Co-Designing Gamified Learning for Soft Skills: A Participatory Future Workshop

Naghmeh Aghaee[1], Thashmee Karunaratne[2] and Jakob Bandelin[3]
[1]Lund University, Department of Informatics, Lund, Sweden
[2]KTH - Royal Institute of Technology, Department of Digital Learning, Stockholm, Sweden
[3]Uppsala University, Department of Informatics and Media, Uppsala, Sweden

nam.aghaee@ics.lu.se
thashmee@kth.se
jakob.bandelin@im.uu.se

Abstract: Rapidly evolving academic and professional environments require essential skills such as communication, collaboration, creativity and critical thinking, which are not typically learned and assessed explicitly in formal education. These skills encompass a significant part of the competencies and are increasingly valued in an AI-driven workforce because they cannot be easily replicated by machines. However, despite their growing relevance, students often lack awareness of the role and value of soft skills, and higher education institutions frequently address them only indirectly through content-focused, lecture-based instruction. This study responds to both the pedagogical gap and the challenges posed by the upskilling need within higher education by exploring how gamification can support the development of soft skills in academic settings. Using a participatory design approach, we conducted a Future Workshop with 52 master's students in informatics at a university in southern Sweden. The workshop facilitated structured engagement in critique, ideation, and prototyping phases, during which seven student groups identified barriers to soft skills development and proposed gamified, digitally mediated solutions to enhance learning and engagement. A short questionnaire administered at the outset captured students' baseline understanding of soft skills. The workshop produced several low-fidelity prototypes that illustrate how gamification can be integrated into curricula to develop soft skills through active, real-time application. The findings demonstrate how, in a participatory setting, students co-design meaningful learning environments and inform new directions for teaching practice. Furthermore, this study exemplifies the potential of the Future Workshop methodology to support students in developing interpersonal competencies and soft skills as part of their formal education, while also enhancing their ability to demonstrate knowledge and hard skills in a more GAI-resilient examination format.

Keywords: Soft Skills, Higher Education, Future Workshop, Participatory Design, Gamification.

1. Introduction

In today's rapidly evolving academic and professional environments, soft skills, such as communication, teamwork, adaptability, and problem-solving, are increasingly recognised as essential to academic success, professional growth, and societal resilience (Marin-Zapata et al., 2022). These competencies enable individuals to navigate complex, collaborative, and increasingly digital workspaces and are considered foundational to lifelong learning and employability (Schislyaeva & Saychenko, 2022). Despite their growing significance, higher education systems have traditionally emphasised technical and disciplinary knowledge, often at the expense of structured soft skills development (Módné Takács et al., 2022). This disconnect has contributed to a widening gap between the skills higher education institutions cultivate and the competencies demanded by the contemporary labour market (Succi & and Canovi, 2020). Absence of well-defined pedagogical frameworks (Ngang et al., 2015) limited awareness and recognition of the importance of soft skills among key stakeholder groups, including educators, students, and institutional leaders, (Dell'Aquila et al., 2017) insufficient integration of soft skills into curricula (Egalite et al., 2016), and a lack of appropriate assessment methods to measure their development meaningfully are further widening the gap.

The nature of soft skills and how they can be acquired inevitably demands new pedagogies; students perceive game-based learning as a promising approach for promoting active learning and supporting the development of soft skills through increased engagement (Módné Takács et al., 2022). Interactive and experiential game-based approaches can support both cognitive and soft skill development, making them valuable tools in contemporary education (Aghaee & Karunaratne, 2023). However, limited research has examined how, and under what conditions, gamification effectively supports their development (Aghaee & Karunaratne, 2023). This study explores the challenges and opportunities for learning and assessing soft skills in higher education. By directly involving students in the design process, the study contributes to a deeper understanding of how gamification can be integrated into higher education, extending beyond engagement to support essential interpersonal skills, thereby preparing students for both academic and professional success.

