STEAM BOSS

boosting soft skills

2023-1-IT01-KA220-VET-000163992

Soft skills evaluation report

Hackathon

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1. INTRODUCTION

The *'Soft Skills Assessment Report'* provides an overview of the transversal skills identified by the observers in the students who took part in the STEAM4SustainabilityHack.

The activity is implemented within the European project *STEAM Boosting Soft Skills* (approved by the Italian National Agency INAPP, 2023-1-IT01-KA220-VET-000163992), which adopts the STEAM approach—an interdisciplinary educational methodology integrating Science, Technology, Engineering, Arts, and Mathematics to foster the development of transversal competences. In the context of a rapidly evolving labour market, these competences are increasingly recognised as essential for employability, as they support adaptability, collaboration, and problem-solving in complex and dynamic environments. In cooperation with local companies, the project pursues three main objectives: enhancing VET learners' transversal competences, developing STEAM-based pilot activities aligned with labour market needs, and strengthening the alignment of VET trainers' competences with European standards.

A hackathon is a time-bound, team-based event in which participants collaborate to design and develop solutions to predefined real-world challenges. As an active learning methodology, it promotes "learning by doing" in a collaborative and problem-oriented environment.
The hackathon format provides an authentic, challenge based learning experience centred on real world problems, often related to sustainability or innovation, and supports the integrated development of both technical and transversal competences, including creativity, communication, teamwork, and critical thinking. In this sense, it represents an effective experiential learning tool within STEAM education, as it enables participants to apply interdisciplinary knowledge in a practical context.

Within the STEAM Bo.SS project, the inclusion of a hackathon with evaluation purposes was a deliberate choice. As an intensive and highly collaborative event, the hackathon supports and tests the development of both technical and transversal competences.
Unlike traditional evaluation methods, often focused on individual performance and theoretical knowledge, the hackathon creates an authentic environment in which participants are required to act, interact, and make decisions in real time.
This type of experience makes it possible to observe participants while they are working, rather than focusing solely on the final outcome. In a dynamic setting, characterised by time constraints and complex challenges, spontaneous behaviours and individual approaches to teamwork become visible. As a result, the hackathon enables the identification, analysis, and evaluation of key soft skills, including:

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- collaboration and teamwork, through the way participants interact, share ideas, and support each other
- communication skills, visible in interactions, clarity of expression, and the ability to negotiate meanings and strategies
- creativity and innovation, emerging in how challenges are approached and original solutions are proposed
- critical thinking and problem-solving, observable in decisions taken under pressure and in the ability to rapidly analyse situations
- time management and adaptability, reflected in responding to constraints, reorganising priorities, and remaining effective in uncertain conditions

By embedding evaluation within an authentic and challenging activity, the project aims to assess the effectiveness of the STEAM approach in fostering transversal competences, particularly soft skills.

This report focuses in particular on a comparative analysis of the soft skills observed in two groups of students:

- one group composed of learners who had previously participated, in phases preceding the hackathon, in STEAM-based pilot activities developed within the project (WP3), consisting of structured training experiences aimed at developing transversal competences, named "**TEAM group**".
- the other group composed of learners who had not previously taken part in STEAM initiatives, defined as the "**control group**".

The main objective is to ascertain whether, and if so how, participation in STEAM-based activities during the earlier stages of the project might lead to differences in the level of key soft skills observed in the two groups of students during the hackathon, based on systematic observations carried out by observers over two consecutive days of activities. Note that participants were not informed of this distinction, and therefore engaged in the activities without awareness of their group classification. This ensured that all participants approached the tasks without bias or preconceived expectations related to their prior experience, allowing for a more reliable observation of behaviours and performance.

The report also documents:

- which soft skills were evaluated;
- who the observers were and from which fields they came;
- which instruments were used to collect data;

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- how the data were aggregated and interpreted.

The findings are intended to inform project partners and stakeholders interested in replicating or refining the hackathon model in similar educational contexts.

Before outlining the analytical framework adopted in this report, it is important to clarify what this assessment is and what it is not. This report does not aim to evaluate individual students' performance, nor does it rely on standardized or psychometric instruments to measure soft skills. Instead, it adopts an observational approach situated within an authentic learning environment. Through a combination of qualitative notes and descriptive quantitative ratings, the assessment focuses on the manifestation of transversal competences during collaborative processes and decision-making under real-world constraints.

2. THE SOFT SKILLS ASSESSED

Five soft skills domains were evaluated: teamwork, creativity, problem solving, effective communication and time management.

These soft skills were selected by all the project partners prior to the hackathon from a list that compiled all the skills developed in the pilot projects carried out during the earlier stages of STEAM Boss. Each pilot project, in fact, was designed with the aim of stimulating the development of specific soft skills, identified by the company involved. Starting from this shared set of skills, those most thoroughly explored in the various pilot projects were then selected for the hackathon, on the assumption that these were the soft skills on which all the 'STEAM groups' had had the opportunity to practise significantly.

For each of the identified soft skills, a set of observable indicators was therefore defined. To ensure consistency in their observations, in the weeks leading up to the hackathon the observers took part in regular coordination meetings, during which they shared and agreed on indicators and behaviours that were as clear and consistent as possible for observation across the different groups. This preliminary work enabled them to develop structured assessment grids, which were subsequently used during the hackathon to systematically record notes and qualitative observations in relation to the defined indicators.

To begin with, **teamwork** included existence of a leader or coordinating figure; clarity of roles (e.g. technical expert, spokesperson, organiser); absence of negative roles (dominators, disengaged, disruptive behaviours); ability to manage conflicts constructively; and inclusion of all members in the activities.

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Creativity encompassed use of unusual perspectives and willingness to challenge assumptions; curiosity and exploratory behaviour; consideration of the problem from multiple perspectives; use of creative communication strategies (visual, narrative, or otherwise).

Problem solving incorporated analysis and prioritisation of tasks; taking decisions collaboratively; identification of a clear problem to be solved; assessment of the feasibility of proposed solutions; appropriate use of reliable resources.

Effective communication consisted of clear expression of needs and ideas within the group; turn-taking and avoidance of speaking over each other; clarity and fluency when presenting the group's solution; and evidence of active listening to peers' contributions.

Finally, **time management** featured punctuality and timely start of activities; planning of tasks and phases; even distribution of workload; ability to cope with urgencies and reschedule activities; respect of internal deadlines; presentation of the final product on time.

3. THE ROLE OF SOFT SKILLS OBSERVERS

Soft skills were assessed by observers who had taken part in the preparatory stages of the hackathon, helping to identify the skills to be analysed and the relevant observable indicators. The observers came from the project's partner institutions and had a background in education and relevant disciplines, such as science, technology, sustainability and pedagogy. They also had a sound understanding of the hackathon format and the framework for soft skills adopted in the project.

During the hackathon, their role did not involve providing content-related support to the teams, but was purely observational. In particular, they were responsible for monitoring group dynamics and collaborative processes. Two observers were involved for each country, who systematically alternated their observations between the "STEAM group" and the "control group" at regular intervals. This approach enabled the collection of authentic data on participants' behaviours in real collaborative contexts, without interfering with the conduct of the activities.

4. THE TOOLS USED

Observers monitored the teams during the two consecutive days of the STEAM4SustainabilityHack. Evaluations were based on behaviours exhibited across the full duration of the event, including both working time and presentation time.

