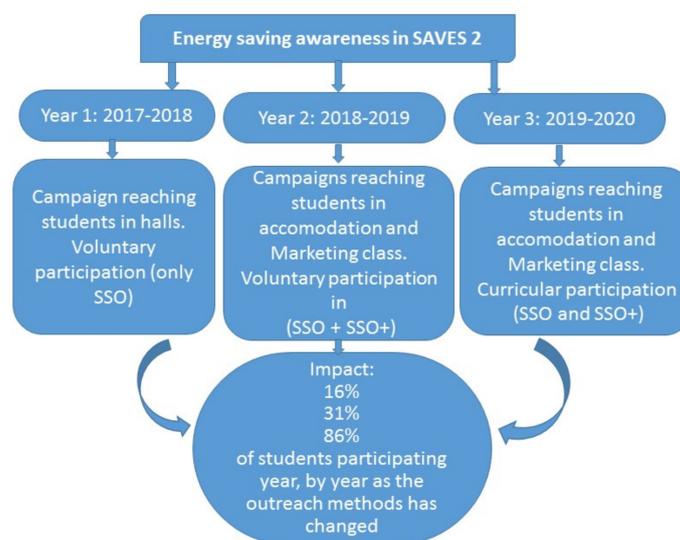


Figure 4. Distribution of respondents. Source: authors' own research.

The energy saving awareness campaigns that were part of the marketing classes at different study levels generated a continuous communication between the professor and the students as follows: from the beginning of the academic year, students received information on the SSO and SSO+ campaigns and the requirements needed to achieve the 10% weighting as part of the final grade; information on the campaigns was provided on a regular basis every two weeks (a semester has 14 teaching weeks) or on an ad hoc basis as requested by the students; and information was provided before, during and after every important event, for example, when a new competition was going to be launched, when a quiz would be available and for how long and when a questionnaire would be live. More information was provided to students almost weekly in the second part of the semester as students started to realize that they could lose the 10% if they would not get engaged in the activities.

Moreover, the rewarding behavior of students getting higher grades is more likely to be maintained. There are studies which demonstrate that rewarding experiences count for a new behavior and that intervention can change behavior because of awareness [62]. Of course, in addition, there are studies that consider the opposite. According to Kohn, some plans based on incentives might not work, due to a temporary compliance, meaning that rewards cannot create commitment that lasts. Studying student behaviors in a few years will be a challenge to prove this or not [63].

6. Discussion and Conclusions

The study demonstrates the importance of motivating students as part of the teaching and learning process. The paper described the main differences in the process of teaching and learning, and proved that the change from zero communication during classes to voluntary-based participation of students

as part of their course can make a huge difference in the level of participation, as students become motivated and challenged by the professor. In addition, a further change from voluntary participation to curricular integration through the marketing class, where motivation is related to passing the module, generated an even higher level of participation. In addition, this approach was well received by students themselves according to the responses in the questionnaire. The messages during the Facebook competitions were positive, with some being preferred over others. The students started to take action and their behavior changed from simple participation through a signing-up document to actions proving that the messages of the energy saving campaigns were integrated in their behaviors. This was the main purpose of the SAVES 2 project—installing good sustainability behaviors capable of being maintained beyond the time spent in education.

Therefore, based on the findings of this study, a flow for changes in student behavior can be observed in Figure 5; the chart starts from students signing-up and ends with the behavioral change through learning during either extracurricular or curricular activities and being motivated to take action.

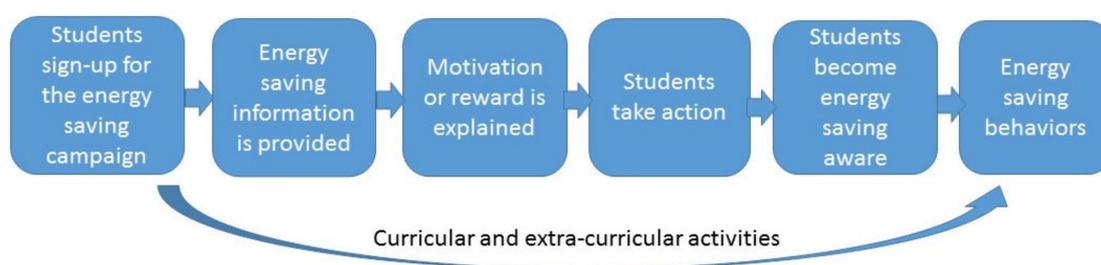


Figure 5. Energy saving behavior flow. Source: authors' own research.

Signing up is the first step for students to be a part of the process of changing behavior towards energy saving. From the very beginning, it is important that the campaign decision-makers decide whether they should/can run it in a curriculum integration (being more efficient) or via extracurricular activities only, or both. Then, information is shared with the students, meaning that the teaching and learning process has begun; they learn not only about conceptual issues related to how to save energy, but also about what they should do in order to become actively involved in the campaign. The next step focuses on the actions taken by the students, but in the absence of a motivation, their participation in the campaign will be superficial. Once the motivational factor is defined, like a reward in a class, students participate and become more and more aware of saving energy. This is the sign that they have started a behavioral change and engagement.

From a theoretical approach, this curricular engagement of students is equivalent to active learning, as many activities are carried out outside of the classroom, and service learning, as this is an effective pedagogy in which students develop as citizens. They become responsible for climate change and sustainable development, receiving lifelong experiences and reflection.

From a practical perspective, the study proved that even if the objective is reasonable and the activities are not hard to implement, students tend to look for a clear motivation. Curricular integration of their participation proved a strong motivator for them to get finally engaged in the energy saving awareness campaign. Moreover, when students learn from effective action, the process of teaching and learning becomes more focused on learning; in other words, learning is challenged through real-life experiences, while teaching methods become a very important tool in conducting these effectively.

The study has some limitations such as:

- The integration of the energy saving campaign was conducted in the student assessment only in the marketing class, although this can be conducted in many other teaching and learning processes;
- Academic leadership is not part of the study, which should be reconsidered as it is very important from the decision making point of view.

Future research in connection to this topic might overcome some of the limitations of the study. Recommendations for future research suggest the following themes:

- Research on how to integrate the energy saving awareness campaign into other curricular activities, such as other subjects, apart from marketing;
- Research on how to build an institutional sustainability strategy based on student engagement towards saving energy;
- Research on how much the current students maintained their energy saving behaviors once the reward for a higher grade stopped and no other curriculum reward was given;
- Other subjects to integrate this campaign in the syllabus in the near future can be public administration theory (related to social responsibility), geography (related to global changes), etc.

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