

# Virtual 9<sup>th</sup> Higher Education Institutions Conference

**11-12 November, 2021**

HIGHER EDUCATION INSTITUTION AS A DRIVER  
OF CHANGE AND A CATALYST FOR INNOVATION

## PROCEEDINGS

**Double-Blind Peer Reviewed**

Edited by: Karmela Aleksić-Maslač



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|----------------------|------------------------------|
| <i>Publisher</i>     | MATE Ltd., Zagreb            |
| <i>For Publisher</i> | Vesna Njavro                 |
| <i>Chief Editors</i> | PhD Đuro Njavro              |
| <i>Editor</i>        | M.Sc. Karmela Aleksić-Maslač |

# Engagement during studies – Exploring the influence of student engagement on pro-environmental behaviour

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## Abstract

Higher education institutions (HEIs) are today, more than ever before, realising the importance of collaboration with different stakeholders. Students are counted as one of most important stakeholders of HEIs. Therefore, focusing on developing close relationships with them during studies is considered as a prerequisite of collaboration with them in the long run. This can be done through engaging students in different activities that help HEIs develop relationship with other stakeholders and consequently be more present in the local community. Thus, the purpose of this paper is to explore students' engagement during studies in volunteering activities and ecological activities, as indicator of their engagement in the community. To accomplish purpose, research was conducted on 550 students from a public higher educational institution in Croatia. Research results indicate that respondents involved in volunteering and ecological activities at their households show higher levels of green consumption values, pro-environmental behaviour (some aspects) and general pro-environmental purchasing behaviour (for ecological activities), than respondents that are not involved in these activities. Paper also offers managerial implications for HEI management practices.

**Keywords:** Student engagement, Volunteering, Pro-environmental behaviour, Higher educational institutions, Croatia.

## 1. Introduction

Competition in higher education (HE) is omnipresent, especially among business schools. Consequently, to establish sustainable competitive advantage, higher education institutions (HEIs) are focusing on differentiation with emphasis on quality or market position [1]. If focusing on quality, both in teaching process and research, competitive advantage among HEIs is found in adherence and implementation of standards of quality in HE. Standards of quality in HE focus on delivering quality with emphasis on program level with support of the quality processes in institution (like EFMD accredited Bachelor/Master former EPAS

accreditation) [2] or the emphasis is on the entire institution (like AACSB or EQUIS) [3] [4]. Implementation and adherence to these guidelines and standards of quality in HE is a process. Belonging to the top 5 % of business schools is certainly a great motivation [5], but this is a process for the institution not a programme or an individual. And only a few are ready to commit themselves to achieving that goal throughout the institution, and to constantly improve.

One of the directions in the AACSB quality process is related to the Engagement and Societal impact (AACSB, cf. Standard 9). So, if HEIs are focusing on implementing international accreditation standards they should consider engaging with the community, as one of the pillars in their quality implementation process. Engagement can be approached from different perspectives [6] that include a behavioural manifestation, psychological state, disposition, and process. Or according to [7] it includes experience, feeling, participation, interaction and sharing. Focus of this research is on behavioural/emotional approach where customer engagement is conceptualized as “the intensity of an individual’s participation in and connection with an organisation’s offerings or organisational activities, which either the customer or the organisation initiates” [8, p.133]. Therefore, individuals that are volunteering in some activity like animal protection, assisting the elderly and the people in need in the community or cultural activities, are engaged individuals. This can be extended on household level to individuals that are responsible for activities within their households like waste sorting or recycling, as they are intensively participating in these activities. They are also considered to be engaged individuals. Student engagement during studies in different activities such as volunteering and ecological activities at their households is an important indicator of their engagement in the community. Therefore, the purpose of this paper is to explore students’ engagement during studies in volunteering activities and ecological activities, as indicator of their engagement in the community.

Environmental protection and sustainable development goals [9] are now more than ever important. Due to that, HEIs are including courses in their curriculum related to sustainable development, focusing their research on sustainable topics as well as including it in their mission and vision. On individual level ones that are pro-environmentally oriented will express higher levels of green consumption values and show preference for environmentally friendly products [10], behave in a way to minimize its negative impact on the environment [11] and choose environmentally friendly alternative when buying products [12].