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In order to systematically record the observations gathered in the various groups over the two days of activities, a spreadsheet was prepared for the observers to use whenever relevant points emerged during their observations. The tool, created in Excel format, was divided into five separate sheets, one for each cross-cutting skill under consideration (teamwork, creativity, problem-solving, effective communication and time management), each accompanied by the relevant indicators (*Appendix 1*: "*Soft-Skill Observers evaluation grid_regular monitoring*" – page 26).

Each sheet also included some practical suggestions ('elements to look for') designed to guide the observers in analysing individual aspects and to promote greater consistency in the findings. To ensure consistent use of the tool, the observers were provided with shared guidelines, including:

- for each indicator, the completion of multiple rows to record observations made at different times; for each observed behaviour, a rating was required on a scale of 1 (low level of the soft skill observed) to 6 (soft skill strongly evident); the decision to use a rating scale of 1 to 6 is motivated by a desire to avoid a neutral position, thereby encouraging respondents to express a more definite opinion.
- in the "Time" column, the indication of the day (D1 for the first day, D2 for the second) and the actual time of the observation (e.g. 10:15, 10:30);
- in the "Group" column, use the abbreviation "STEAM" for participants who had taken part in STEAM Bo.SS activities prior to the hackathon and "CP" for the control group.

Three mandatory assessment points were also defined for each aspect of the soft skills: on the first day at 13:00 (end of the morning session), on the first day at 17:00 (end of the first day's activities) and on the second day at 13:00, at the end of the work and before the final presentations.

At the end of the two days of activities, observers were asked to assign a single overall score to each observed group, based on the evidence collected in the Excel observation sheet. To allow each observer to provide their assessment in a standardized way, a Google Forms questionnaire was used (*Appendix 2*: "*Observers_Soft skills evaluation grids*" – page 37). The questionnaire included an initial question identifying the group being evaluated, as each observer alternated between observing the STEAM intervention group and the control group within their country. This was followed by the complete assessment grid for transversal skills, consisting of closed-ended numerical questions for each indicator and open-ended fields for qualitative comments and illustrative examples.

The collected responses were subsequently exported and consolidated into a single dataset for analysis purposes.

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5. EVALUATION OF THE RESULTS

Based on the results, across all five domains, the STEAM groups are rated more highly than the control groups.

The analysis of the **teamwork** results reveals clear and consistent differences between the STEAM groups and the control groups, both quantitatively and, more importantly, qualitatively.
Numerically, the graph (*Figure 1*) shows that the STEAM groups achieve control group status in all indicators considered, although in some cases (e.g., in the "*there is a leader*" indicator) the differences are minimal. The gap is particularly evident in role clarity, conflict management, and the ability to engage all members. Overall, the higher and more homogeneous scores of the STEAM groups indicate a more solid and stable teamwork functioning.

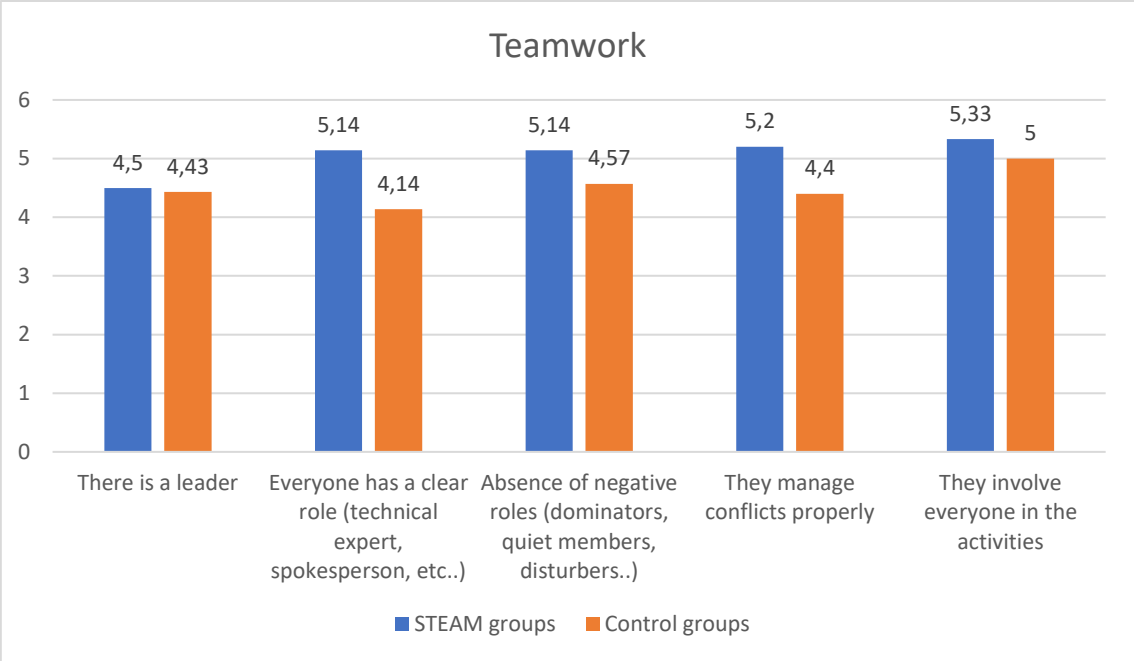

Figure 1 – "Teamwork" evaluations

These data are confirmed by qualitative comments from observers. In STEAM groups, teamwork is described as cohesive, collaborative, and inclusive. Leadership, when present, often appears emergent and informal: in Italy, for example, there is a "quiet" leader, recognized by the group without the need for an official appointment; in Estonia and Spain, shared coordination methods are evident, which in some cases evolve over time to the point of some members spontaneously assuming leadership roles. This type

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of leadership appears to foster a positive climate, a balanced distribution of tasks, and the absence of negative roles or destructive conflicts.

Another recurring element in STEAM groups is the clarity and stability of roles. Even when not rigidly defined, roles are functional to the group's work and are respected throughout the activity. In Portugal, in particular, teamwork is cited as the area in which the STEAM group excelled most, thanks to a clear distribution of tasks from the outset and maintained throughout the activity.

In control groups, however, the picture is more heterogeneous. In several cases, formal leadership is present from the outset, but this does not always translate into effective coordination. Comments from Italy describe difficulties in managing dominant or conflicting members and participation that is not fully balanced, at least in the initial stages. Even when roles are assigned, problems in reaching compromises and shared decisions often emerge, a sign of less fluid collaboration. In other contexts, such as Estonia and Spain, control groups exhibit more positive dynamics, but are still characterized by less clear roles or moments of confusion, for example, related to communication or coordination.

A distinctive feature is member involvement: in STEAM groups, observers repeatedly emphasize the attention paid to including everyone, even the most silent participants, while in control groups, participation is more uneven, with some members less active or marginalized, especially in the initial stages of the work.

In conclusion, the comparison between STEAM groups and control groups shows that the STEAM process appears to significantly impact the quality of teamwork. It's not just about "working together," but about developing more mature collaboration methods: flexible leadership, clear but adaptable roles, constructive conflict management, and widespread involvement. The control groups still demonstrated collaborative skills, but they were more fragile and dependent on individual dynamics. Overall, the results indicate that the STEAM experience fosters more effective, balanced, and goal-oriented teamwork.