Hence, by involving students as active participants in the design process, this research aims to conceptualise the complex and innovative assessment models that integrate gamification into formal academic learning. Furthermore, it seeks to contribute to the ongoing discussion on adapting educational practices in response to technological advancements. A key focus is also on enhancing the overall student learning experience, making it more engaging, participatory, and relevant to real-world contexts. This includes creating conditions for students to experience collaboration, creativity, and feedback through playful and authentic learning environments. Two research questions guide this study: 1) What are the perceptions of higher education students regarding the development of soft skills within their education, and what solutions do they envision for upskilling? and 2) What gamified learning experiences for soft skills learning and assessment can the students envision through participatory co-design approaches?

2. Background - Soft Skills Demand and Supply Implications

Across the European Union, a soft skills mismatch is well-documented. Employers across EU Member States consistently report difficulty finding graduates equipped with the soft skills necessary to thrive in dynamic and team-oriented work environments (EU, n.d.). At the same time, graduates often underestimate the importance of these skills or lack opportunities to develop them within traditional academic settings (Aghaee & Karunaratne, 2023). Strong, quantifiable performance and traditional assessment methods are limiting the integration of soft skills learning and assessment in higher education programs (Dell'Aquila et al., 2017). The focus on measurable outcomes and a learning culture dominated by a fear of failure, risk avoidance, and extrinsic motivation hinders the development of essential soft skills, such as collaboration, creative problem-solving, and adaptability (Nørgård et al., 2017). Traditional instructional methods, characterised by passive learning, often involve passive acceptance, rote memorisation, and mechanical repetition. These methods are frequently reinforced by traditional instructional approaches, such as lectures, which limit student engagement and lack interactive learning experiences (Qiong et al., 2025). In contrast, active learning approaches develop soft skills improvement, since it provides more effective conditions for developing these critical interpersonal skills, as (Freeman et al., 2014) shows: Active learning significantly enhances student performance, engagement, and the depth of learning, thus offering a promising alternative to traditional lecturing in addressing the soft skills gap (Brieven et al., 2025).

The rise of Generative Artificial Intelligence (GAI) complicates this educational landscape by significantly disrupting traditional assessment practices of basic knowledge. Assessments that primarily emphasise conceptual understanding, content reproduction, and typical continuous assessment types, such as lab reports, home assignments, and reports including theses, are becoming increasingly problematic in the presence of GAI tools. These technologies can now generate high-quality responses to common assessment tasks, such as essays, reports, and factual summaries, raising significant concerns about the validity and integrity of traditional measures of student achievement (Xia et al., 2024). Consequently, the needed shift toward dynamic, practice-oriented evaluation methods, such as oral exams, demonstrations, and problem-based learning, directly measures the achievement of intended learning goals and indirectly measures associated human competencies, including collaboration, creative thinking, critical analysis, and effective communication. Hence, such soft skills are becoming essential for students to navigate and contribute to an AI-driven workforce successfully (Xia et al., 2024). Consequently, as GAI increasingly automates content reproduction, uniquely human competencies, such as collaboration, adaptability, and creative problem-solving, become even more central to students' future employability.

To navigate an increasingly complex higher education environment, shaping higher education into dynamic labour market profiles, gamification, game-based learning, and playful approaches have emerged as promising strategies (Módné Takács et al., 2022). Gamification approaches have the potential to develop active engagement, collaboration, and problem-solving, creating dynamic learning environments that actively promote the development of essential interpersonal skills. Notably, they bridge the gap between experiential and instrumental learning, mainly when designed with an understanding of learner motivation and contextual factors (Deterding et al., 2011; Kim et al., 2018; Koivisto & Hamari, 2019; Liu et al., 2017). Role-playing games (RPGs), for instance, enable students to assume different roles, negotiate complex scenarios, and solve problems, enhancing situated learning and overall engagement (Ruiz-Ezquerro, 2021). Similarly, educational escape rooms have proven effective in improving teamwork and problem-solving abilities through immersive, challenge-based learning experiences (Clarke et al., 2017; Warmelink et al., 2018). Further supporting the value of these approaches, Nørgård et al. (2017) and Whitton, (2018) emphasise the role of playful learning in higher education, illustrating how game mechanics and cooperative play can cultivate creativity, risk-taking, and

