Journal of Applied Technical and Educational Sciences jATES

ISSN 2560-5429

http://jates.org

Adaptation of ERASDG projects at the BGSZC Dobos C. József Technical and Vocational School of Hospitality: self-evaluation of the students participating in the project

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Abstract: *This paper presents how the project method builds competences. and how students evaluated the project and their own work, and what their impressions of the projects were during the adaptation of the ERASDG (Education Requires Application of SDGs) projects in Hungary. The adaptation of the projects was implemented in the BGSZC Dobos C. József Hospitality Technology and Vocational School in the school year 2022/2023. The main aim of the Gamification project is to illustrate and combine the potential and importance of using gamification through project-based learning with an innovative learner-centred approach. As the results show the Team Learning project aims to strengthen the learning and thinking processes of students in teams.*

Keywords: *education, project education; environmental education; sustainability education; competences;*

1. Introduction

In this work, It is presented how the project method develops competences, and how students evaluated the project and their own work, and what their impressions of the projects were during the adaptation of the ERASDG (Education Requires Application of SDGs) projects in Hungary. The research used a questionnaire survey to measure what information they had about the four projects (Innovation camp, Living lab, Gamification, Team learning). The adaptation of the ERASDG projects was implemented at the BGSZC Dobos C. József Technical and Vocational School of Hospitality Industry in the academic year 2022/2023.

Competences in environmental education

Education for sustainability must start in early childhood and continue at school. (Wells & Lekies, 2006) For example, transformative pedagogy helps in this, the purpose of which is to address social-ecological issues and promote critical thinking about conflicts of interest. As

well as building a responsible environmental behavior and helping the active participation of citizens (Gericke et al., 2020).

In schools, teachers must ensure that young people are able to deal with the various natural, social, political and economic conflicts in their daily lives, and not only deal with them, but also resolve them. Teachers need to instil in their pupils an environmental ethos and socio-environmental responsibility. These all require new teaching and learning strategies that take into account individual differences and create opportunities for all children to acquire environmental culture and the related competences (Paksi, 2013).

Environmental competencies can be interpreted as cross-competence (Varga, 2009). They connect a group of competencies based on their long-term goals and their role in the sustainability system.

In order to create sustainable development, the following areas of competence are also required (Horváth–Száraz–Varga, 2009):

- Systems-oriented, critical and creative thinking.
- Awareness of knowledge elements related to sustainable development and their ethical dimensions.
- Knowledge of the consequences of decisions that do not support sustainable development.
- Knowledge of global, regional, national and local environmental problems.
- Methodological comparison of forest school programs (Kopasz, 2015).

The Vocational Training 4.0 strategy aims to ensure that young Hungarians leave school with the skills and competences to succeed in the jobs that will be transformed in the fourth industrial revolution (Innovative Training Support Centre, 2020). Project-based learning develops these skills and competences.

Through the adaptation of ERASDG projects, the students gained experience and their competences and skills were significantly improved. According to the National Curriculum 2020, the priority areas of competence are: basic competences, learning competences, communication competences, digital competences, thinking competences, personal and social competences, competences for creative work, self-expression and cultural awareness, workforce, innovation and entrepreneurship competences (Katona, 2020).

This paper state that the elements of the 2020 NAT include the individual XXI. 20th century competencies, however, not to an equal extent, some of them only play a tangential role in it,

and information literacy does not even appear in the document at a conceptual level. It can be interpreted as a positive phenomenon that, in addition to the use of digital resources, traditional documents and the ability to use them also play a role in competence development (Egervári, & Kovács, 2021).

The concept of competence of action and thinking (see 4. Competencies of thinking above) should occupy a central place in environmental education (Jensen & Schnack, 1997).

A brief introduction to the adaptation of ERASDG projects

The Gamification project was adapted from a field trip to Normafa, where during the one-day nature walk, the students completed the gamification tasks. In addition, they had to produce different outputs, e.g. Connect the knowledge learnt in the Basics of Tourism and Accommodation and the Compulsory Complex Science subject this year. Make a recommendation to your guests about possible hiking routes in Normafa, the most typical tourist signs and also the accommodation and catering facilities of the routes. In total, there were six similar themes.

Unilever was an external partner in the adoption of the Teams Learning project. There were different project tasks, such as the creation of a Food Supply and Sustainability Project Map. In total, there were seven similar topics.

The external partner in the adoption of the Living Lab project was Színrelép Kft. represented by Nikolett Balogh. For example, the students participating in the project had to plant different plants with kindergarten children and elderly people in an outdoor location as well as complete 8 project tasks at school. In total, 11 classes were involved in the project, 8 kindergartens and nursing homes took part in the event and 88 project tasks were submitted. E.g. poster competition - my own spice garden, video and photo production of events at the external site.

The Innovation Camp project was adopted to address the topicality of the Sustainability Week. In a presentation by external partners, the students heard how donation shops work, and through them, donating and volunteering. Then there were different project tasks. For example: organising a school poster and campaign for a joint collection, making a demonstration poster on how to collect waste correctly, reporting on the nominations, the organisational structure of the Maltese Relief Service, interviewing, editing a small booklet together with the coordinator titled "how to involve your family".

2. Material and method

The research methodology employed involves utilizing questionnaires distributed among students participating in the projects. This approach is categorized within the spectrum of quantitative research methods. The fundamental aim of employing questionnaires is to gather substantial volumes of data through predetermined queries. The term "closed form" refers to the structured nature of the questions, where the options for responses are pre-defined (Babbie, 2008).

Questionnaires based on two main parts: self-assessment and complex questionnaires. In the first part of the Self-assessment questionnaire, students read 8 statements (see below for the self-assessment of the students involved in the project) and marked on a five-point scale how they felt they were described. In the self-evaluation questionnaire, the students are also asked what were the 3 things they added to the project and what they liked and disliked about each project. The last question ask how the project contributed to the students' success in their future careers. The complex questionnaire was used to know more about the projects.

The questionnaire was completed with students of the 9th-10th grades of the Dobos C. József Vocational School of BGSZC. Google questionnaire was used for data collection The questions of the questionnaire were shared on Google Drive.

Quantitative analysis used for evaluation, the observations were presented in numerical form, in an attempt to describe and explain the phenomena behind them (Babbie, 2008).

3. Results

3.1. Self-assessment and complex questionnaire results for students participating in the Gamification project

3.1.1. Self-evaluation of students participating in the Gamification project

At the end of the project, the students completed an online self-evaluation questionnaire in which they could evaluate their own work and share their impressions of the project.

In the first part of the questionnaire, they were asked to read 8 statements and to indicate on a five-point scale to what extent they felt they were representative of them. The 8 statements:

1. I was actively involved in the project

2. I did my best to achieve the project's objectives

3. I actively communicated with my team members throughout the project

4. I worked well with other team members

5. I tried to be creative and come up with new ideas

6. I accepted ideas from other team members and shared my own with them

7. I managed my time effectively, trying not to get distracted

8. I am satisfied with the outcome of the project

A total of 37 people completed the gamification self-assessment questionnaire. Self-evaluation was only carried out in the project departments.

Most of the respondents, so 86.4% of the respondents answered with a score of 4 (43.2%) and 5 (43.2%) to the statement that they were actively involved in the project.

83.7% of the respondents (48.6% rated 4 and 35.1% rated 5), the statement that did their best to achieve the project's objectives.

75.6% of the respondents (43.2% rated 4, 32.4% rated 5), actively communicated with their team members throughout the project.

73.8% of the respondents (51.4% rated 4, 32.4% rated 5), worked well with other team members.

67.5% of the respondents (32.4% rated 4 and 35.1% rated 5), tried to be creative and come up with new ideas.

70.2% of the respondents (35.1% rated 4, 35.1% rated 5), accepted the ideas of other team members and shared their own.

72.9% of the respondents (37.8% rated 4, 35.1% rated 5), managed their time efficiently and tried not to be distracted.

80% of the respondents (43.2% rated 4, 37.8% rated 5) were satisfied with their presentation.

In the second half of the questionnaire, the students were asked questions about the project and their role in it:

- These are the 3 things that I myself contributed to the project (question 9)
- What I liked most about the project (question 10)
- What I did not like about the project (question 11)

● What I learned from the project (question 12)

● This is what I learned from the project that will help me in my future career (question 13)

In response to question 9 on what were the 3 things they themselves did for the project, most respondents wrote finding resources (43%), followed by ideas (33%), and the third was implementation and presentation (21%).