TEAMWORK - Comment with specific examples and observations: ** this section quotes personal comments*
Italy – STEAM group • *The team worked in a unified and cohesive manner, each member fulfilling their own role. All members collaborated and supported those who needed it most. One member took the reins in a "quiet" manner, not being officially appointed but recognised as such by the other members. No conflicts or "negative" roles emerged.*

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• *Everyone has a clear role. There is not an effective leader who guide the decision of the group but they have a "creative" one*
Italy – Control group • *The group had several difficulties in coming together. Although an official leader was appointed, he sometimes struggled to manage other members of the group who were sometimes argumentative and domineering. Not all participants were equally involved during the two days, although, from late afternoon on the first day, they were able to reach an agreement and collaborate more smoothly.* • *The group immediately designated a leader. Each member had specific tasks to follow; however, they often struggled to reach compromises on shared decisions.*
Estonia – STEAM group • *Throughout the two-day Hackaton, no specific leader emerged. It was rather a coordinated effort. Although everyone was involved, there were no clear roles noticeable. The working environment was postive and warm, there were no negative roles. Personally, no conclifcts were seen, there was argumentation, and that was done in a respectful manner. There were times were not all students were involved, but that was rather brief.* • *The team worked respectfully and collaboratively with clear roles and full participation, even though no leader emerged and discussions remained generally quiet.*
Estonia – Control group • *The students collaborated actively and respectfully, showing clear leadership and balanced participation, though group roles were not yet fully defined.* • *The leader seemed to vary most of the time, but there definitely was one. Also, students worked on specific tasks in groups, for example there was the IT support. There did not seem to be any negative roles, everyone contributed and was involved and no conflicts were seen.*
Spain – Control group • *No leader was needed since they took different roles in an intuitive way* • *There isn't a leader; they make decisions collectively. There has been some confusion because of the language barrier with English.*
Spain – STEAM group • *At the beginning, some of them were negative and not properly motivated* • *At first, there wasn't a clear leader, and they made decisions collectively. This caused some confusion, especially because of the difficulty communicating in English. Eventually, two people took on leadership roles: one because she took the initiative to organize the group, and the other because she will be giving the presentation.*
Portugal – Control group

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• *I didn't gave them 6 points on the leader question because at the start of the activity there was a member of the group that decided he should be the leader. It was really interesting to observe them discover that the person they chose wasn't the person they always search for when needing help or guidance. I believe this is an excellent example on how this type of projects allows them to grow into themselves, discovering and exploring their own capacities.*
Portugal – STEAM group • *I think teamwork was the area where the group excelled the most: tasks and roles were distributed from the outset without any difficulty, and these were fulfilled throughout the entire process.*

The analysis of the **creativity** results (*Figure 2*) reveals an overall positive picture for both groups, but with a prevalence of STEAM groups over control groups, both in quantitative data and qualitative observations. Numerically, the graph shows that STEAM groups achieve higher average scores across all indicators analyzed. The differences are most evident in three key dimensions: curiosity, the ability to consider the problem from different perspectives, and the use of creative communication. In these areas, STEAM groups outperform control groups, indicating a greater propensity for exploration, experimentation with alternatives, and the use of less conventional expressive language. Even on the indicator relating to the ability to challenge assumptions and adopt unusual perspectives, the STEAM groups' advantage is less marked but still present.

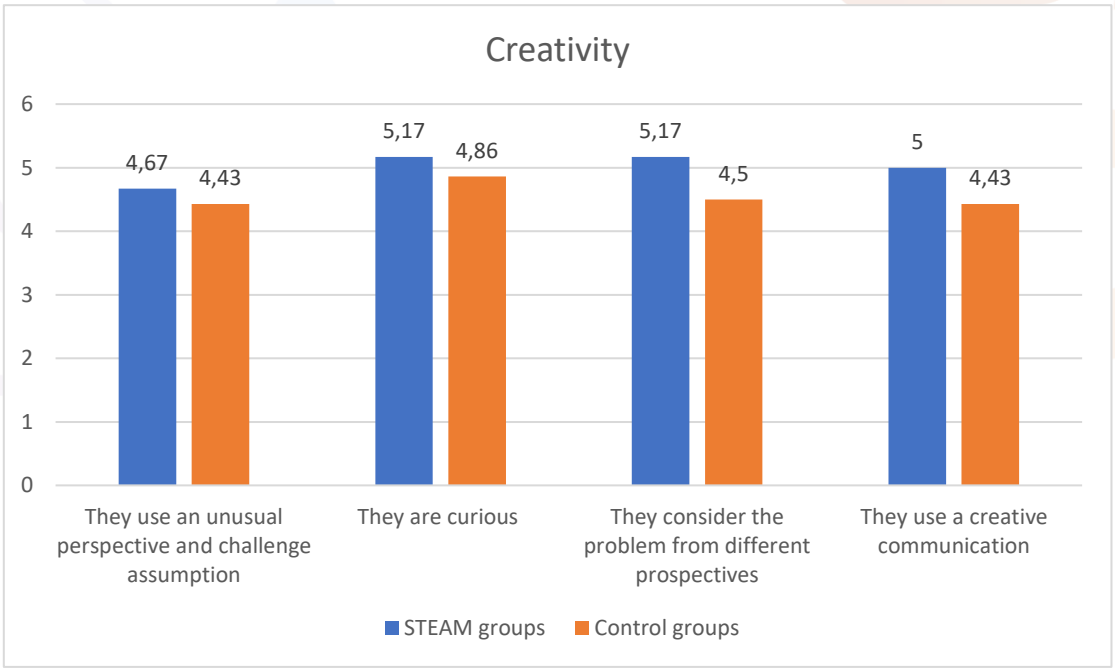

Figure 2 – "Creativity" evaluations

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Qualitative observations help better understand the nature of this gap. In STEAM groups, creativity appears to be an active and structured process, not limited to the final idea but present throughout the entire work process. In Italy, for example, observers emphasize the ability of STEAM groups to explore the problem from multiple perspectives, integrate artistic and technical skills, and pay close attention to visual communication, seeking original solutions through market research and existing proposals. In Portugal, the ability to transform a creative idea into a concrete and feasible project is particularly valued, a characteristic that suggests creativity not only in the conceptual realm but also in its application.

In Estonia and Spain, STEAM groups also demonstrate curiosity, the use of visual elements, and experimentation with original formats, as in the case of video game development. Despite some critical observations, for example, a more intense initial creativity that tends to wane in the final stages, or presentations that are good but not always original, the overall picture paints a picture of groups capable of going beyond standard solutions and reworking ideas in a personal way.

Control groups, on the other hand, exhibit more inconsistent and often less incisive creativity. In several cases, such as in Italy and Spain, observers noted correct but highly conventional solutions, accurate but unoriginal presentations, and a heavy reliance on official sources or standard methodologies. When the ability to consider the problem from multiple perspectives emerges, this sometimes translates into operational difficulties: the exploration of numerous ideas does not always lead to a concrete creative synthesis, slowing the transition to action. In other contexts, such as Estonia and Portugal, control groups exhibit elements of curiosity and originality, but are less systematic in exploring alternatives and developing innovative expressive languages.

Overall, the comparison suggests that the main difference between STEAM and control groups lies not only in the "level" of creativity, but in the way it is implemented. In STEAM groups, creativity appears more integrated into the work process: it is exploratory, oriented towards the comparison of points of view, and often accompanied by greater attention to the communicative form and the concrete implementation of ideas. In the control groups, however, creativity is more episodic, less structured, and more easily confined within pre-existing patterns.

In conclusion, the results indicate that STEAM experience and preparation appear to foster more conscious, intentional, and applied creativity, capable not only of generating ideas but also of reworking them into original and communicatively effective solutions. This difference represents a distinguishing feature between the two groups and confirms the role of the STEAM curriculum in fostering more mature forms of creative thinking that are more applicable in complex contexts.