intrinsic motivation. This approach not only enhances soft skills but also reframes failure as an opportunity for learning, encouraging persistence and resilience. In addition, Plass et al., (2015) argue that game-based learning develops deeper cognitive development by integrating complex game mechanics with educational content. This combination helps students develop critical problem-solving and decision-making skills. In line with the growing body of evidence supporting the effectiveness of active learning strategies (Freeman et al., 2014), this study explores the use of gamification, co-designed with students through participatory methods, to find innovative pathways for embedding soft skills development into higher education curricula.

Although gamification, serious games, and playful learning approaches have demonstrated potential in various educational contexts, most existing studies primarily explore general outcomes such as engagement, motivation, or task performance. A notable lack of targeted research remains, exploring how these methods can explicitly support the development of soft skills, particularly when students are actively involved in the design process. Therefore, this study also examines how participatory co-design methods such as the Future Workshop leverage student insights to develop gamified learning experiences explicitly aimed at enhancing critical soft skills.

3. Methodological Approach

In exploring students' perspectives on how they can develop their soft skills through gamified learning environments, the study adopted a qualitative, participatory approach. The methodological design combined preparatory background data collection with a short survey, followed by a Future Workshop (FW) that developed creative collaboration, critical reflection, and the co-design of potential solutions. This study employed FW methodology, following the structure outlined by Vidal, (2006) and based on the original model developed by Jungk & Müllert, (1987). The approach was selected for its alignment with democratic problem-solving and participatory design principles, particularly its capacity to create collaborative ideation and critical engagement among participants with shared learning contexts.

3.1 Data Subjects (Study Sample)

The participant group for the future workshop consisted of 53 master's students in informatics, all enrolled in a course that integrated design thinking into digital transformation at a higher education institution in southern Sweden. This cohort was selected due to their dual exposure to technical and social aspects of digitalisation. The Future Workshop was conducted in seven groups of students. Although the gender proportion was 32 male and 21 female participants, no demographic information, such as age or gender, was directly collected to preserve anonymity. All participants had prior familiarity with key concepts such as gamification, co-design, and collaborative learning, which enabled them to engage meaningfully with the workshop content.

3.2 Pre-workshop Survey

The pre-workshop survey is a short questionnaire administered to 53 students using the interactive digital tool Mentimeter. This instrument included two closed-ended and one open-ended question. The questions assessed students' self-reported familiarity with gamification and soft skills and explored their knowledge and understanding of these skills in the context of higher education. The data collected served to contextualise the upcoming workshop activities by revealing the participants' conceptual entry points and general orientation toward the topic. While the questionnaire serves as a basis for understanding the perception of soft skills, it also sensitises facilitators to themes that might emerge during the participatory phases.

3.3 Future Workshop for Participatory Co-design

The Future Workshop followed the classical three-stage structure as outlined by Vidal. Preparatory activities were an official initial phase to start the workshop, serving as a warm-up and providing information to the participants. The short survey was also conducted as part of the preparation phase. During this stage, students were also asked to identify key stakeholders relevant to the topic. In the second phase, the critique phase, participants formed small groups to collectively identify the challenges and shortcomings in current models of soft skills training and assessments in higher education. These reflections, grounded in students' academic experiences, enabled them to critically examine prevailing practices in higher education. The moderator additionally introduced and facilitated brief discussions on the role of generative AI and the growing importance of soft skills in the context of ongoing educational transformation.