Through engagement in volunteering, individuals are learning to understand others’ perspectives [13]. Volunteering activity can serve as indicator of individual’s engagement as when volunteering individuals are intensively participating in such activity. Also, young individuals are ecologically oriented [14] and express pro-environmental behaviour. Based on previous, a research question is proposed: can student volunteering and ecological activities distinguish individuals in level of their pro-environmental behaviour and serve as an indicator of their future engagement in the HEIs community?

## 2. Empirical research

### 2.1. Research methodology

With aim to explore posited research question, an analysis was conducted on a purposive sample of students from Faculty of Economics and Business, University of Rijeka during October 2018. A structured questionnaire, and paper and pencil method were used to collect the data. A total of 550 answered questionnaires were collected consisting of respondents from each study group. Hence, including respondents from all three undergraduate and two graduate study groups. Questionnaire consisted of questions related to previously established scales like green consumption values [10], pro-environmental behaviour [11] and general pro-environmental purchasing behaviour [12]. Scale green consumption values used a 7-point Likert-type scale, anchored with “strongly disagree” (1) and “strongly agree” (7). While scales pro-environmental behaviour and general pro-environmental purchasing behaviour are focused on respondents’ behaviour described with “how described activity [...] is likely to happen” and used a 7-point Likert-type scale, anchored with “completely not likely” (1) and “completely likely” (7).

Respondents were also asked about their volunteering activity during the last year, and were offered to choose the frequency of volunteering (once a year, 2-4 times a year, few times a year, once in a month, few times a month, once a week and almost every day) and activity they participated in (sports events, religious events, animal protection and help, assisting the elderly and people in need in the community, cultural activities, assistance to sick children in hospitals or homes and other to add). A question was added to describe if respondents were in charge for ecological activities (like recycling, waste sorting) in their households. Questionnaire also consisted of questions related to socio-demographic profile of the respondents. Descriptive statistics and bivariate statistics were used to describe and analyse the data using SPSS ver 26.

## 2.2. Research sample

Demographic characteristics of the research sample are presented in the Table 1. Research sample consists of 550 respondents.

*Table 1. Sample demographic characteristics*

| Characteristic    | Description                   | Frequency | Percentage (%) |
|-------------------|-------------------------------|-----------|----------------|
| Gender            | Female                        | 414       | 75.3           |
|                   | Male                          | 134       | 24.4           |
|                   | Prefer not to say             | 2         | 0.3            |
| Study status      | Full-time                     | 539       | 98.0           |
|                   | Part-time                     | 11        | 2.0            |
| Education         | General grammar school        | 250       | 45.5           |
|                   | Secondary economics school    | 199       | 36.2           |
|                   | Secondary professional school | 101       | 18.3           |
| Year of the study | 1 <sup>st</sup> undergraduate | 135       | 24.5           |
|                   | 2 <sup>nd</sup> undergraduate | 125       | 22.7           |
|                   | 3 <sup>rd</sup> undergraduate | 139       | 25.3           |
|                   | 1 <sup>st</sup> graduate      | 99        | 18.0           |
|                   | 2 <sup>nd</sup> graduate      | 52        | 9.5            |

Respondent's profile is following; average age 21.83 years, female (75.3%), studying full-time (98.0%), finished general grammar school (45.5%), attending undergraduate studies (25.3% 3<sup>rd</sup> undergraduate study year) and have family financial situation on scale from bad (1) to excellent (7) graded as 4.9, hence, slightly above average.

Respondents were participating in different volunteering activities during the year before the study. In that period 40.9% of the respondents (223 respondents) participated in some volunteering activity. In the following Table 2 respondents profile related to different volunteering activities is presented.