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CREATIVITY - Comment with specific examples and observations: ** this section quotes personal comments*
Italy – STEAM group • *They explored various aspects of the problem without losing sight of their more artistic skills. They looked for potential competitors on the market, trying to come up with variations on the theme that did not already exist. They paid a lot of attention to the visual communication aspect of their service.* • *it's measurable an higher creativity as well as technical competence compared to the CP*
Italy – Control group • *They examined the problem from different perspectives (prevention, awareness raising, etc.) and considered different target groups for their service. However, this led to discussions that made it difficult for them to start working on their ideas in concrete terms. They used appropriate but very standard methodologies for their presentation* • *They were probably not very interested in the topic; they referred exclusively to official sources, making little use of personal experiences and original content*
Estonia – STEAM group • *Solution was rather creative, the tackled different viewpoints, more at the beginning, less at the end!* • *The students showed curiosity and creativity, exploring alternatives, sharing visual ideas, and discussing different viewpoints, though they settled on one idea quickly.*
Estonia – Control group • *The students showed curiosity and creativity through original ideas, visuals, and storytelling, though they discussed few alternative perspectives.* • *They had clear ideas straightaway, so they didn't explore many different viewpoints at the beginning. However, they showed curiosity throughout the process and communicated creatively.*
Spain – Control group • *The presentation was accurate but lacked creativity and originality* • *They looked at the problem from several perspectives.*
Spain – STEAM group • *The presentation was good but lacked originality* • *They made a very creative video game.They identify which tasks are urgent and which can wait, adjusting the plan as the project progresses*
Portugal – Control group • *It was really interesting to see the differences occurred between the first idea for the project and the last one. It showed how much their creativity allows them to explore different paths.*
Portugal – STEAM group

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- *The group's idea was quite original, and I think the fact that they are one of the only groups thet actually implemented their ideia and project in a real way should be valued. We gave the group the strength to take this idea forward and put it into practice in the contexts the deemed appropriate.*

The analysis of the **problem-solving** results (*Figure 3*) reveals a picture in which both groups demonstrate overall good skills, but with greater solidity and systematicity in the STEAM groups compared to the control groups. The differences are not always very marked in the average values, but become more evident when observing how the problem-solving process is approached.

Quantitatively, the graph shows that the STEAM groups achieve higher scores in most indicators: particularly in shared decision-making, analysis of priorities, and definition of the problem to be solved. The advantage appears more limited in assessing the feasibility of solutions, while in the use of reliable resources, the two groups are very similar, with the control groups in some cases achieving similar or slightly higher levels. This suggests that the difference lies not so much in access to sources, but in the ability to structure and elaborate the decision-making process.

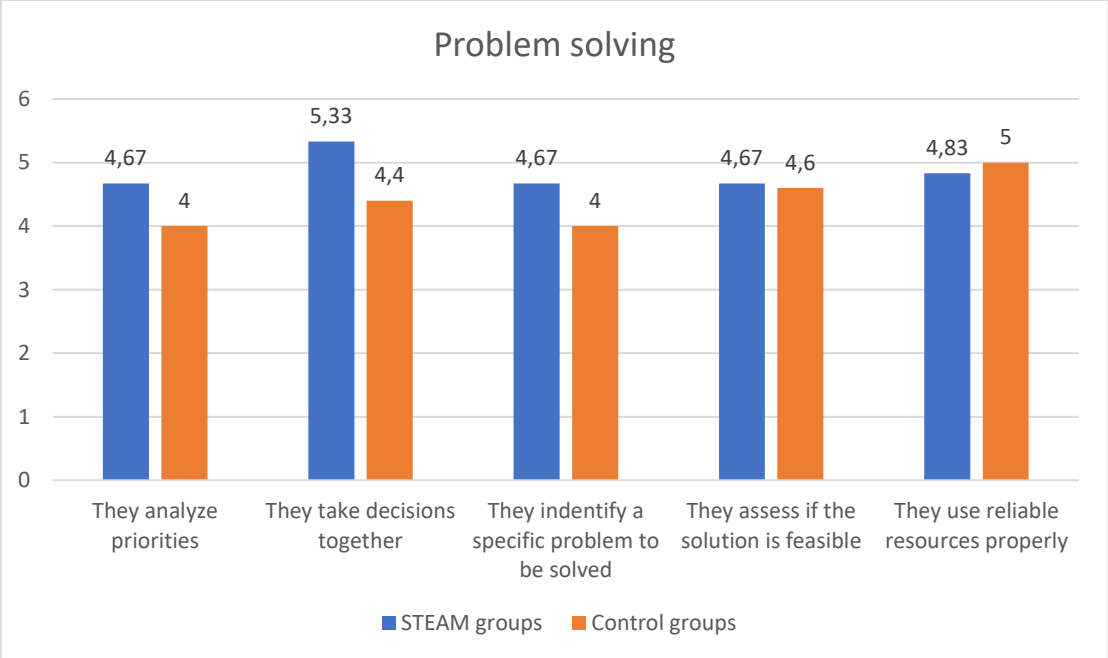

Figure 3 – "Problem solving" evaluations

Qualitative observations further clarify this dynamic. In STEAM groups, problem solving is described as a more organized and conscious process. In Italy, for example, observers emphasize the ability to plan work by distinguishing between priority and secondary activities, to share decisions within the group, and to reflect critically on the resources to be used, including through consultation with mentors. In Estonia, problem solving in STEAM groups is explicitly described as particularly effective, thanks to a clear

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identification of priorities, a critical analysis of proposed solutions, and an explicit assessment of their feasibility.

Another recurring feature in STEAM groups is the fluidity in managing unexpected events. In Spain and Portugal, although some initial problems arise, these are quickly resolved without compromising the group's overall work. This indicates a good capacity for adaptation and greater confidence in overcoming operational obstacles.

In control groups, however, problem solving appears more discontinuous and less structured, especially in the initial phases of the work. In Italy, for example, difficulty is reported in reaching agreements and clearly defining the problem to be addressed, resulting in significant time wasted in unfocused discussions. Only later does the work become more effective, but without a true analysis of priorities or a well-defined shared strategy. In Estonia and Spain, control groups demonstrate good collaborative skills and reach feasible solutions, but the problem is often not immediately clear or the preliminary analysis is partial.

An interesting aspect concerns the use of resources: both STEAM and control groups make extensive use of reliable sources, including mentor support. However, in STEAM groups, the use of resources appears more critical and purposeful, integrated within a structured decision-making process, while in control groups it sometimes compensates for a lack of initial planning or clarity.

In conclusion, the comparison shows that STEAM groups differ not so much in their ability to "find a solution" per se, but in the way they approach the problem. Their problem-solving appears more intentional, collaborative, and planning-oriented: problems are defined more clearly, priorities are analyzed more consciously, and decisions are made jointly. Problem-solving skills are present in the control groups, but they appear more reactive than strategic, often built along the way rather than established from the outset. This suggests that the STEAM experience contributes to the development of a more mature problem-solving approach, applicable even in complex and professional contexts.