When asked question 10, what they liked most about the project, most of them, 59% of the respondents, said nature, 18%, being with their friends, 12%, the lecture, 8%, everything, 3%, teamwork.

In response to question 11 on what they did not like about the project, most of the respondents (43%) said that there was none, 23% said it was difficult, 13% said there was not enough time, 11% said IT tasks, 10% said there was a lot of rubbish in the forest.

In response to question 12 on what they had learnt during the project, most respondents (53%) said cooperation, 21% said that the tasks should be distributed fairly, 17% said that they should pay more attention to the environment, 9% said that theory and practice should be combined.

In response to question 13 on how the project has contributed to the success of their future profession, most of the respondents, 42%, answered that tourism is linked to hospitality, 29% that nature studies and hospitality are linked, 13% that medicinal plants can be used in hospitality, 6% that toxic plants are dangerous to life and 6% that sustainable and local ingredients should be used according to the season.

In conclusion, the students surveyed were actively involved in the project, more than half of the respondents said that it was important to cooperate during the project and that the project contributed to the success of their future profession, i.e. they realised how tourism and nature studies are interlinked in the hospitality industry.

3.1.2 Results of the complex questionnaire of the Gamification project

In the Complex Questionnaire, I wanted information about the Gamification project.

My questionnaire was completed by 47 people.

The majority of the respondents, 46.8%, found the project compulsory, but 42.6% also found it exciting, so there was a mixed picture among the students (see Figure 1).

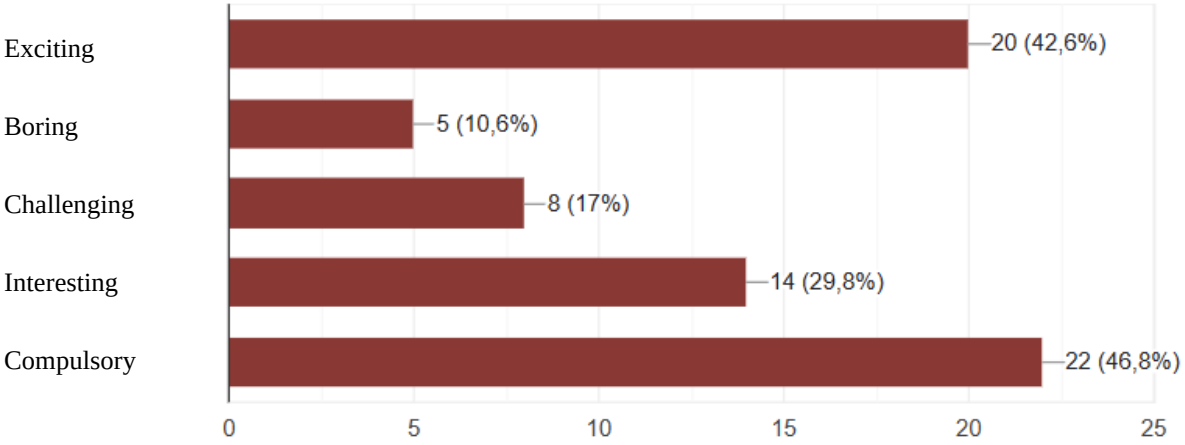

Figure 1: What respondents thought about the Gamification project (N=47)

Most of the students involved in the project, 59.6%, said that there were difficulties, but that they managed to find common ground.

Most of the respondents to the questionnaire, 48.9%, said that the sessions were well varied.

Most of the respondents, 46.8%, found the task/challenge of the project familiar and 27.7% found it interesting.

Most of the respondents, 66%, could identify SDGs 12 and 13. Goal 12 is Responsible consumption and production and Goal 13 is Action against climate change (see Figure 2).

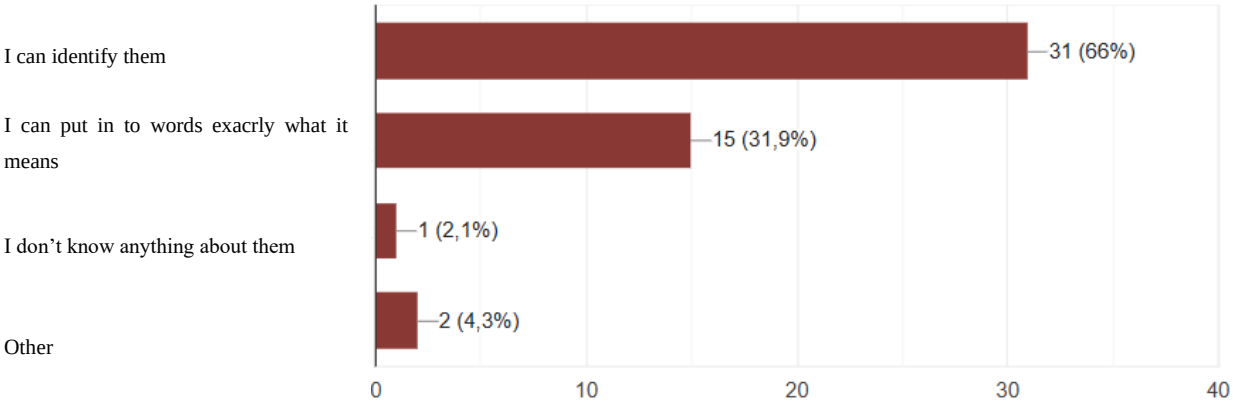

Figure 2: Questionnaire respondents could identify SDGs 12 and 13 (N=47)

Most respondents, 59.6%, think it is important to live consciously and 44.7% think it is everyone's responsibility to live sustainably.

In response to the question of why what they learned here is valuable to them, most of the respondents (57%) said that it brought them closer to nature, 29% said that it is important to have knowledge of tourism in the confectionery industry, and 14% said that it is important to know and protect plants and animals.

When asked how they think this experience will help them to be better prepared in the workplace, most respondents (63.8%) said they will be better able to work in a team, 26.2% learned to manage their time well and 27.7% said their communication skills improved (see Figure 3).

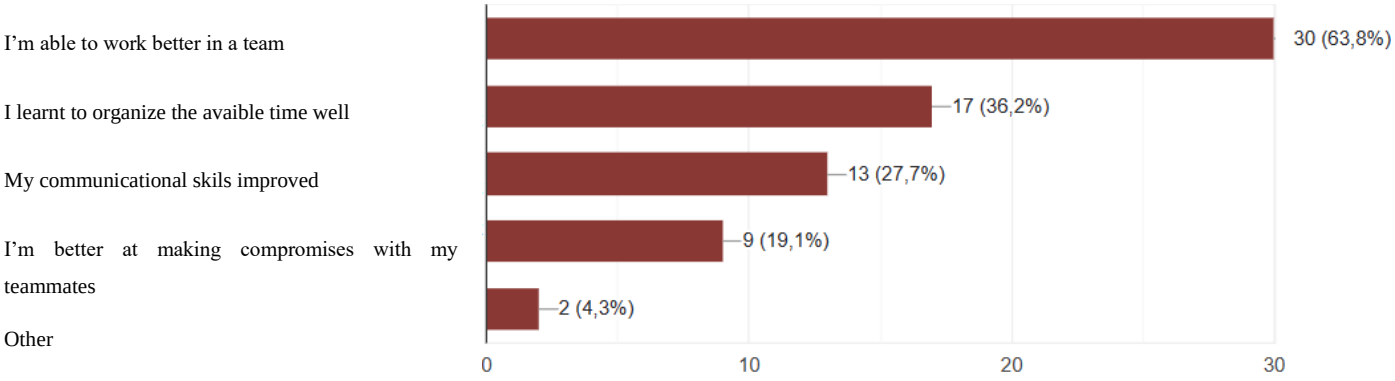

Figure 3: How do the respondents think this experience will help them to be better prepared in the workplace (N=47) (Source: Own research, 2023)

When asked which tools they used to approach the task, the most common answer was a mobile phone, with 83% of respondents saying this was the case. Only 25.5% used traditional devices, 23.4% a laptop, 10.6% a desktop computer and 8.5% a tablet.

Most of the respondents, 51.1%, cooperated with other team members and 42.6% supported each other, so the respondents had a very good experience of cooperation within the team.