Table 2. Respondents volunteering activities

| Volunteering activity   | Frequency of activity | Percentage (%) | Volunteering activity                                     | Frequency of activity | Percentage (%) |
|---|-----------------------|----------------|---|-----------------------|----------------|
| Sports events<br>(N=176)  | once a year           | 42.6           | Cultural activities<br>(N=149)                            | once a year           | 36.2           |
|   | 2-4 times a year      | 13.6           |   | 2-4 times a year      | 11.4           |
|   | few times a year      | 14.2           |   | few times a year      | 14.8           |
|   | once in a month       | 8.5            |   | once in a month       | 19.5           |
|   | few times a month     | 9.7            |   | few times a month     | 9.4            |
|   | once a week           | 6.3            |   | once a week           | 4.7            |
|   | almost every day      | 5.1            |   | almost every day      | 4.0            |
| Religious events and Caritas (N=147)                              | once a year           | 51.7           | Assistance to sick children in hospitals or homes (N=135) | once a year           | 51.1           |
|   | 2-4 times a year      | 12.2           |   | 2-4 times a year      | 11.9           |
|   | few times a year      | 12.2           |   | few times a year      | 17.0           |
|   | once in a month       | 12.2           |   | once in a month       | 6.7            |
|   | few times a month     | 6.1            |   | few times a month     | 7.4            |
|   | once a week           | 3.4            |   | once a week           | 4.4            |
|   | almost every day      | 2.0            |   | almost every day      | 1.5            |
| Animal protection (N=147)   | once a year           | 49.0           | Other activities (N=67)                                   | once a year           | 29.9           |
|   | 2-4 times a year      | 9.5            |   | 2-4 times a year      | 7.5            |
|   | few times a year      | 15.0           |   | few times a year      | 14.9           |
|   | once in a month       | 11.6           |   | once in a month       | 16.4           |
|   | few times a month     | 8.2            |   | few times a month     | 10.4           |
|   | once a week           | 2.7            |   | once a week           | 3.0            |
|   | almost every day      | 4.1            |   | almost every day      | 17.9           |
| Assisting the elderly and people in need in the community (N=163) | once a year           | 43.6           |   |                       |                |
|   | 2-4 times a year      | 9.8            |   |                       |                |
|   | few times a year      | 15.3           |   |                       |                |
|   | once in a month       | 14.7           |   |                       |                |
|   | few times a month     | 8.0            |   |                       |                |
|   | once a week           | 4.3            |   |                       |                |
|   | almost every day      | 4.3            |   |                       |                |

Majority of the respondents have been volunteering in activities related to *Assisting the elderly and people in need in the community* like Red Cross, food delivery, food collection, social supermarkets, Rose of St. Francis, homes for homeless and similar, with frequency of once in a year (43.6%) or few times a year (15.3%). Followed with participation in *Sport events* like participating in sports games, youth training without fees, sports competitions with frequency of once in a year (42.6%) or few times a year (14.2%). Majority of the activities take place once in a year (average from 36.2%, for *Cultural activities*, to 51.7%, *Religious events and Caritas*).

### 2.3. Analysis of the research results

Research results are presented to explore research question and to reach paper aim. Firstly, research results are presented with descriptive statistics considering a whole research sample. Secondly, the research sample was divided into two groups. First group consists of the respondents who in the last year have participated in the volunteering activity (223 respondents) and second group consists of the respondents who have not participated in any form of volunteering activity in the last year (322 respondents). Five respondents missed to indicate whether they have participated in any volunteering activity in the last year or not. Third, the research sample was divided into two groups related to personal responsibility of the respondent if he/she is in charge of ecological activities in your household (like, recycling, waste sorting). First group consists of the respondents in charge of the ecological activity in their household (217 respondents), and second group consists of the respondents who are not responsible for ecological activities in the household (322 respondents). 11 respondents missed to indicate whether they are responsible for the ecological activities in their household or not.

Results of the descriptive analysis for the whole sample and groups related to participation in volunteering activity are presented related to Green consumption values (Table 3), Pro-environmental behaviour (Table 5) and General pro-environmental purchasing behaviour (Table 7). While results of the descriptive analysis for the whole sample and groups related to responsibility for ecological activity in the households are presented related to Pro-environmental behaviour (Table 9) and General pro-environmental purchasing behaviour (Table 11).