PROBLEM SOLVING - Comment with specific examples and observations: ** this section quotes personal comments*
Italy – STEAM group • *They do not identify a priority of problems but divide the tasks based on their skills* • *They organised their work by focusing on the things that needed to be completed first, because they were more important or took longer to manage, and those that were secondary. Every*

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decision was shared and discussed before being implemented. They considered which sources to consult, also asking a mentor's opinion on which data to use to support their hypotheses.
Italy – Control group • *They took a very long time to reach a compromise on which topic to develop, but fortunately, once they reached a common agreement, they conducted research using official sources and also involved the mentors.* • *Especially on the first day, they began working on the problem without a clear strategy, wasting a lot of time in discussions and struggling to identify the specific problem to be addressed. At the end of the first day, they began to define the problem more precisely, but without analysing in detail the priorities and strategy to be adopted.*
Estonia – STEAM group • *The team identified clear priorities and urgent tasks, collaboratively discussed and articulated all ideas, and critically analysed the feasibility of proposed solutions.* • *Problem-solving was rather beautifully done. Priorities were analyzed, they thought about everything critically. Though GPT was the main help, other sources were used too.*
Estonia – Control group • *Although there could have been more analysis regarding priorities at the beginning, the team managed to come up with a feasible solution. Sources were used too, the main one seeming to be ChatGPT.* • *The team collaborated effectively to define priorities and test feasible solutions, though the core problem was not initially fully clear.*
Spain – Control group • *The work has been collaborative all the time.* • *There were consensus in the decision-making*
Spain – STEAM group • *Different problems come up while making the video game, but they solve them without difficulty; they are a very cohesive group.* • *They used several sources, mainly related to the education sector*
Portugal – Control group • *I observed that some of the students don't have a lot of knowledge regarding project management (e.g. time managing, priority management or even team management). This skills are imperative in the profissional world now so it would be ideal if they have some educational support on that field.*
Portugal – STEAM group

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- *I think the only problem the group encountered was at the beginning of the game's development, and that this was quickly resolved. There weren't many situations to test whether the group was successful in solving problems.*

The analysis of the results relating to **effective communication** (*Figure 4*) reveals one of the most significant gaps between the STEAM groups and the control group, both in quantitative data and qualitative observations.

Quantitatively, the graph shows that the STEAM groups achieve higher average scores in all indicators considered. The differences are particularly marked in two key dimensions: turn-taking ("they don't speak at the same time") and mutual listening ("members listen to each other's ideas"). STEAM groups also maintain a consistent advantage over the control groups in their ability to clearly express their needs and present ideas fluently. Overall, the higher and more homogeneous scores indicate more orderly, informed, and effective internal communication for teamwork.

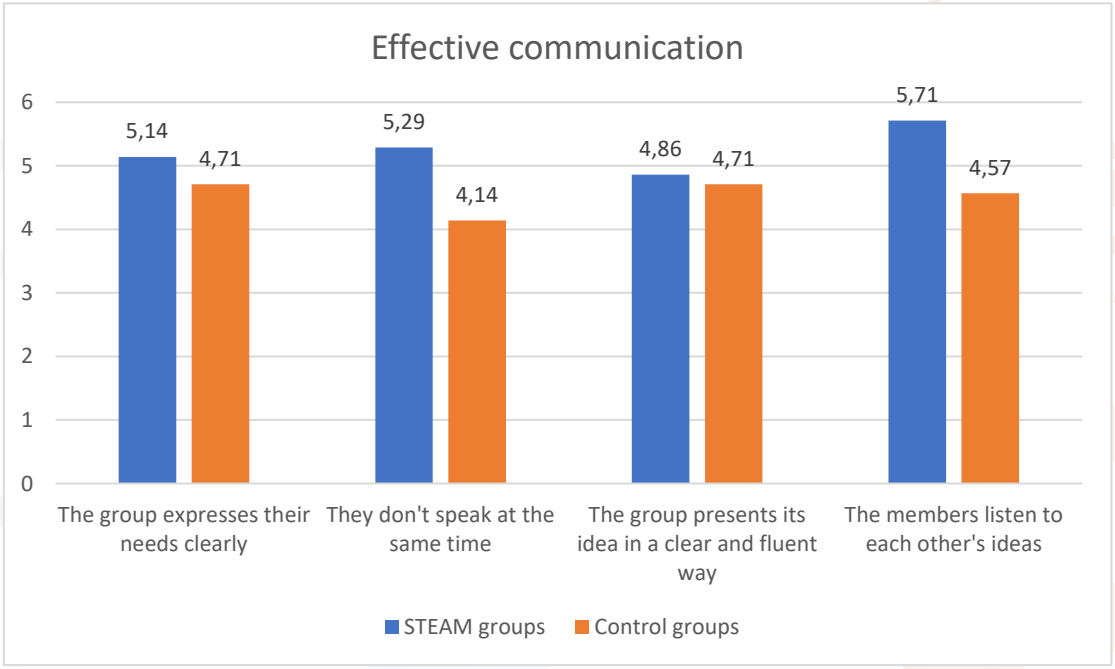

Figure 4 – "Effective communication" evaluations

Qualitative observations reinforce and clarify these findings. In STEAM groups, communication is often described as one of the main strengths. In Italy, for example, observers emphasize respectful discussions, clear exchanges between members, and a well-structured final presentation. Even when the group is "almost silent," as one comment reported, silence does not indicate communication difficulties, but rather order, listening, and essential, goal-oriented communication.

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In Estonia, STEAM groups demonstrate a particularly high level of active listening and mutual trust. Members clearly state their needs, collaborate fluently, and engage with mentors in a targeted manner. Even when there are moments when several people speak at once, this is interpreted as a sign of enthusiasm, not as a lack of respect or disorganized communication. The final presentation is clear, fluent, and consistent with the work completed.

However, some critical issues also emerge in STEAM groups, especially related to external communication. In Spain and Portugal, for example, difficulties in the final presentation are reported due to the level of English or the use of presentation methods that are inaccessible to an external audience. This suggests that, although internal communication is generally effective, translating ideas into a clear message for a non-expert audience still represents an area for improvement.

The control groups reveal a more variable picture. In some contexts, such as Estonia and Spain, communication is fluid, respectful, and even creative, with engaging presentations and good use of the language. However, in other cases—particularly in Italy—recurring difficulties emerge: members speaking simultaneously, some contributions are less listened to than others, and heated and prolonged discussions slow down the work, especially in the initial stages. These elements indicate less regulated communication and less functional to the decision-making process.

A notable aspect is that in the control groups, effective communication often appears to depend on individual group dynamics or the presence of a few stronger figures, while in the STEAM groups, it appears to be a more widespread and structured skill, shared by the entire team.