Asked for their advice on the eleventh question, most of them, more than half of the respondents, 52%, said they had no advice, 22% said they wanted more projects like this, because they liked it so much, 13% said they wanted the tasks to be simpler next time, and 13% said they wanted to be able to choose their own team members next time.

Most of the respondents got the information they needed for their project from their teacher (72.3%), followed by the internet (59.6%).

Most of the respondents, 91.5%, shared the information they had learned with other teams.

Most of the respondents, 42.6%, identified their own limitations in terms of the expertise needed to complete the project.

The majority of respondents, 48.9%, identified the people important for project implementation, including their interests, perspectives, expertise and contacts.

36.6% of respondents contacted some other people who were close to the problem and easy to contact (e.g. recommended by teachers). Outside people were contacted more through digital means.

36.2% of the respondents sought targeted cooperation with people relevant to the project. Identified and/or contributed to the development of a tool for participants to facilitate the collaboration needed to implement the project. Thus, the coordination of project participants was particularly good, and only 12.8% of the respondents did not actively and consciously cooperate with others and/or were frustrated by the challenges they faced in cooperating.

36.2% of respondents showed an explicit willingness to learn from others during the project.

38.3% of the respondents actively explained and/or discussed the different perspectives relevant to the project and looked for opportunities to combine perspectives (e.g. how different perspectives can contribute to and strengthen the project). 36.2% of the respondents showed an explicit willingness to learn from others during the project. Thus, perspective taking and peer learning were rated as good by the students surveyed, and only 8.5% of the respondents had the aim of completing the project rather than learning from others. 29.8% of respondents reflected on their own learning and development throughout. 38.3 % of the respondents to the questionnaire initiated reflective activities among the people involved, with the aim of learning from the project (both in terms of process and content).

If we look at the transformation of the participants in my research, i.e. the intention to develop a new sustainable practice, we can find that 42, 6% of the questionnaire completers showed an attitude of wanting to develop a project outcome with multiple perspectives.

44.4% of the respondents showed an unconventional mindset and considered several aspects by weighing up the pros and cons of different possible solutions, so most of the respondents could easily generate new practice plans during the project process, and only 8.5% of the respondents showed no interest in unconventional thinking.

40.4% of respondents showed how their own and other students' ideas were incorporated into the final outcome. They showed how other perspectives are integrated and how the final

outcome is realistic in practice. In other words, respondents were able to integrate different perspectives, interests and expertise into the final outcome, and only 17% of respondents to the questionnaire presented a compilation of the insights of the students who participated in the final project. They did not describe the integration of multiple perspectives, interests or expertise.

46.8% of the respondents completed the project and then explained how it could be put into practice and what steps needed to be taken, and only 12.8% showed no interest in follow-up activities.

3.1.3. Summary of gamification measurements

The main aim of the Gamification project is to illustrate and combine the potential and importance of gamification through an innovative, learner-centred approach to project-based learning. This has been proven by the surveys (Self-assessment questionnaire, Complex questionnaire) as I have presented.

3.2. Self-evaluation of students participating in the Team Learning project and results of the Complex questionnaire

3.2.1. Self-evaluation of students participating in the Team Learning project

At the end of the project, the students completed an online self-evaluation questionnaire to assess their own work and share their impressions of the project.

In the first part of the questionnaire, they were asked to read 8 statements and to rate on a scale of 5 how they felt they were representative of them. The 8 statements:

1. I was actively involved in the project

2. I did my best to realise the aim of the project

3. I actively communicated with my team members throughout the project

4. I worked well with other team members

5. I tried to be creative and come up with new ideas

6. I accepted ideas from other team members and shared my own with them

7. I managed my time effectively, trying not to get distracted

8. I am satisfied with the end result of the project

A total of 47 people completed the Team Learning self-evaluation questionnaire. Self-evaluation was only done in the project classes.

The majority of the respondents, 66%, rated between 4 and 5 on the statement that they were actively involved in the project, i.e. the participating students were actively involved in the Team Learning project.

The majority of the respondents, 70.2%, rated the statement that they did their best to make their presentation a reality with a score of 4 and 5.

Most of the students, 63.8%, actively communicated with their team members during the project, rating this statement as 4 (40.4%) and 5 (23.4%).

Most of the participants in the project, 71.4%, cooperated well with other team members, rating this statement as 4 and 5 respectively.

Most respondents, 66% (51.1%) and 66% (14.9%) rated the statement that they tried to be creative and come up with new ideas as a 4 (51.1%) and 5 (14.9%) respectively.

Most of the respondents, 68.1%, accepted the ideas of other team members and shared their own.

The statement that I managed my time effectively and tried not to get distracted was less agreed with, as 31.9% of respondents rated it as a 3 and 34% as a 4.

The majority of the respondents, 85.2%, were satisfied with their presentation, with a score of 4 (42.6%) and 5 (42.6%) respectively.

In the second half of the questionnaire, the students were asked explanatory questions about the project and their role in it:

- List 3 things you yourself contributed to the project
- What you liked most about the project
- What you did not like about the project
- What I learned from the project
- What I learned from this project that will help me in my future career

When asked what were the 3 things they themselves contributed to the project, most respondents wrote data collection (43%), followed by editing (32%) and then contact management (22%).

Asked what they liked most about the project, most students said it was realistic (41%), followed by teamwork (39%) and not having to sit in boring classes (23%).

When asked what they did not like about the project, most students said that it took a lot of time (31%), followed by being difficult (27%) and thirdly, not being able to work together as a team (18%).

When asked what they had learnt from the project, most respondents said that sustainability was important (41%), 28% said that it was good to work together as a team and 12% said that it was a modern approach.

In the final question on how the project contributed to their future success, most respondents said that it broadened their horizons (41%), 38% said that they had gained new information and 29% said that they had tried to adopt a practical approach.

3.2.2. Teams learning Complex questionnaire results and evaluation

With my Complex questionnaire survey, I was looking for information about the project.

My questionnaire was completed by 45 people.

Most of the respondents, 48.9%, found the project compulsory but also exciting (see Figure 4)

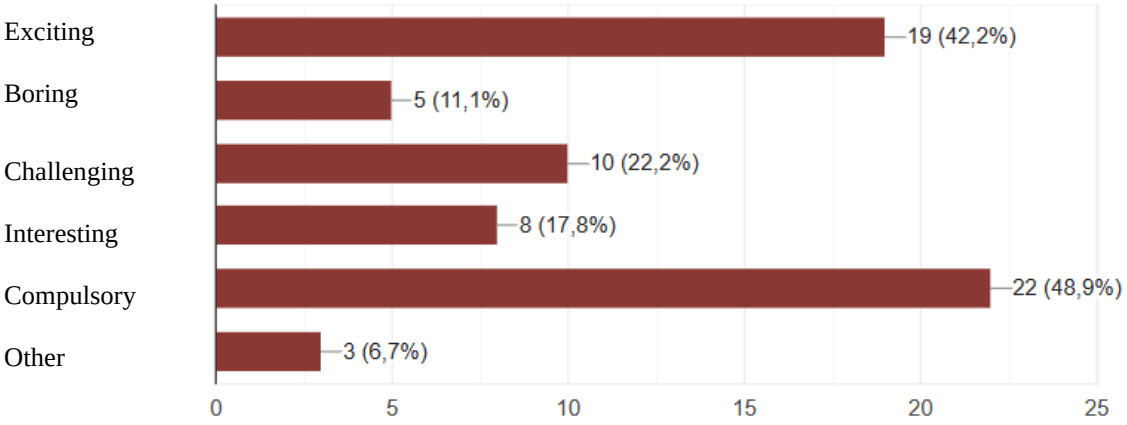

Figure 4: What respondents think about the Team Learning project (N=45) (Source: Own research, 2023)

Most of the respondents, 75.6%, said that they had difficulties but had managed to find the points of contact.

Most respondents, 88.8%, said that the programmes were varied.

Most of the participants in the survey, 64.4%, found the challenge/task easy.

Most of the respondents, 40%, could describe SDGs 12 and 13 and 33.3% could identify them. Goal 12 is Responsible consumption and production and Goal 13 is Action against climate change.

Most of the respondents, 77.8%, learned from the Team learning project that it is everyone's responsibility to live sustainably, 42.2% said it is important to live consciously. See Figure 5 for the other responses.