In the third phase, the fantasy phase, participants generated speculative ideas for gamified interventions that could address the previously identified problems and develop solutions connected to gamification and the use of AI. In line with the FW model, this phase encouraged participants to suspend constraints of realism and explore aspirational, creative design directions. The emphasis was placed on open-ended thinking rather than immediate feasibility, creating space for imaginative alternatives to conventional learning strategies. The fourth and final phase in this workshop, referred to as the implementation phase, required groups to refine and consolidate their concepts into more concrete forms. This was done using the MoSCoW prioritisation framework, which helped participants distinguish between essential and non-essential features of their proposed solutions. Each group created low-fidelity prototypes to illustrate their gamification concepts, using digital tools such as Padlet, Canva, and Miro, or traditional tools like pen and paper, to visualize interaction flows, motivational elements, and intended learning outcomes.

The workshop phases marked a transition from problem and abstract ideation to grounded design work, allowing students to articulate how their ideas might be realised in practice. As there was no direct prototype or product resulting from this workshop, the follow-up phase was not included in the workshop, and participants were informed accordingly. Throughout all phases of the workshop, the process was designed to encourage democratic participation, mutual learning, and the negotiation of meaning among group members. These elements are central to both participatory design and the pedagogical goals of developing soft skills.

3.4 Ethical Consideration

The study adhered to ethical standards appropriate for pedagogical research within a university setting. Participants were informed that their involvement was voluntary and that their contributions could be used for research purposes, including publication. Anonymity was ensured by collecting all questionnaire responses and workshop outputs without personal identifiers. Students could withhold their submissions or explicitly indicate if they did not wish their material to be included in the study. Because the research was embedded within an educational context and did not involve the collection of sensitive personal data, no additional ethical approval was required beyond compliance with institutional research integrity guidelines.

4. Results and Discussion

4.1 Pre-workshop Survey - Student Perceptions About Soft Skills

The pre-workshop questionnaire offered valuable insights into students' perceptions and prior exposure to soft skills training. This stage included three key questions. First, students were asked whether they had heard of the concept of soft skills (also referred to as non-cognitive skills). As shown in Figure 1, participants were familiar with the term; however, most reported that they had not yet received formal instruction on soft skills within their academic programmes. Notably, 16 students indicated both a clear understanding of soft skills and prior learning experiences related to them through coursework; however, the majority of students felt that current academic programs do not adequately prepare them for applying real-world soft skills.

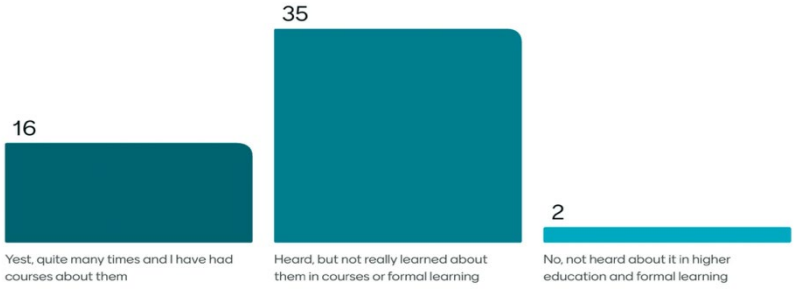

Figure 1: The distribution of students based on their familiarity with the soft skills

The second research question focused on exploring students' awareness of soft skills. To assess this, students were asked to identify up to five skills they had heard about or learned concerning the concept of soft skills. Their responses provided insights into the range and depth of their understanding. The results are summarised in Figure 2.

Figure 2: The most commonly mentioned soft skills by respondents

Communication emerged as the most widely recognised soft skill among students, followed closely by leadership, critical thinking, presentation skills, problem-solving, and time management. These skills align closely with the competencies typically required of master's students in academic and research contexts. For example, communication and presentation skills are essential for effectively articulating research findings, both in written and oral forms. Leadership and collaboration often come into play during group-based project work, while critical thinking and problem-solving are integral to designing and executing thesis research and laboratory experiments. Time management, likewise, is crucial for balancing multiple academic responsibilities and meeting project deadlines. The prominence of these skills in student responses suggests that their awareness is shaped, at least in part, by the demands of their advanced academic tasks and experiential learning contexts.