EFFECTIVE COMMUNICATION - Comment with specific examples and observations: ** this section quotes personal comments*
Italy – STEAM group • *Communication was this group's strong point: discussions were always respectful and group members always interacted clearly with each other. The final presentation was also delivered in an appropriate and clear manner.* • *the group is almost silent. they have a clear communication*
Italy – Control group • *The group encountered several difficulties in this regard: members often spoke over each other, talking at the same time. Some members are listened to less than others.* • *As mentioned earlier, they spent too much time (especially during the first morning) having heated discussions about the goal and the tasks*
Estonia – STEAM group • *Active listening is done throughout the process, they stated their needs clearly, relied on each other and trusted each other. The final presentation was also clear and fluent. As the group had worked on*

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some previous projects as well, the communication was smooth. There were times when they did speak to each other at the same time but that was more about enthusiasm. • *The students communicated effectively and respectfully, asking mentors for help when needed and discussing issues calmly; although generally quiet, they listened well and maintained clear, orderly communication.*
Estonia – Control group • *The students communicated clearly and respectfully, showing active listening, orderly discussion, and effective collaboration with mentors.* • *Group members were respectful and listened to each other's ideas. The reason for talking at the same time was more about enthusiastically expressing ideas than not listening to each other. Presentation was engaging, fluent and easy to follow! Loved the poem!*
Spain – Control group • *Communication was fluent and so it was the use of English in the presentation* • *Today, two people stood out as clearer leaders, and the rest of the group seemed more relaxed*
Spain – STEAM group • *Final presentation was weak mainly due to a very poor English level* • *They communicate openly and effectively, which improves their teamwork."*
Portugal – Control group • *Overall, it was a really respectful group.*
Portugal – STEAM group • *The group communicated well amongst themselves and with their mentors; however, I think they should work on improving their communication with the public, because when explaining the idea to others, they used methods that might have made it more difficult for those unfamiliar with the project to understand the actual objectives.*

The analysis of the **time management** (*Figure 5*) results reveals an overall positive picture for both groups, with less marked differences than for other soft skills, but still significant qualitatively. The comparison between the STEAM and control groups reveals two different approaches to time management: more structured and conscious in the STEAM groups, more functional but less planned in the control groups. Quantitatively, the scores of the two groups are overall high across all indicators, confirming that almost all teams successfully met the hackathon deadlines and timelines. However, the STEAM groups show slightly higher average scores in key areas such as task planning, balanced work distribution, and meeting internal deadlines. The control groups, however, tend to achieve similar or slightly better scores in the ability to deal with emergencies and reschedule tasks, suggesting a good resilience even in the absence

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of highly structured planning. The indicator "*They present the final work on time*" is very high and substantially equivalent for both, indicating that the final time constraint was respected across the board.

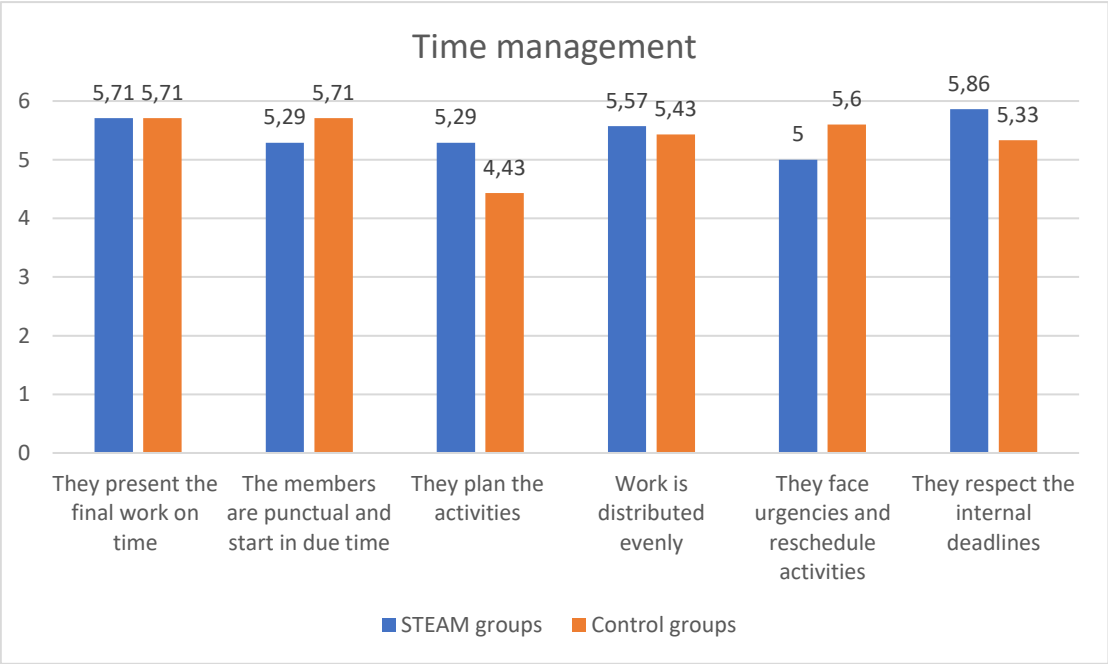

Figure 5 – "Time management" evaluations

Qualitative observations allow us to interpret these data in greater depth. In STEAM groups, time management appears to be a more intentional and organized process. In several contexts (Italy, Spain, Estonia), observers emphasize the ability to divide work into subtasks, assign tasks based on individual skills, distinguish between urgent and secondary activities, and offer mutual support if one member has a lighter workload. Even when planning is not formalized in explicit tools (such as checklists or timetables), STEAM groups often have an implicit shared plan, which allows for continuous work, without downtime, and with a good level of coordination.

STEAM groups, however, report some minor critical issues, particularly related to punctuality in start times, as reported in Italy, or to planning that is not always visible or formalized. These weaknesses, however, do not appear to significantly impact overall effectiveness, as activities are still completed on time and with good workload management.

Control groups, on the other hand, often demonstrate more reactive than planned time management. In several contexts, the lack of a clear plan in the initial phase is evident, with activities organized more spontaneously or "randomly." Despite this, many control groups still manage to meet deadlines, as reported in Italy, Estonia, and Spain, and in some cases finish work well ahead of schedule. This suggests

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a good ability to adapt and recover, but also a lesser focus on advance planning and strategic time allocation.

An interesting finding is that in the control groups, meeting deadlines is often achieved not through careful planning, but through intense concentration on work in the final phases or the ability to react quickly to unexpected events. This may explain the relatively high scores on the indicator related to managing emergencies, but also the lower scores on activity planning.

In conclusion, the comparison between the STEAM and control groups shows that time management is a skill widely possessed by both, but implemented differently. STEAM groups tend to manage time in a more structured, shared, and consistent way with work planning, integrating time management into the collaborative process. The control groups, on the other hand, demonstrate a capacity to meet time and deadlines, but with a more improvised and less systematic approach. Overall, the results suggest that the STEAM program fosters a more mindful and professional time management style, while recognizing that, in an intense context like a hackathon, even less planned strategies can lead to the achievement of final objectives.

TIME MANAGEMENT - Comment with specific examples and observations: ** this section quotes personal comments*
Italy – STEAM group • *In general, deadlines were met and workloads were managed appropriately. Even when someone had little to do, they offered to help another member of the group complete their tasks. The only 'weakness' was a lack of punctuality in arriving in the morning or after the lunch break.* • *They managed their time very well, but they were not always perfectly punctual with respect to the time slots set in the agenda*
Italy – Control group • *The group was punctual and met all deadlines. However, they did not organise their activities in a clear and timely manner: they managed to achieve what they had planned, but in a more random way than in a carefully planned manner.* • *They managed the remaining work time for each respective task quite well, despite the initial slowdown*
Estonia – STEAM group • *Not much rescheduling was seen. Nor did I notice a certain plan they followed, at least it was not written in a very specific way. But I did notice them working on their tasks all the time, there were*

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no times, when they got carried away by something else. They were punctual, met their deadlines and respected each other's time and effort. • *The team managed time efficiently and met all deadlines, working smoothly and punctually with tasks shared fairly; although no visible checklist was used, they followed an implicit plan and adjusted effectively when needed.*
Estonia – Control group • *The team lacked a clear time plan but still managed to work calmly, stay coordinated, and complete their project on time.* • *Certain plans were visible on the board, it could have been even more clear. Most of the time, deadlines were followed and everyone respected each other's time.*
Spain – Control group • *They were always punctual and respected all deadlines* • *They had finished the work with plenty of time.*
Spain – STEAM group • *Punctuality was excellent* • *The group breaks the project into smaller tasks and assigns responsibilities based on each member's strengths..They identify which tasks are urgent and which can wait, adjusting the plan as the project progresses*
Portugal – Control group • *In the final step of the project, the students showed that they are capable of more than what they purposed themselves to in the early stages. There were some complications with the website and we were concerned they wouldn't be able to pull it off in time of the presentation, but it turn out being great.*
Portugal – STEAM group • *Whenever we arrived at the group's meeting point the tasks that had been established were already ready to be presented, and they were explained to the approaching mentor.*

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6. CONCLUSIONS AND METHODOLOGICAL CONSIDERATIONS

The comparative analysis conducted during the STEAM4SustainabilityHack highlights consistent differences between the groups of students who had previously participated in STEAM-based preparatory activities and the control groups. Across all the soft skills domains observed, STEAM groups obtained higher average scores and demonstrated more solid and coherent behaviours during the hackathon activities.