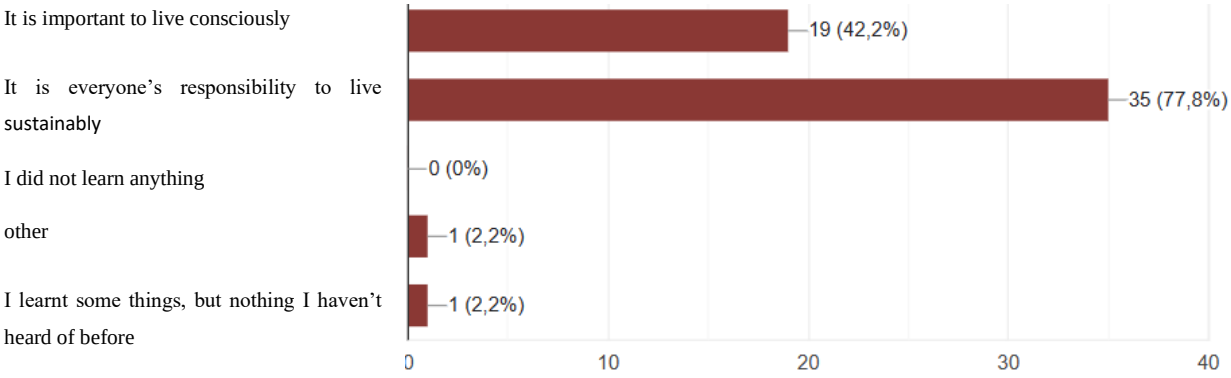

Figure 5: What respondents learnt from the Team learning project (N=45) (Source: Own research, 2023)

On the question of why they value what they have learnt here, most respondents (61%) said that they had learnt a lot, 19% said it was because sustainability was important, 11% said it was because of new trends and 9% said it was not valuable.

When asked how they think the experience gained during the project will help them to be better prepared for the future, most of the respondents, 46.7%, said that they can work better in a team, 44.4% learned to manage their time well, and the other answers are shown in Figure 6.

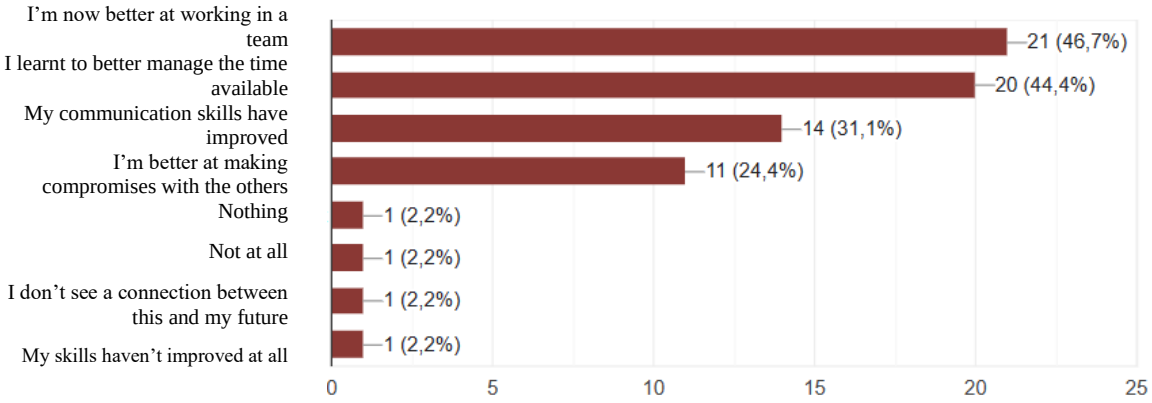

Figure 6: According to respondents, how will the experience gained from the project help them to be better prepared for the future (N=45) (Source: Own research, 2023)

Most of the respondents, 91.1%, used mobile phones, 33.3% used desktop computers and only 22.2% used traditional tools such as pens, paper and notebooks, so the project is a modern method of education.

The majority of the respondents' experience of cooperation within the team was that they worked together (64.4%), 51.1% said they shared ideas and 37.8% supported each other. See Figure 7 for the other results. In summary, the students' intra-team cooperation in the project was good, they could easily cooperate and think together.

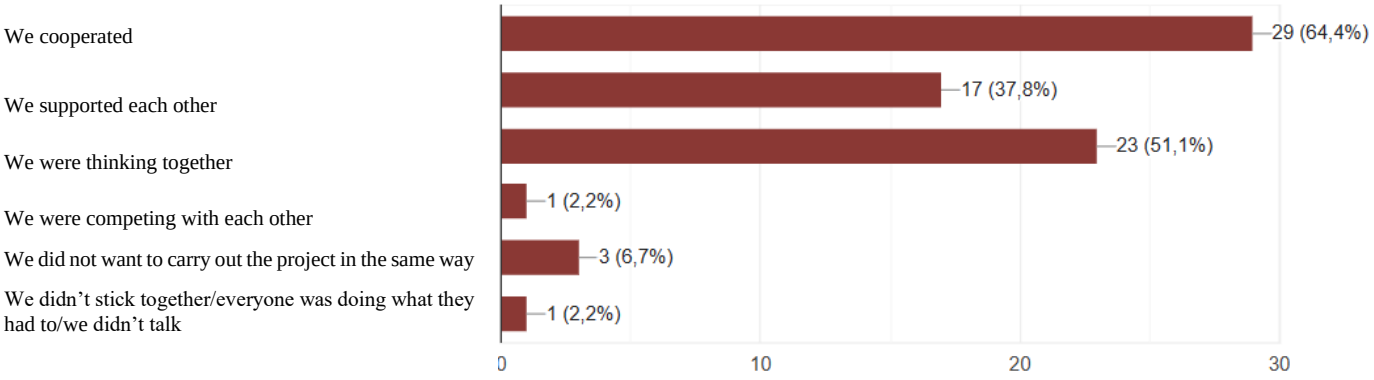

Figure 7: Respondents' experience of cooperation within the team (N=45) (Source: Own research, 2023)

Most of the respondents, 56%, said that their advice for me would be that it is important to be environmentally aware, 14% to work with the group, 10% to do more of these projects, 8% to allow more time to solve them, 6% to be more determined and 6% gave no advice.

Most of the respondents, 71.1%, got the information they needed from the internet, and 44.4%-44.4% from teachers and external collaborators.

Most of the respondents, 65%, shared the information they had learnt with others because they needed help and found the sharing of knowledge useful.

From question 14 to question 24, there were different statements on identification, coordination, perspective taking, peer learning and transformation. In the following section, I will describe the statements that were most frequently ticked, i.e. those that characterise them.

28.9 - 28.9 - 28.9% of the participants in my research explained their expertise in terms of knowledge and skills they could contribute to the project. They also identified their own limitations in terms of the expertise they would need to implement the project, compared their own expertise with that of other members of their project team and identified the knowledge they lacked to successfully implement the project.

Most of the respondents, 40%, identified people important for the implementation of the project, including their interests, perspectives, expertise and contacts.

31.1-31.1% of the respondents had established active and personal contact with relevant people, or had contacted some other people close to the problem and easy to contact (e.g. recommended by teachers). Outside people were contacted more through digital means.

Most of the respondents, 55.6%, sought targeted collaboration with people relevant to the project, i.e. they discovered and/or contributed to the development of a tool for participants to facilitate collaboration for project implementation. Thus, the coordination of project participants was particularly good, and only 2.2% of respondents did not actively and consciously cooperate with others and/or were frustrated by the challenges encountered in the process of cooperation.

Most of the respondents, 38.8%, actively expressed and/or discussed different perspectives relevant to the project and looked for opportunities to combine perspectives (e.g. how different perspectives can contribute to and strengthen the project).

31.8% of the participants in the research reflected on their own processes of learning and development.

42.2% of the respondents reflected with team members on each other's roles, contributions and development during the project, but did not translate the results into improving the performance of others.

When looking at the transformation of my research participants, i.e. their intention to develop a new sustainable practice, we can find that 33, 3% of the questionnaire respondents demonstrated an attitude of wanting to develop a project outcome that represented multiple perspectives.

44.4% of the respondents tried to incorporate innovative elements into traditional solutions.

46.7% of respondents showed how their own and other students' ideas were incorporated into the final product. They showed how other perspectives are integrated and how realistic the final outcome is in practice.

40% of the respondents completed the project and mentioned some possibilities for follow-up.