The final question was open-ended and aimed at assessing students' understanding of the concept of soft skills. Responses highlighted a strong interest in interactive and gamified learning approaches as a means to improve engagement and skill acquisition. The outcomes varied from "*skills to survive in the society*" to "*interpersonal skills that allow for effective communication and collaboration but are learned through experience*". Most students described soft skills as abilities gained through experience, interaction, and collaboration rather than formal instruction. Responses included phrases such as *"skills that are not taught in school," "not taught using books,"* and *"skills we use in our everyday life, such as in social gatherings, the workplace, or society."* Some also described them as *"inbuilt"* capabilities that enable effective interaction and teamwork.

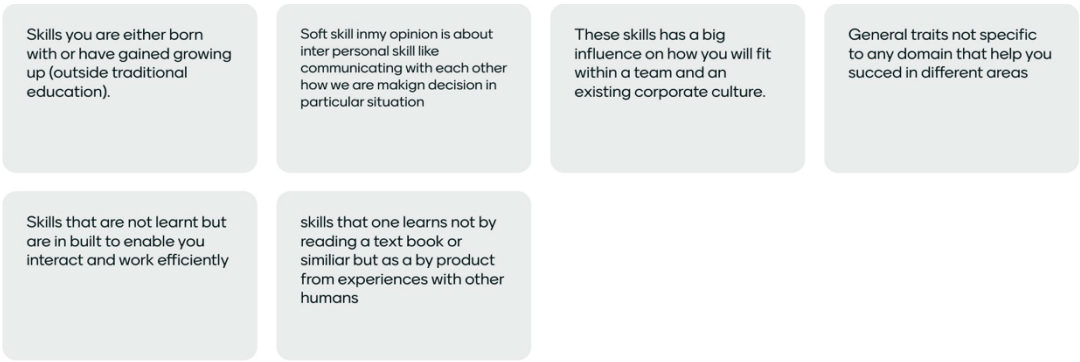

Figure 3: Segment of snippets about "define soft skills according to your understanding"

The responses demonstrate a strong alignment with the commonly cited skills in question 2, primarily those related to effective social interaction, including communication, teamwork, and leadership. This suggests that students tend to associate soft skills predominantly with interpersonal competencies. However, other equally essential soft skills, such as resilience, empathy, and tenacity, were notably absent from the responses. This can indicate a limited understanding of the broader scope of soft skills, highlighting a potential gap in students' awareness of the full range of non-cognitive competencies necessary for both academic and professional success.

A key takeaway from the pre-workshop questionnaire was that it enabled the researchers to design the structure of the Future Workshop holistically and constructively by identifying and addressing existing gaps in students' knowledge of soft skills. This preparatory insight was crucial for shaping the initial stages of the co-design process as well. By understanding students' baseline awareness and misconceptions, the facilitators were able to tailor the introductory phase of the workshop to clarify the concept of soft skills, broaden students' perspectives, and establish a shared understanding among participants.

This strategic alignment ensured that knowledge gaps would not hinder the creativity or relevance of the ideas generated during the co-design phase. In other words, the Future Workshop could focus on envisioning meaningful and contextually grounded solutions for soft skills training, rather than spending time compensating for fundamental misunderstandings. The advantage of this pre-assessment was that it positioned students not merely as participants but as informed contributors, better equipped to co-create learning experiences that are both pedagogically sound and practically applicable.

4.2 Future Workshop Outcome - the Grand Designs of Skills Training

Each of the seven groups collaboratively explored the challenges and the co-design of the skills learning solutions. Figure 4 shows two examples of selected group outcomes.