Table 3. Green consumption values (average values)

| Items   |     |      |       | Volunteering activity (Yes) |      |       | Volunteering activity (No) |      |       |
|---|-----|------|-------|-----------------------------|------|-------|----------------------------|------|-------|
|   | N   | Mean | SD    | N                           | Mean | SD    | N                          | Mean | SD    |
| It's important to me that the products I use do not harm the environment.         | 549 | 4.63 | 1.447 | 222                         | 4.88 | 1.413 | 322                        | 4.45 | 1.447 |
| When deciding, I consider the possible impact of my decisions on the environment. | 550 | 4.09 | 1.512 | 223                         | 4.39 | 1.419 | 322                        | 3.87 | 1.535 |
| My concern for the environment affects my buying habits.                          | 549 | 4.02 | 1.522 | 223                         | 4.29 | 1.489 | 321                        | 3.84 | 1.503 |
| I'm worried we're spending too much resources on planet Earth.                    | 549 | 5.25 | 1.587 | 222                         | 5.50 | 1.436 | 322                        | 5.08 | 1.655 |



|  |     |      |       |     |      |       |     |      |       |
|--|-----|------|-------|-----|------|-------|-----|------|-------|
| I would describe myself as an ecologically responsible person.                             | 548 | 4.51 | 1.443 | 222 | 4.76 | 1.349 | 321 | 4.35 | 1.465 |
| It is OK for me to make the effort if it contributes to ecologically responsible activity. | 547 | 4.75 | 1.369 | 221 | 5.01 | 1.219 | 321 | 4.57 | 1.437 |
| My decision to recycle is affected whether the people in my household recycle.             | 549 | 4.61 | 1.771 | 222 | 4.69 | 1.784 | 322 | 4.56 | 1.772 |

After dividing the respondents related to their participation in the volunteering activities analysis of variance (ANOVA) was used to test whether there exists the difference between two groups. The Levene test of homogeneity of variances was performed. Where it was significant, Welch's test was done. Results are presented in Table 4.

*Table 4. Results of Analysis of variance for Green consumption values (volunteering activity)*

| Items  | F-value/Welch value   |
|--|-----------------------|
| It's important to me that the products I use do not harm the environment.                  | F(1,542)=11.805***    |
| When deciding, I consider the possible impact of my decisions on the environment.          | F(1,543)=16.108***    |
| My concern for the environment affects my buying habits.                                   | F(1,542)=11.906***    |
| I'm worried we're spending too much resource on planet Earth.                              | F(1,542)=9.318**      |
| I would describe myself as an ecologically responsible person.                             | F(1,541)=11.083***    |
| It is OK for me to make the effort if it contributes to ecologically responsible activity. | W(1,516.94)=14.741*** |
| My decision to recycle is affected whether the people in my household recycle.             | F(1,542)=0.755        |

Note: \*\*\*  $p < 0.001$ , \*\*  $p < 0.05$

Based on the research results we can conclude that for the items related to Green consumption values, except for item "My decision to recycle is affected whether the people in my household recycle" there is present a statistically significant difference whether individuals participate in a volunteering activity or not. With respondents that participated in a volunteering activity exhibiting higher values on all items related to green consumption values. Hence, respondents that have been engaged in the community through volunteering show higher levels of green consumption values.

Table 5. Pro-environmental behaviour – total sample and volunteering activity subsamples (average values)

| Items   |     |      |       | Volunteering activity (Yes) |      |       | Volunteering activity (No) |      |       |
|---|-----|------|-------|-----------------------------|------|-------|----------------------------|------|-------|
|   | N   | Mean | SD    | N                           | Mean | SD    | N                          | Mean | SD    |
| As I wash my teeth, I do not let the tap water running.   | 549 | 5.93 | 1.804 | 223                         | 5.87 | 1.821 | 322                        | 5.97 | 1.781 |
| I always turn the light off when leaving the room.  | 549 | 6.21 | 1.358 | 222                         | 6.16 | 1.454 | 322                        | 6.25 | 1.295 |
| I think ahead what I will eat, before I open the fridge.  | 547 | 4.36 | 1.855 | 221                         | 4.46 | 1.787 | 321                        | 4.30 | 1.892 |
| I sort the waste at home whenever it's possible.  | 548 | 4.46 | 1.742 | 221                         | 4.62 | 1.740 | 322                        | 4.34 | 1.730 |
| When printing and writing I use paper on both sides.  | 548 | 5.22 | 1.824 | 221                         | 5.42 | 1.711 | 322                        | 5.07 | 1.892 |
| At faculty / work, I sort waste in provided recycling bins.   | 549 | 5.13 | 1.736 | 222                         | 5.28 | 1.573 | 322                        | 5.02 | 1.826 |
| I shower less than 20 minutes.  | 548 | 5.14 | 1.912 | 221                         | 5.07 | 1.894 | 322                        | 5.18 | 1.919 |
| When I'm feeling cold, I prefer to dress in warm clothes rather than to rise the heating temperature. | 548 | 4.91 | 1.808 | 222                         | 5.01 | 1.782 | 321                        | 4.86 | 1.806 |
| I read literature about ecological awareness.   | 550 | 2.40 | 1.561 | 223                         | 2.57 | 1.572 | 322                        | 2.40 | 1.556 |
| I consume products of biological origin.  | 550 | 3.96 | 1.651 | 223                         | 4.02 | 1.647 | 322                        | 3.93 | 1.652 |