3.2.3. Summary of Team Learning measurements

The Team Learning project serves to strengthen students' learning and thinking processes in teams. This has been proven by the surveys (Self-assessment questionnaire, Complex questionnaire) as I have presented. As we could see from the results of the Complex Questionnaire, most of the students surveyed (more than 60%) experienced cooperation within the team as working together, more than half of the students surveyed said they were thinking together and more than 30% of them supported each other. In summary, the students who participated in the Team Learning project had a good level of cooperation within the team, and found it easy to work and think together.

3.3. Self-evaluation of Living Lab students and results of the Complex Questionnaire

3.3.1. Self-evaluation of students participating in the Living Lab project

At the end of the project, the students completed an online self-evaluation questionnaire to assess their own work and share their impressions of the project.

A total of 97 people completed my self-evaluation questionnaire.

In the first part of the questionnaire, they read 8 statements and indicated on a scale of 5 how they felt they were described. The 8 statements:

1. I was actively involved in the project

2. I did my best to help the project achieve its goal

3. I actively communicated with my team members throughout the project

4. I worked well with other team members

5. I tried to be creative and come up with new ideas

6. I accepted ideas from other team members and shared my own with them

7. I managed my time effectively, trying not to get distracted

8. I am satisfied with the end result of the project

A summary of the responses is shown in Figure 8:

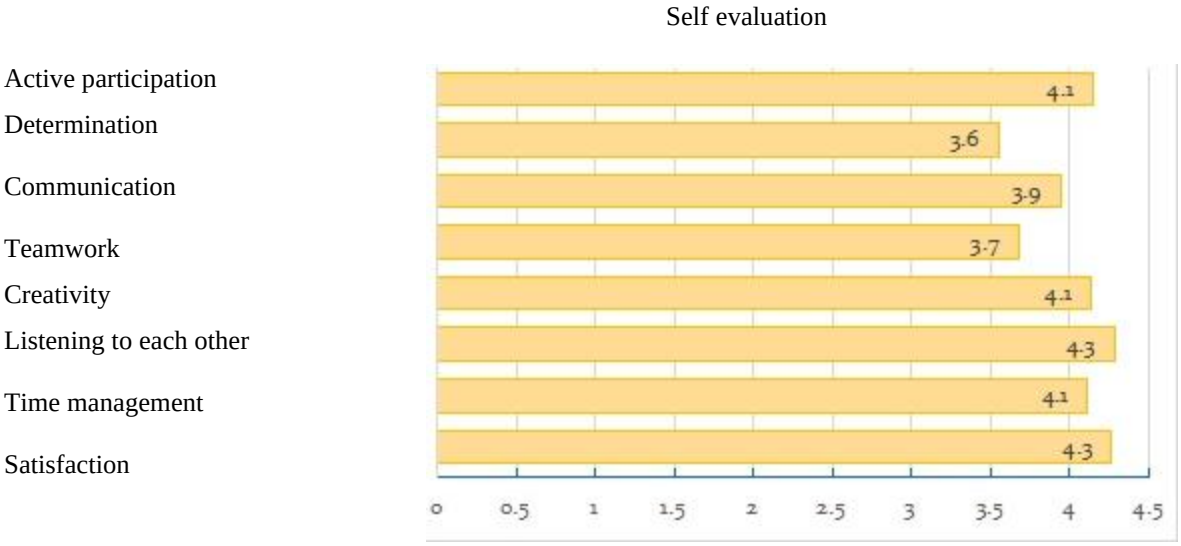

Figure 8: Self-evaluation of project participants (N=97) (Source: Own research, 2023)

The students involved in the project were mostly satisfied with the outcome of the project and seemed to have worked together effectively (although teamwork and communication between them was not always considered a clear success). Given the complexity of the project, with many sub-tasks, many felt that their work could have contributed more significantly to the collective outcome, but feedback indicated that students still had the opportunity to actively participate and express their creativity.

In the second part of the questionnaire, the students were asked elaborative questions about the project and their role in it:

- List 3 things you yourself contributed to the project
- What you liked most about the project

- What you did not like about the project
- What I learnt from the project
- What I learnt from the project that will help me in my future career

Some typical details from the answers:

What I added: *"My ideas, my time, my labour", "Planting, cocktail gathering, taking photos", "Leading the project team", "My creativity, my directness, my people skills", "Making video, doing interview, editing video", "I helped with writing the article, gathering information or interviews", "Drawing, ideas", "I tried to do my best in planting, doing the project", "I helped with weeding, watering and digging", "Making presentation, uploading, atmosphere", "Collecting data, decorating the ppt, looking for pictures", "We wrote the sustainability goals together and I have been working on it at home and helping others plant".*

What you liked/disliked*: "I liked that we could make our own environment more beautiful", "I liked that we didn't have to do it alone", "We were able to work well together both during the garden clean-up and during the ppt", "It was interesting and I had a good team", "I learnt lots of interesting things", "I liked planting herbs and making presentations", "The nursery when I had to work with the children", "It was a good team builder and brought people closer together and there was lots of laughter throughout the days. ", "I liked working as part of a team and learning new things", "It was good to get to know the older people there", "I didn't like that not all the older people were friendly, but I can deal with that", "I thought the number of tasks was too many on the project day and it could have been easier, and there were so many of us working together, it could have been a bit more transparent", "I didn't like the lack of space and the fact that there were so many of us in one place, we could hardly fit", "I would have taken on more planting".*

What I learnt: *"How I can improve the environment for myself and others", "How to sort the rubbish properly", "Planting, working in a team", "There are many types of mint and how many herbs and spices can be used to make cocktails and syrups, and what herbs and spices are good for" "I have increased my knowledge of the effects of herbs and spices", "Being in and working with a community, communicating", "Herbs can be used to make many delicious and tasty cakes and that there are many varieties of herbs", "Better use of Power Point and planting skills", "Sustainable healthy eating", "Gained a more comprehensive understanding of the plants".*

What I can benefit from: *"Sustainable production in the confectionery industry", "I will do my work in an environmentally friendly way", "I know which spices to use for what", "If I were*

to open a pastry shop, I would make sure to waste as little as possible", "It has improved my patience and I have learnt how to create better ppts.", "I learnt about the effects of plants, flavour combinations and unconventional combinations that work well", "I became more tolerant and patient with children, adults and the task at hand", "Developing stamina was very important for my future profession as a waiter", "Accepting the opinions of my teammates", "Learning to accept the opinions of other people in the team", "Learning new cocktails", "How to have a spice garden in my restaurant garden".

The responses show that students generally found it useful to participate in the project and found ways to contribute to the common goals. The feedback suggests that the project contributed to the development of students in several areas: many gained important experience in human relations and communication, others found the work useful from a professional point of view, many felt that their digital competence was enhanced, and we were pleased to see that thinking about sustainability goals and an interest in environmental awareness touched many of the participants.

3.3.2. Evaluation of the results of the Living Lab complex questionnaire

With my complex questionnaire, I wanted information about the Living Lab project.

A total of 91 people completed my complex questionnaire.

Most of the respondents, 57.1%, found the project exciting and only 6.6% found it boring. The other response results are shown in Figure 9.

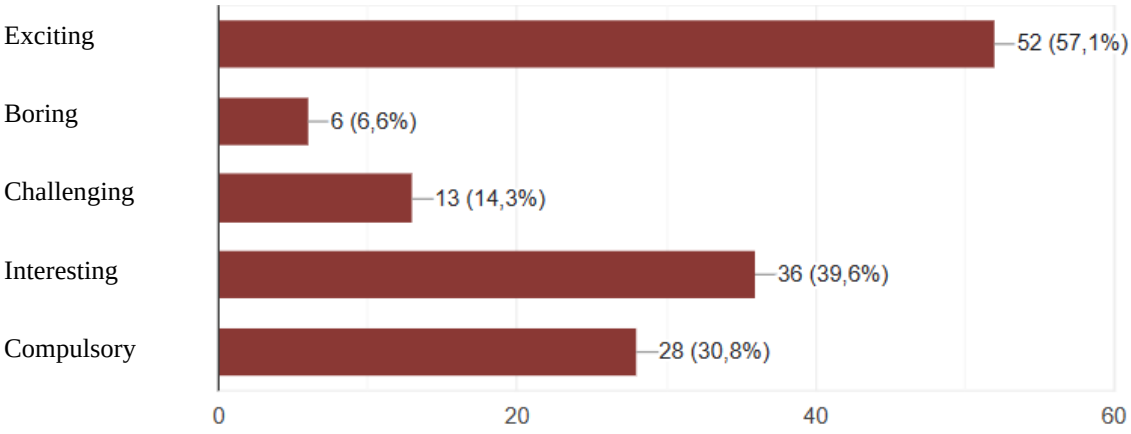

Figure 9: What respondents thought about the Living Lab project (N=91)
(Source: Own research, 2023)

Most of the respondents, 52.7%, said they had difficulties with the information they received in the Living Lab project, but managed to find the links, 42.9% could make the connections immediately and only 4.4% did not see the connections.