The most pronounced differences emerged in the areas of **effective communication, creativity, and teamwork**. In these domains, STEAM groups not only achieved higher quantitative evaluations, but also displayed more mature and integrated patterns of behaviour. Communication within STEAM teams was generally clearer, more orderly and respectful, with stronger evidence of active listening and effective turn-taking. Teamwork appeared more cohesive and balanced, characterised by shared responsibility, constructive leadership and greater inclusion of all group members. Similarly, creativity in STEAM groups was more consistently integrated into the working process, combining exploratory thinking, the consideration of multiple perspectives and the use of more original and varied communication strategies.

In the areas of **problem solving and time management**, the observed differences between STEAM and control groups were more moderate but still meaningful. Both groups were generally able to complete tasks and meet deadlines within the constraints of the hackathon. However, STEAM groups tended to approach problems and time-related challenges in a more structured and intentional way, showing clearer prioritisation, more systematic decision-making and a stronger integration between planning and action. Control groups also demonstrated adaptability and resilience, often compensating for a lack of initial planning through intensive effort in later phases, but with greater variability across teams.

Overall, the findings suggest that the STEAM preparatory activities may support not only higher levels of soft skills, but also qualitatively different ways of enacting them. The advantage of STEAM groups lies less in the exclusive possession of specific competences, and more in the ability to activate and combine transversal skills in a coherent, flexible and collaborative manner, particularly under time pressure and in complex, real-world tasks.

When interpreting these results, several methodological limitations must be taken into account. The assessment was based on direct observation carried out by human observers, which inevitably involves a degree of subjectivity despite the use of shared indicators and structured tools. Moreover, the observers' involvement in earlier phases of the project, while ensuring coherence with the adopted framework, may have influenced expectations. In addition, the lack of baseline measurements of participants' soft skills

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before the STEAM activities and the hackathon prevents the establishment of clear causal relationships between the preparatory phase and the observed outcomes.

Finally, the observations refer to group performance within a specific, intensive and time-limited context. While the hackathon is particularly effective in bringing certain soft skills to the foreground—such as communication under pressure, collaborative problem solving and time management—it may not fully reflect learners' behaviour in more extended or routine educational settings.

Despite these limitations, the methodology adopted provides meaningful evidence of soft skills in action within authentic and complex learning situations. The results therefore do not aim to offer definitive or generalisable conclusions, but rather to contribute grounded insights into the potential of STEAM-based preparation combined with challenge-based learning environments. Taken together, the findings suggest that structured STEAM experiences can enhance not only the presence, but also the quality and integration of transversal skills, offering valuable indications for the design of future educational and training initiatives focused on employability, collaboration and active citizenship.

6.1 Recommendations

In light of these findings, for future editions of the project or similar initiatives, we recommend:

- Maintaining and strengthening the STEAM preparatory phase, which appears to foster the emergence of soft skills observable during the hackathon;
- Supplement structured observation with additional tools, such as student self-assessments or teacher evaluations, to triangulate data;
- Pay particular attention to developing time management, a skill that was found to be significant but with less marked differences between groups.

In conclusion, while acknowledging its limitations, the STEAM4SustainabilityHack experience demonstrates how the combination of STEAM preparation and learning based on real-world challenges can be an effective educational intervention for strengthening transversal skills, offering useful insights for designing future training programs geared towards employability and active citizenship.

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Appendix 1 - Soft-Skill Observers evaluation grid_regular monitoring

Date	Observer

INSTRUCTIONS: For each indicator, use multiple rows to record observations at different time points

Time Column: Record day (**D1** for the first day and **D2** for the second day) and actual time (e.g., 10:15, 10:30)
In Group you should use **STEAM** for the group that participated in STEAM Bo.SS activities before the Hackaton and **CP** for the Control Group
For each Indicator there are 3 mandatory evaluation moments for each soft-skill aspect: D1 13:00, D1 17:00 and D2 13:00

If you need more space or more rows feel free to modify the file, copy it before in you drive!

Soft-Skill	Indicator/Look-for	Time	Group	Notes	Rating (1-6)
TEAMWORK	INDICATOR	D1 13:00	STEAM		
	There is a leader	D1 13:00	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	D2 13:00	STEAM		
	Someone naturally coordinates the team, gives direction, and supports others' contributions	D2 13:00	CP		
TEAMWORK	INDICATOR	D1 13:00	STEAM		
	Everyone has a clear role	D1 13:00	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	D2 13:00	STEAM		
	Members refer to their assigned tasks, take ownership, and demonstrate awareness of each other's roles	D2 13:00	CP		

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TEAMWORK	INDICATOR	D1 13:00	STEAM		
	Absence of negative roles	D1 13:00	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	D2 13:00	STEAM		
	Team interactions are respectful; no one dominates or withdraws; energy remains collaborative	D2 13:00	CP		
TEAMWORK	INDICATOR	D1 13:00	STEAM		
	They manage conflicts properly	D1 13:00	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	D2 13:00	STEAM		
	Disagreements are handled calmly, through discussion and compromise	D2 13:00	CP		
TEAMWORK	INDICATOR	D1 13:00	STEAM		
	They involve everyone in the activities	D1 13:00	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	D2 13:00	STEAM		
	All members contribute ideas or tasks; quieter members are invited to speak	D2 13:00	CP		

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Date	Observer

INSTRUCTIONS: For each indicator, use multiple rows to record observations at different time points

Time Column: Record day (**D1** for the first day and **D2** for the second day) and actual time (e.g., 10:15, 10:30)
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Soft-Skill	Indicator/Look-for	Time	Group	Notes	Rating (1-6)
CREATIVITY	**INDICATOR**	**D1 13:00**	STEAM		
	They use an unusual perspective and challenge assumptions	**D1 13:00**	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	**D2 13:00**	STEAM		
	Members propose alternative or unconventional solutions; they question the “usual way"	**D2 13:00**	CP		
	INDICATOR	**D1 13:00**	STEAM		
	They are curious	**D1 13:00**	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	**D2 13:00**	STEAM		
	They ask questions, seek clarification, and show interest in exploring possibilities	**D2 13:00**	CP		
CREATIVITY	**INDICATOR**	**D1 13:00**	STEAM		
		D1 13:00	CP		

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CREATIVITY	**They consider the problem from different perspectives**	**D1 17:00**	STEAM		
		D1 17:00	CP		
	LOOK-FOR	**D2 13:00**	STEAM		
		D2 13:00	CP		
	They discuss multiple angles or viewpoints before deciding				
	INDICATOR	**D1 13:00**	STEAM		
		D1 13:00	CP		
	They use creative communication	**D1 17:00**	STEAM		
		D1 17:00	CP		
	LOOK-FOR	**D2 13:00**	STEAM		
		D2 13:00	CP		
	They express ideas visually, through stories, or using analogies to make points clear				