Also, for pro-environmental behaviour the respondents were divided related to their participation in the volunteering activities and the analysis of variance (ANOVA) was used to test whether there exists the difference between two groups. The Levene test of homogeneity of variances was performed. Results are presented in Table 6.

Table 6. Results of Analysis of variance for Pro-environmental behaviour (volunteering activity)

| Items   | F-value          |
|---|------------------|
| As I wash my teeth, I do not let the tap water running.   | F(1,543)=0.388   |
| I always turn the light off when leaving the room.  | F(1,542)=0.584   |
| I think ahead what I will eat, before I open the fridge.  | F(1,540)=0.954   |
| I sort the waste at home whenever it's possible.  | F(1,541)=3.410*  |
| When printing and writing I use paper on both sides.  | F(1,541)=4.915** |
| At faculty / work, I sort waste in provided recycling bins.   | F(1,542)=2.920*  |
| I shower less than 20 minutes.  | F(1,541)=0.418   |
| When I'm feeling cold, I prefer to dress in warm clothes rather than to rise the heating temperature. | F(1,541)=0.944   |
| I read literature about ecological awareness.   | F(1,543)=4.753** |
| I consume products of biological origin.  | F(1,543)=0.360   |

Note: \*\*\*  $p < 0.001$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

Based on the research results we can conclude that for the items related to Pro-environmental behaviour “When printing and writing I use paper on both sides” and “I read literature about ecological awareness” there is present a statistically significant difference on  $p < 0.05$  level, and for items “I sort the waste at home whenever it's possible”, and item “At faculty / work, I sort waste in provided recycling bins” there is present a statistically significant difference on  $p < 0.10$  level. For all other items there has not been noted a statistically significant difference whether individuals participate in a volunteering activity or not. Results indicate that respondents that participated in a volunteering activity exhibiting higher values on indicated items of pro-environmental behaviour. Hence, respondents that have been engaged in the community through volunteering show higher levels in some dimensions of pro-environmental behaviour.

*Table 7. General pro-environmental purchasing behaviour – total sample and volunteering activity subsamples (average values)*

| Items  |     |      |       | Volunteering activity (Yes) |      |       | Volunteering activity (No) |      |       |
|--|-----|------|-------|-----------------------------|------|-------|----------------------------|------|-------|
|  | N   | Mean | SD    | N                           | Mean | SD    | N                          | Mean | SD    |
| Choose an environmentally friendly alternative in case the product that is not environmentally friendly is available at a cheaper price. | 549 | 4.56 | 1.574 | 223                         | 4.60 | 1.616 | 321                        | 4.52 | 1.537 |
| Choose an environmentally friendly alternative regardless of the price.  | 550 | 3.95 | 1.455 | 223                         | 4.05 | 1.379 | 322                        | 3.88 | 1.488 |
| Try to realize the ecological effects of the product before buying it.   | 548 | 4.02 | 1.510 | 221                         | 4.10 | 1.494 | 322                        | 3.98 | 1.515 |

Also, for General pro-environmental purchasing behaviour the respondents were divided related to their participation in the volunteering activities, and the analysis of variance (ANOVA) was used to test whether there exists a difference between two groups. The Levene test of homogeneity of variances was performed. Results are presented in Table 8.