Most of the respondents, 41.8%, thought that the activities were varied, 36.3% thought they were mixed and only 3.3% thought they were mediocre. So, according to the project participants, the Living Lab had a varied programme overall, with 18.7% saying it was very varied.

Most of the participants in my research, 49.5%, liked the challenge/task of the project, and 29.7% of them found it interesting, and only 6.6% found it uninteresting, so overall we can say that the students liked the challenge/task of the project.

Most of the respondents, i.e. 50%, could identify SDGs 12 and 13 (12: Responsible consumption and production, 13: Action against climate change). 36.7% could say exactly what they meant and only 17.8% did not know anything about them, so the result was quite good as far as knowledge of the SDGs is concerned.

Most of the respondents in my research, 64.8%, learnt from the project that it is everyone's responsibility to live sustainably. 41.8% said that it was important to live consciously.

In the seventh question, asking why the lessons learnt were valuable for the respondents, most of the respondents, 56%, said they could use them in the future, 25% said they had learnt new knowledge about sustainability, 11% said they were exciting tasks and only 8% said they were not valuable.

When asked how this experience will help them to be better prepared in the workplace, most respondents (70.3%) said that they were better able to work in a team. The other answers are shown in Figure 10. Thus, according to our project participants, the Living Lab best reinforced their teamwork skills, which will be very useful for students in the future in their workplace.

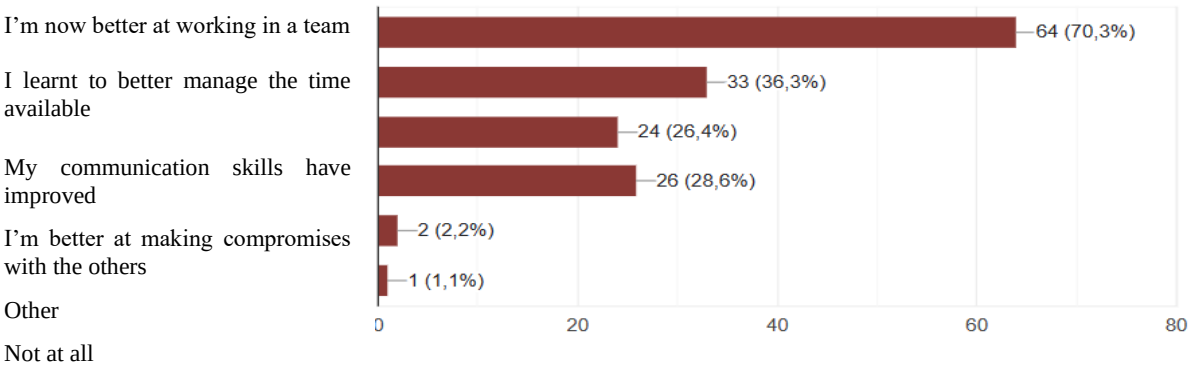

Figure 10: How do respondents think the experience gained in the Living Lab project will help them to be better prepared in the workplace (N=91) (Source: Own research, 2023)

When asked which tools they used to approach the task, most respondents (91.1%) said they used their mobile phone, 41.1% said they used a desktop computer and 30% said they used traditional tools (pen, paper, notebook).

The respondents' experience of cooperation within the team was that they worked together. 73.6% of the respondents answered this, 51.6% said they were thinking together and 40.7% said they supported each other, so teamwork worked very well in the Living Lab project. Based on the answers to the current and previous questions, we can clearly conclude that this project has strengthened teamwork as an employee competence. The students worked well with the other team members.

In response to the eleventh question, "What advice would you give me?", most of the respondents, 72%, said that they would like to do more projects like this in the future. I was very surprised by this result, I had expected worse, but it seems that the students liked this kind of teaching-learning. 21% of the respondents said they wanted more playful tasks, 3% said they wanted more time for the task and only 4% did not give any advice.

Most of the students in my study, 74.7%, got the information they needed from their teacher and 62.2% from the internet. The other answers are shown in Figure 11.

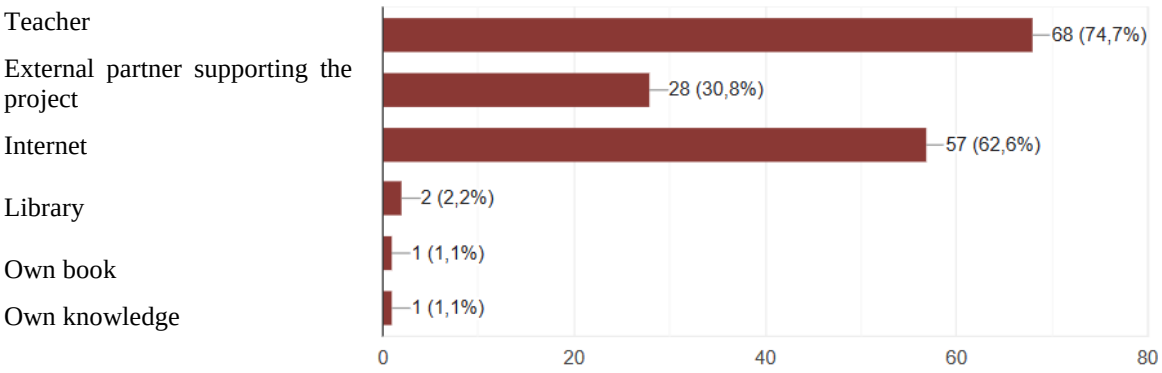

Figure 11: Where did respondents get the information they needed during the project (N=91) (Source: Own research, 2023)

Most of the respondents, 57.1%, did not share the information they learnt with other team members and 45.1% did.

Most of the respondents, 38.5%, explained their expertise in terms of knowledge and skills that they could contribute to the project.

Most of the survey respondents, i.e. 50%, identified the people important for the implementation of the project, including their interests, perspectives, expertise and contacts.

Most of the questionnaire respondents, 37.8%, have established active and personal contacts with relevant people.

The majority of respondents, 57.3%, pursued targeted cooperation with people relevant to the project. Discovered and/or contributed to the development of a tool for participants to facilitate the collaboration necessary to implement the project. Thus, the coordination of project participants was pronouncedly good, and none of the respondents ticked the box that they did not actively and consciously cooperate with others and/or were frustrated by the challenges they faced in cooperating.

Most of the respondents, 37.1%, actively expressed and/or discussed different perspectives relevant to the project and looked for opportunities to combine perspectives (i.e. how different perspectives could contribute to and strengthen the project).

Most of the respondents, 28.9%, showed an explicit willingness to learn from others during the project.

Most of the students in my research, i.e. 35.6% of the people involved, initiated reflective activities aimed at learning from the project (both in terms of process and content). Thus, perspective building and learning from each other was rated as good by the students

interviewed, although 32.2% of the students interviewed reflected with team members on each other's roles, contributions and progress during the project, but did not translate the results into improving the performance of others.

The majority of my respondents, 42.2%, demonstrated an attitude of wanting to develop a project outcome that represented multiple perspectives.

Most of the respondents, 48.9%, tried to incorporate innovative elements into traditional solutions.

Most of the respondents in my research, 37.8%, convincingly demonstrated how they had weighed different perspectives and interests when creating the final product and taken into account its practical and innovative nature.

And finally, most of the respondents, 38.2%, completed the project and then explained how it could be put into practice and the steps to be taken to do so, and only 12.4% showed no interest in follow-up activities

3.3.3. Living Lab project survey summary

A good method of project-based learning is the "living lab", an environment in which research and innovation are co-created, following the principles of co-creation and co-operative design.