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For each Indicator there are 3 mandatory evaluation moments for each soft-skill aspect: D1 13:00, D1 17:00 and D2 13:00

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Soft-Skill	Indicator/Look-for	Time	Group	Notes	Rating (1-6)
PROBLEM SOLVING	INDICATOR	D1 13:00	STEAM		
	They analyze priorities	D1 13:00	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	D2 13:00	STEAM		
		D2 13:00	CP		
	Team discusses which problems or tasks are most urgent/important				
PROBLEM SOLVING	INDICATOR	D1 13:00	STEAM		
	They take decisions together	D1 13:00	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	D2 13:00	STEAM		
		D2 13:00	CP		
	Members reach consensus or negotiate before taking action				
PROBLEM SOLVING	INDICATOR	D1 13:00	STEAM		
		D1 13:00	CP		

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PROBLEM SOLVING	**They identify a specific problem to be solved**	**D1 17:00**	STEAM		
		D1 17:00	CP		
	LOOK-FOR	**D2 13:00**	STEAM		
		D2 13:00	CP		
	They clearly articulate what the issue is before working on solutions				
	INDICATOR	**D1 13:00**	STEAM		
		D1 13:00	CP		
	They assess if the solution is feasible	**D1 17:00**	STEAM		
		D1 17:00	CP		
	LOOK-FOR	**D2 13:00**	STEAM		
		D2 13:00	CP		
	They evaluate pros and cons, or test ideas before implementation				
PROBLEM SOLVING	**INDICATOR**	**D1 13:00**	STEAM		
		D1 13:00	CP		
	They use reliable resources properly	**D1 17:00**	STEAM		
		D1 17:00	CP		
	LOOK-FOR	**D2 13:00**	STEAM		
		D2 13:00	CP		
	They reference data, research, or credible sources to support their choices				

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If you need more space or more rows feel free to modify the file, copy it before in you drive!

Soft-Skill	Indicator/Look-for	Time	Group	Notes	Rating (1-6)
EFFECTIVE COMMUNICATION	**INDICATOR**	**D1 13:00**	STEAM		
	The group expresses their needs clearly	**D1 13:00**	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	**D2 13:00**	STEAM		
		D2 13:00	CP		
	Members state what they require to move forward (information, help, tools)				
EFFECTIVE COMMUNICATION	**INDICATOR**	**D1 13:00**	STEAM		
	They don't speak at the same time	**D1 13:00**	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	**D2 13:00**	STEAM		
		D2 13:00	CP		
	Turn-taking is evident; discussions are orderly				

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EFFECTIVE COMMUNICATION	INDICATOR	D1 13:00	STEAM		
	The group presents its idea in a clear and fluent way	D1 13:00	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	D2 13:00	STEAM		
	Presentation or summary is structured, logical, and easy to follow	D2 13:00	CP		
EFFECTIVE COMMUNICATION	INDICATOR	D1 13:00	STEAM		
	The members listen to each other's ideas	D1 13:00	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	D2 13:00	STEAM		
	Active listening is shown through paraphrasing, nodding, or asking clarifying questions	D2 13:00	CP		

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Date	Observer

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For each Indicator there are 3 mandatory evaluation moments for each soft-skill aspect: D1 13:00, D1 17:00 and D2 13:00

If you need more space or more rows feel free to modify the file, copy it before in you drive!

Soft-Skill	Indicator/Look-for	Time	Group	Notes	Rating (1-6)
TIME MANAGEMENT	**INDICATOR**	**D1 13:00**	STEAM		
	They present the final work on time	**D1 13:00**	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	**D2 13:00**	STEAM		
		D2 13:00	CP		
	Work is submitted or presented by the agreed deadline				
TIME MANAGEMENT	**INDICATOR**	**D1 13:00**	STEAM		
	The members are punctual and start in due time	**D1 13:00**	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	**D2 13:00**	STEAM		
		D2 13:00	CP		
	Meetings start on schedule; no delays in beginning tasks				

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TIME MANAGEMENT	INDICATOR	D1 13:00	STEAM		
	They plan the activities	D1 13:00	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	D2 13:00	STEAM		
	A clear plan, checklist, or timeline is visible or discussed	D2 13:00	CP		
TIME MANAGEMENT	INDICATOR	D1 13:00	STEAM		
	Work is distributed evenly	D1 13:00	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	D2 13:00	STEAM		
	Tasks are shared fairly; no one is overloaded	D2 13:00	CP		
TIME MANAGEMENT	INDICATOR	D1 13:00	STEAM		
	They face urgencies and reschedule activities	D1 13:00	CP		
		D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	D2 13:00	STEAM		
	The group adapts quickly when plans change, updating deadlines	D2 13:00	CP		

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TIME MANAGEMENT					
	INDICATOR	D1 13:00	STEAM		
		D1 13:00	CP		
	They respect the internal deadlines	D1 17:00	STEAM		
		D1 17:00	CP		
	LOOK-FOR	D2 13:00	STEAM		
		D2 13:00	CP		
	Partial tasks are completed according to the internal schedule				

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Appendix 2 - Observers_Soft skills evaluation grids

1. Which group are you evaluating?

- 1 - Italy - not trained – ECOFIND
- 2 - Italy - trained - Scan or die
- 3 - Portugal - not trained – Ecolink
- 4 - Portugal - trained - Ocean Defender
- 5 - Spain - not trained – Azura
- 6 - Spain - trained - Balance of the ocean
- 7 - Estonia - not trained - Floating sensor for Ocean Pollution Detection andCleanup
- 8 - Estonia - trained - ANNA - Act Now, Nature Awaits

2. TEAMWORK

- There is a leader

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

- Everyone has a clear role (technical expert, spokesperson, etc..)

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

- Absence of negative roles(dominators, quiet members, disturbers..)

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

- They manage conflicts properly

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

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- They involve everyone in the activities

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

- Comment with specific examples and observations:
  _____
  _____
  _____
  _____
  _____

3. CREATIVITY

- They use an unusual perspective and challenge assumption

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

- They are curious

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

- They consider the problem from different prospectives

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

- They use a creative communication

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

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- Comment with specific examples and observations:

_____
_____
_____
_____
_____

4. PROBLEM SOLVING

- They analyze priorities

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

- They take decisions together

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

- They indentify a specific problem to be solved

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

- They assess if the solution is feasible

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

- They use reliable resources properly

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

- Comment with specific examples and observations:

_____
_____
_____
_____
_____

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5. EFFECTIVE COMMUNICATION

- The group expresses their needs clearly

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ NA ☐

- They don't speak at the same time

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ NA ☐

- The group presents its idea in a clear and fluent way

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ NA ☐

- The members listen to each other's ideas

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ NA ☐

- Comment with specific examples and observations:

_____
_____
_____
_____
_____

6. EFFECTIVE COMMUNICATION

- They present the final work on time

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ NA ☐

- The members are punctual and start in due time

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ NA ☐

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- They plan the activities

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

- Work is distributed evenly

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

- They face urgencies and reschedule activities

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

- They respect the internal deadlines

1	2	3	4	5	6	NA
☐	☐	☐	☐	☐	☐	☐

- Comment with specific examples and observations:

_____
_____
_____
_____
_____

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