*Table 8. Results of Analysis of variance for General pro-environmental purchasing behaviour (volunteering activity)*

| Items  | F-value        |
|--|----------------|
| Choose an environmentally friendly alternative in case the product that is not environmentally friendly is available at a cheaper price. | F(1,542)=0.321 |
| Choose an environmentally friendly alternative regardless of the price.  | F(1,543)=1.901 |
| Try to realize the ecological effects of the product before buying it.   | F(1,541)=0.787 |

Note: \*\*\* p < 0.001, \*\* p < 0.05, \* p < 0.10

Research results indicate that there is no statistically significant difference related to general pro-environmental purchasing behaviour whether the respondents participate in the volunteering activities or not.

Further, research sample was divided into two groups, as indicated before. In the following tables we tested whether student personal engagement at households related to ecological activities (recycling, waste sorting) has difference in their behaviour related to Green consumption values (Table 9 and Table 10), Pro-environmental behaviour (Table 11 and Table 12) and General pro-environmental purchasing behaviour (Table 13 and Table 14).

Table 9. Green consumption values and ecological activity (average values)

| Items  | Ecological activity (Yes) |      |       | Ecological activity (No) |      |       |
|--|---------------------------|------|-------|--------------------------|------|-------|
|  | N                         | Mean | SD    | N                        | Mean | SD    |
| It's important to me that the products I use do not harm the environment.                  | 216                       | 4.87 | 1.400 | 322                      | 4.50 | 1.454 |
| When deciding, I consider the possible impact of my decisions on the environment.          | 217                       | 4.36 | 1.543 | 322                      | 3.92 | 1.450 |
| My concern for the environment affects my buying habits.                                   | 216                       | 4.29 | 1.559 | 322                      | 3.85 | 1.459 |
| I'm worried we're spending too much resources on planet Earth.                             | 216                       | 5.43 | 1.557 | 322                      | 5.16 | 1.579 |
| I would describe myself as an ecologically responsible person.                             | 217                       | 4.93 | 1.345 | 320                      | 4.23 | 1.444 |
| It is OK for me to make the effort if it contributes to ecologically responsible activity. | 216                       | 5.00 | 1.336 | 320                      | 4.62 | 1.362 |
| My decision to recycle is affected whether the people in my household recycle.             | 217                       | 4.53 | 1.893 | 321                      | 4.68 | 1.693 |

Also, for Green consumption values the analysis of variance (ANOVA) was used to test whether there is a difference between the group who is responsible for ecological activities in their households and the group who is not. The Levene test of homogeneity of variances was performed. Results are presented in Table 10.

Table 10. Results of Analysis of variance for Green consumption values (ecological activity)

| Items  | F-value            |
|--|--------------------|
| It's important to me that the products I use do not harm the environment.                  | F(1,536)=8.573**   |
| When deciding, I consider the possible impact of my decisions on the environment.          | F(1,537)=11.420*** |
| My concern for the environment affects my buying habits.                                   | F(1,536)=11.166*** |
| I'm worried we're spending too much resources on planet Earth.                             | F(1,536)=3.974**   |
| I would describe myself as an ecologically responsible person.                             | F(1,535)=31.920*** |
| It is OK for me to make the effort if it contributes to ecologically responsible activity. | F(1,534)=10.427*** |
| My decision to recycle is affected whether the people in my household recycle.             | F(1,536)=0.951     |

Note: \*\*\*  $p < 0.001$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

Research results indicate that in all items, except one related to “My decision to recycle is affected whether the people in my household recycle”, there is statistically significant difference in answers related to green consumption values between groups of respondents who are in charge for ecological activities in their household and the group who is not. The group who oversees ecological activities in their households shows higher values than the group who is not in charge of ecological activities in households, in all green consumption values.