This has been proven by the surveys (Self-assessment questionnaire, Complex questionnaire), as I have presented. The respondents' experience of cooperation within the team was that they worked together. More than 70% of the questionnaire respondents answered cooperation, more than 50% said they were thinking together and more than 40% said they supported each other, so teamwork worked very well in the Living lab project. Based on the answers to the current and previous questions, we can clearly conclude that this project has strengthened teamwork as an employee competence. The students worked well with the other team members.

3.4. Self evaluation of students participating in the Innovation Camp project and results of the Complex Questionnaire

3.4.1. Self evaluation of students participating in the Innovation Camp project

At the end of the project, the students completed an online self-evaluation questionnaire to assess their own work and share their impressions of the project.

A total of 41 people completed my self-evaluation questionnaire. Self-evaluation was only carried out in the project departments.

In the first part of the questionnaire, they were asked to read 8 statements and to indicate on a scale of 5 how they felt they were representative of them. The 8 statements:

1. I actively participated in the project

2. I did my best to make the presentations happen.

3. I actively communicated with my team members throughout the project

4. I cooperated well with the other team members

5. I tried to be creative and come up with new ideas

6. I accepted ideas from other team members and shared my own with them

7. I managed my time effectively, trying not to get distracted

8. I am satisfied with the end result of the project

Most of the respondents to the questionnaire, 61%, rated the statement that they were actively involved in the project as 5.

Most of the respondents (56.1%) rated the statement that they did their best to make their presentation a reality as a 5.

Most of the students, 78.1%, rated the statement that they actively communicated with their team members during the project between 4 and 5.

Most of the students, 58.5%, rated 5 for the statement that they worked well with other team members.

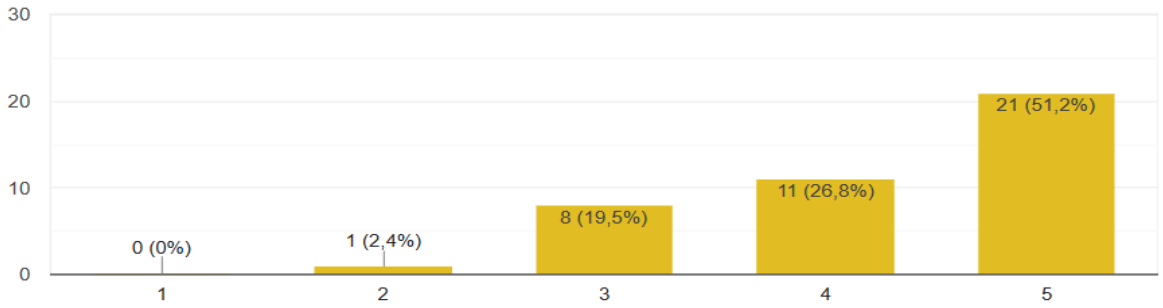

Figure 12: Students' evaluation of their efforts to be creative and generate new ideas (N=41)

(Source: Own research, 2023)

Most of the respondents, 51.5%, gave a rating of 5 (see Figure 12) to the statement that they tried to be creative and come up with new ideas. In my opinion, creativity is the most characteristic feature of the Innovation Camp project, as Innovation Camp is a new teaching method that can be applied in Hungarian vocational education and training and contributes to making students more creative, as it develops their creativity and problem-solving skills (Tóth, 2021).

The majority of respondents, 51.2%, accepted the ideas of other team members and shared their own.

Most of the students in my study rated the statement "I managed my time effectively and tried not to get distracted" as a 4 (39%) and a 5 (36.6%) respectively.

Most of the respondents to my questionnaire, 65.9%, were satisfied with their presentation.

When asked what were the 3 things they added to the project, most respondents (71%) said ideas, followed by task completion (51%) and data collection (31%).

Most of the respondents liked the teamwork (46%), 32% liked the theme, 11% liked the chance to get out of school, 6% liked the activity itself, the clothes selection, and 5% liked the opportunity to combine theoretical knowledge with practical experience.

Most of the participants in my research, 42%, did not dislike anything, 28% said it was time-consuming, 11% said the fact that they had to clean, 11% said the task itself was difficult, 8% said it was difficult to work with others.

When asked what they had learned from the project, most respondents, 41% of the respondents, said that it was good to work together in a team, 25% said patience, 17% said confidence, 12% said volunteering was good, 5% said how difficult it is to be a leader.

To my last question on how the project contributed to the success of their future profession, most of them, 41% of the respondents, said that they learned to work together in a team, 21% that they learned confidence, 19% that they learned to improve communication, 19% that they should definitely donate.

3.4.2. Analysis of the results of the Innovation Camp complex questionnaire - project information

My complex questionnaire was intended to gather information about the projects.

My complex questionnaire was completed by 41 people (9.B, 9.C)

Most of the respondents, 43.9%, found the Innovation camp project exciting. The rest of the responses are shown in Figure 13.

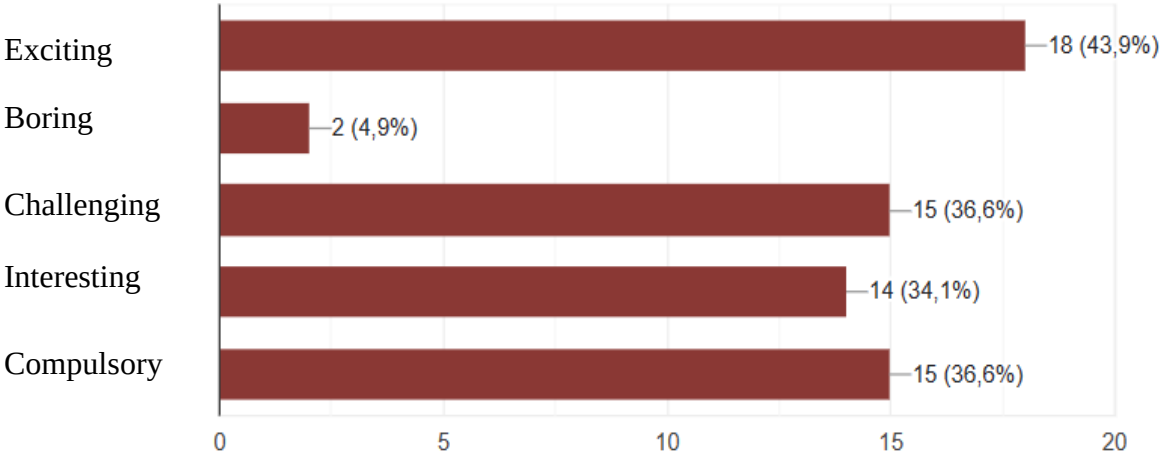

Figure 13: What respondents thought of the Innovation Camp project (N=41) (Source: Own research, 2023)

Most of the respondents, 56.1%, had difficulties but managed to find the points of contact.

Most of the participants in my research, 41.5%, thought the sessions were varied, 31.7% thought they were mixed.

43.9% of the students surveyed liked the challenge/task of the project, 31.7% found it interesting, and only 9.8% found it distant and the same number found it monotonous.

The majority of respondents, 43.9%, could identify SDGs 12 and 13. Goal 12 is Responsible Consumption and Production and Goal 13 is Action against Climate Change. The other responses are shown in Figure 14.

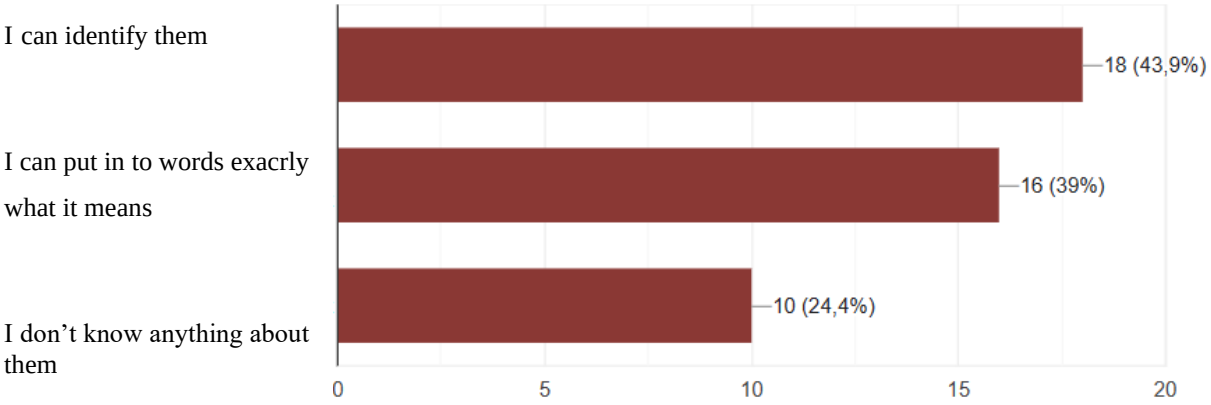

Figure 14: Respondents to the questionnaire rated Sustainable Development Goals 12 and 13 (N=41) (Source: Own research, 2023)

Asked what students learned from the project, most students, 58.5-58.5% of respondents, said that it is important to live consciously and that it is everyone's responsibility to live sustainably.