Table 11. Pro-environmental behaviour and ecological activity (average values)

| Items   | Ecological activity (Yes) |      |       | Ecological activity (No) |      |       |
|---|---------------------------|------|-------|--------------------------|------|-------|
|   | N                         | Mean | SD    | N                        | Mean | SD    |
| As I wash my teeth, I do not let the tap water running.   | 217                       | 5.98 | 1.686 | 321                      | 5.90 | 1.861 |
| I always turn the light off when leaving the room.  | 217                       | 6.29 | 1.249 | 322                      | 6.17 | 1.431 |
| I think ahead what I will eat, before I open the fridge.  | 217                       | 4.45 | 1.830 | 319                      | 4.33 | 1.873 |
| I sort the waste at home whenever it's possible.  | 216                       | 5.47 | 1.459 | 321                      | 3.80 | 1.598 |
| When printing and writing I use paper on both sides.  | 216                       | 5.31 | 1.702 | 321                      | 5.19 | 1.880 |
| At faculty / work, I sort waste in provided recycling bins.   | 217                       | 5.44 | 1.592 | 321                      | 4.92 | 1.792 |
| I shower less than 20 minutes.  | 216                       | 5.16 | 1.859 | 321                      | 5.11 | 1.917 |
| When I'm feeling cold, I prefer to dress in warm clothes rather than to rise the heating temperature. | 215                       | 4.97 | 1.751 | 322                      | 4.88 | 1.854 |
| I read literature about ecological awareness.   | 217                       | 2.72 | 1.732 | 322                      | 2.19 | 1.389 |
| I consume products of biological origin.  | 217                       | 4.23 | 1.630 | 322                      | 3.79 | 1.664 |

Also, for Pro-environmental behaviour the analysis of variance (ANOVA) was used to test whether there is a difference between group who is responsible for ecological activities in their households and the group who is not. The Levene test of homogeneity of variances was performed. Where it was significant, Welch's test was done. Results are presented in Table 12.

Table 12. Results of Analysis of variance for Pro-environmental behaviour (ecological activity)

| Items   | F-value                |
|---|------------------------|
| As I wash my teeth, I do not let the tap water running.   | F(1,536)=0.246         |
| I always turn the light off when leaving the room.  | F(1,537)=1.053         |
| I think ahead what I will eat, before I open the fridge.  | F(1,534)=0.591         |
| I sort the waste at home whenever it's possible.  | F(1,535)=150.786***    |
| When printing and writing I use paper on both sides.  | F(1,535)=0.613         |
| At faculty / work, I sort waste in provided recycling bins.   | F(1,536)=11.857***     |
| I shower less than 20 minutes.  | F(1,535)=0.099         |
| When I'm feeling cold, I prefer to dress in warm clothes rather than to rise the heating temperature. | F(1,535)=0.318         |
| I read literature about ecological awareness.   | W(1,394,067)=14.147*** |
| I consume products of biological origin.  | F(1,537)=8.958**       |

Note: \*\*\* p < 0.001, \*\* p < 0.05, \* p < 0.10

Based on the research results we can conclude that there is present statistically significant difference between items “I sort the waste at home whenever it’s possible”, “At faculty / work, I sort waste in provided recycling bin”, “I read literature about ecological awareness” and “I consume products of biological origin” related to groups who are responsible of ecological activities in their households. Where, respondents responsible for ecological activities at their households are exhibiting higher values in pro-environmental behaviour. Results indicate that greater engagement at households implies also greater their pro-environmental activity.

*Table 13. General pro-environmental purchasing behaviour and ecological activity (average values)*

| Items  | Ecological activity (Yes) |      |       | Ecological activity (No) |      |       |
|--|---------------------------|------|-------|--------------------------|------|-------|
|  | N                         | Mean | SD    | N                        | Mean | SD    |
| Choose an environmentally friendly alternative in case the product that is not environmentally friendly is available at a cheaper price. | 216                       | 4.68 | 1.509 | 322                      | 4.49 | 1.632 |
| Choose an environmentally friendly alternative regardless of the price.  | 217                       | 4.18 | 1.444 | 322                      | 3.80 | 1.448 |
| Try to realize the ecological effects of the product before buying it.   | 216                       | 4.38 | 1.514 | 321                      | 4.04 | 1.508 |

Also, for General pro-environmental purchasing behaviour the respondents were divided related to their responsibility for ecological activities at their households and the analysis of variance (ANOVA) was used to test whether there exists the difference between two groups. The Levene test of homogeneity of variances was performed. Results are presented in Table 14.