In response to the seventh question on why the things they have learnt are valuable, most respondents, 52%, said that they could use them in their lives, 18% said that awareness was important, 15% said that they had learnt more from others and 15% said that they had improved.

Asked how this experience will help them to be better prepared in the workplace, most respondents (70.7%) said that they are better able to work in a team. See Figure 15 for the other answers. In conclusion, the project has helped students to become better team workers in the workplace, to improve their communication skills and to learn to manage their time well.

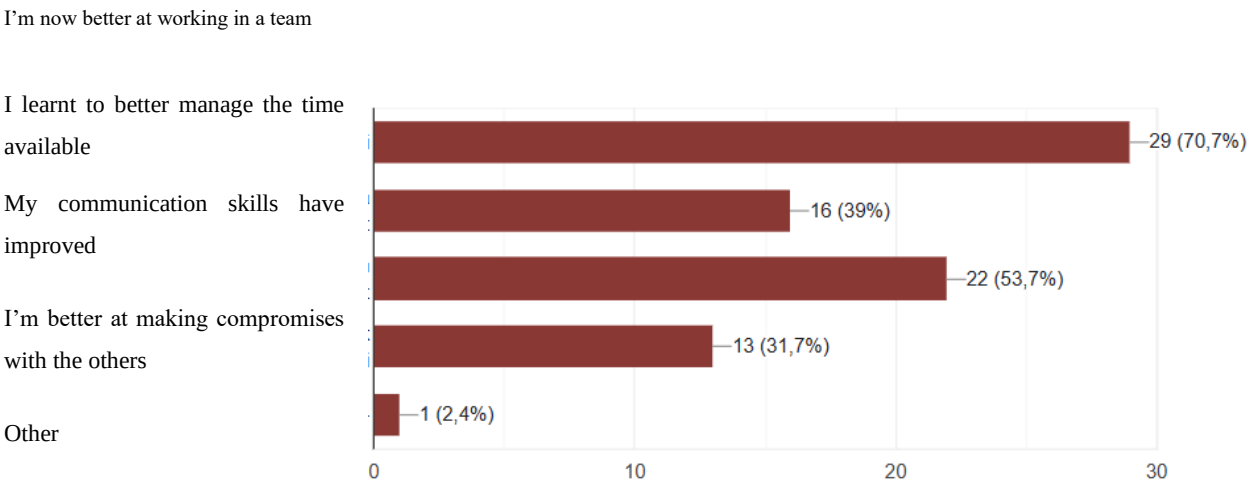

Figure 15: How do respondents think the project has helped them to be better prepared at work (N=41) (Source: Own research, 2023)

Most of the students surveyed, 95.1%, used their mobile phones to approach the task. I was surprised to see that 43.9% of them also ticked traditional tools (pen, paper, notebook).

When asked question 10 about their experience with cooperation within the team, most of them, i.e. 80% of the respondents, answered that they cooperated. 55% supported each other and 47.5% thought together.

In response to question 11 on their advice to me, most of them, i.e. 48% of the respondents, answered that everything was perfect (!). 21 % said that time management was very important, 15 % that there should be more of these projects and 16 % that they had no advice.

Asked where they got the information they needed during the project, most respondents, 78%, said the internet and 63.4% said the teacher. I was a bit surprised that the teacher was not the

first choice, but it seems that in the 21st century, much more information can be found on the internet and in a very short time.

63.3% of respondents shared the information they had learned with other team members.

From question 14 to question 24, there were different statements about identification, coordination, perspective taking, learning from each other and transformation. In the following section, I will describe the statements that were most frequently ticked, i.e. the statements that describe them.

Most of the respondents, 46.3%, identified their own limitations in terms of the expertise needed to implement the project.

The majority of respondents, 51.2%, identified the people who are important for the implementation of the project, including their interests, perspectives, expertise and contacts.

Most of the participants in my research, i.e. 43.6%, have established active and personal contacts with relevant people.

Most of the respondents, i.e. 48.8%, sought targeted collaboration with people relevant to the project, i.e. they discovered and/or contributed to the development of a tool for participants to collaborate more easily in the implementation of the project. Thus, the coordination of project participants was pronouncedly good, and only 4.9% of respondents did not actively and consciously cooperate with others and/or were frustrated by the challenges encountered in the process of cooperation.

Most of the respondents, 53.7%, actively expressed and/or discussed different perspectives relevant to the project and sought ways to combine perspectives (e.g. how different perspectives could contribute to and strengthen the project).

Most of the research participants, i.e. 48.8%, explicitly showed a willingness to learn from others during the project.

Most of the respondents, i.e. 48.8% of the people involved, initiated reflective activities aimed at learning from the project (both in terms of process and content).

If we look at the transformation of the participants in my research, i.e. the intention to develop a new sustainable practice, we can find that 46, 3% of the questionnaire respondents showed an attitude of wanting to develop a project outcome with multiple perspectives.

36.6% of the respondents showed a non-conventional mindset and considered multiple perspectives by weighing up the pros and cons of different possible solutions, so that most of the respondents could easily generate new practice designs during the project process, and only 9.8% of the respondents showed no interest in non-conventional thinking.

Most of the respondents, 43.3%, convincingly demonstrated how they had weighed up different perspectives and interests when creating the final outcome and taken into account its practical and innovative nature.

46.3% of respondents had completed the project and then explained how it could be put into practice and what steps needed to be taken, and only 9.8% showed no interest in follow-up activities.

3.4.3. Summary of Innovation Camp project surveys

The Innovation Camp project can be applied in Hungarian vocational education and training, and it contributes to making students more creative, because this method develops their creativity and problem-solving skills.

This has been proved by the surveys (Self-assessment questionnaire, Complex questionnaire) presented in my study. As I have shown, most of the respondents to the Self-Assessment Questionnaire, i.e. more than half of them, rated their efforts to be creative and to generate new ideas as 5. It can be concluded that creativity is the most characteristic feature of the Innovation Camp project, as Innovation Camp is a new teaching method that can be applied in Hungarian vocational education and training and contributes to making students more creative, as it develops their creativity and problem-solving skills.

4. Summary and conclusions

It can be clearly stated that the main aim of the Gamification project is to illustrate and combine the potential and importance of using gamification through project-based learning with an innovative learner-centred approach.

As we have seen, the Team Learning project aims to strengthen the learning and thinking processes of students in teams.

I have also shown that a good method of project learning is the "living lab", an environment in which research and innovation are co-created, following the principles of co-creation and co-operative design.

My questionnaire-based research also confirmed that the Innovation Camp project can be applied in Hungarian vocational education and training and contributes to making students more creative, as it develops their creativity and problem-solving skills.

In my study, I have presented how students evaluated the projects and their own work, what their impressions of the projects were during the adaptation of ERASDG projects in Hungary.

It can be concluded that project-based vocational education and training is the future of vocational education and training, because it develops the competences of students in an effective and multifaceted way.

Thanks to the ERASDG project, there is a good chance that the four innovative themes developed (Innovation camp, Living lab, Gamification, Team learning), the good practices and the forward-looking solutions, if spread to other schools in Europe, could improve the quality of vocational education and training in the green sector.

In conclusion, the adaptation of the ERASDG projects in Hungary has improved students' communication competences the most, and their digital competences have also benefited from the programmes. Thinking about sustainability goals and interest in environmentally conscious lifestyles also touched many of the participants. In particular, the Living lab and Gamification projects reinforced teamwork as an employee competence. Students worked well with other team members. However, in particular in the Innovation Campand Team learning projects, the students' creativity competences (see 6. Competences for creative work, self-expression and cultural awareness (Katona, 2020)) were the most developed.

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