*Table 14. Results of Analysis of variance for General pro-environmental purchasing behaviour (ecological activity)*

| Items  | F-value            |
|--|--------------------|
| Choose an environmentally friendly alternative in case the product that is not environmentally friendly is available at a cheaper price. | F(1,536)=1.829     |
| Choose an environmentally friendly alternative regardless of the price.  | F(1,537)=9.090**   |
| Try to realize the ecological effects of the product before buying it.   | F(1,535)=18.950*** |

Note: \*\*\* p < 0.001, \*\* p < 0.05, \* p < 0.10

Based on the research results we can conclude that there is present statistically significant difference between respondents who are responsible for ecological activities at their households and the ones who are not responsible in items “Choose an environmentally friendly alternative regardless of the price” and “Try to realize the ecological effects of the product before buying it”. Hence, indicating that engagement at the household level will have difference related to respondents pro-environmental purchasing behaviour.

## 2.4. Discussion

Research contributes in three ways. Firstly, it points out that individuals who are engaged in their community through volunteering activities will exhibit higher levels of green consumption values. These individuals will be also more prone to show pro-environmental behaviour like waste sorting, re-using and educating themselves about ecological issues. Similar to [15], whose findings point out that volunteering activities help individuals improve their pro-environmental behaviour. Hence, being engaged in volunteering helps individuals to develop their pro-environmental behaviour.

Secondly, individuals that are responsible for ecological activities in their households show higher levels of green consumption values hence, taking care about their environment when buying and consuming products. These individuals also show higher levels of pro-environmental behaviour like waste sorting, consuming products of biological origin and educating themselves about ecological issues. Furthermore, these individuals are also exhibiting higher levels of pro-environmental purchasing behaviour related to purposely choosing environmentally friendly alternative regardless of the price and analysing environmental impact of products before buying. Therefore, responsibility for ecological activities will spur effect on subsequent individuals' pro-environmental behaviour. Similar, to the findings [16] who point out that individuals that are more motivated in ecological activities by value-driven behaviour, i.e. acting as ecological citizen, are more likely than others to behave in an environmentally friendly manner in their day-to-day activities.

Third, it points out that individuals that are volunteering in different activities have developed sense of engagement with the community. Engagement develops in individuals' sense of satisfaction and emotion [17]. Extending this to the volunteering activity, it can be said that engagement in the different activities create in individuals' sense of contribution to the society. Looking in the long run if a HEI though organizing different volunteering activities in students stimulate engagement, this could be the setting ground for further collaboration between Alumni and HEIs. Also, if HEIs mission is to "develop socially responsible managers" [18] enhancing student engagement in the society through volunteering activities or identifying individuals responsible for ecological activities in their households, i.e., individual engagement at their home, can positively reflect to their pro-environmental behaviour, and contributing to organizational mission.

## 3. Conclusion

Research focuses on exploring students' engagement during studies in volunteering and ecological activities. It shows that engagement during studies is related to pro-environmental behaviour that extends their current engagement and could be seen as source for further collaboration through Alumni activities. Student engagement, researched as volunteering and environmental activity has societal impact. This is seen as important in referring to AACSB 2020 standards (cf. Standard 9). Also, if HEI is focusing on mission driven institutional quality, like AACSB focuses on (AACSB, 2020) and if in their mission is focus on sustainable or environmental activities, by focusing on offering students the possibility of different volunteering activities it contributes to its mission as well as it has societal impact.



Based on conducted research some managerial implications are offered. Focusing on students volunteering activities during their studies can help them develop their engagement with the community, and at the same time it contributes to student curriculum. Also, student engagement that was ignited by HEIs guidance will help in the long run to establish close relationship, as engagement has emotional, behavioural, and cognitive dimension, between HEIs and Alumni. Pro-environmental behaviour is driven through value-driven behaviour and hence, by engaging individuals on personal level either through volunteering or ecological activities at their households, will have greater impact.

Research limitations are noted in focusing only on one HEIs, and this could be extended in further research to different institutions and diverse countries. Also, research included different volunteering activities, and further research could be focused on identifying if one specific volunteering activity can contribute more to students' pro-environmental behaviour, hence, offering new contributions.

#### 4. Acknowledgement

This work is supported by the University of Rijeka under Grant project number Uniridrustv-18-235-1399.

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ISBN 978-953-246-413-9



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