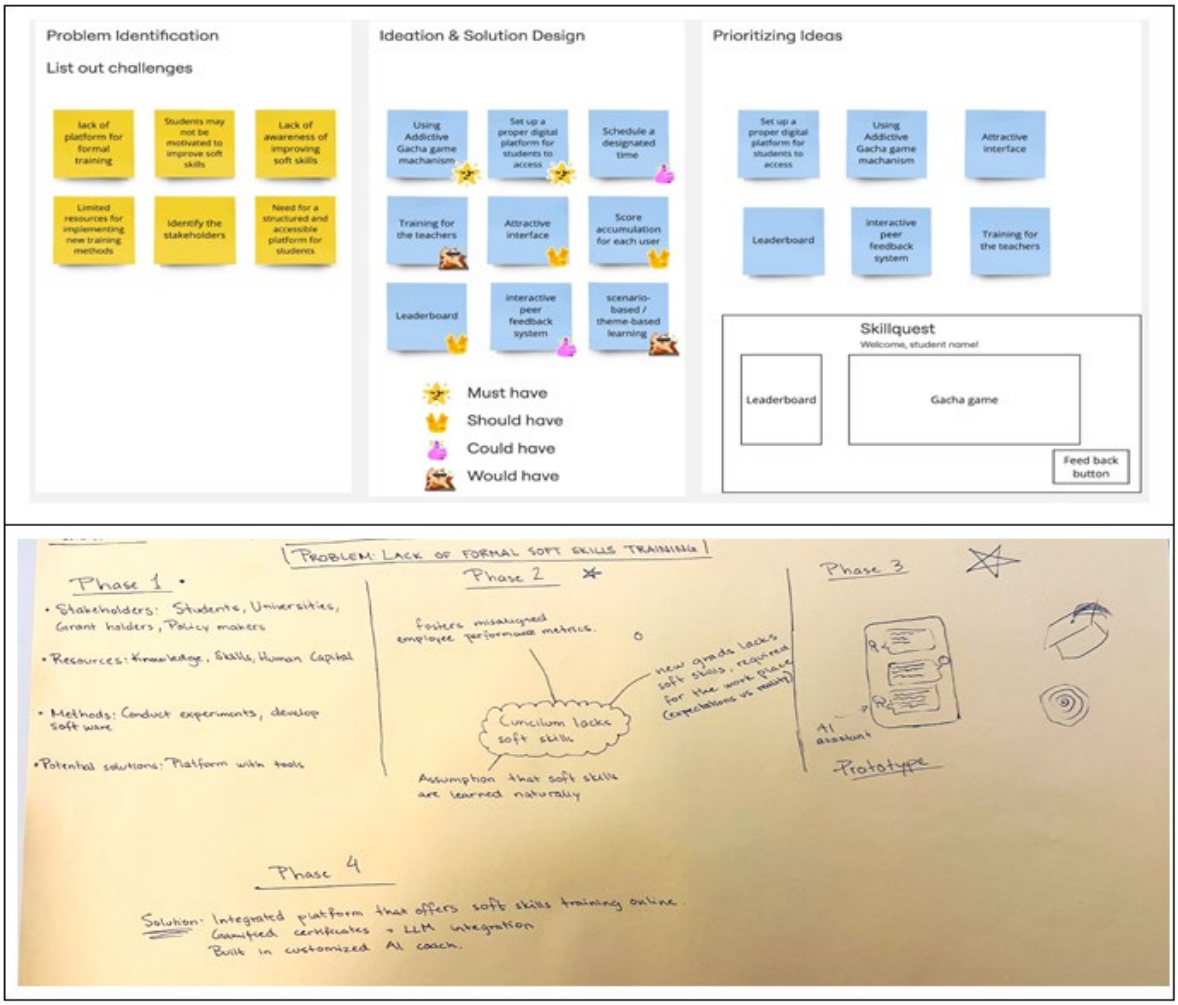

Figure 4: Example deliverable from groups of the Future Workshop on a gamified soft skills learning framework/methodology (digital-Top, paper-bottom).

The outcomes showed that students perceive gamification as an effective way to develop soft skills. The group's diversity, across academic backgrounds and international representation, added valuable perspectives and enriched the collaborative process. Their solutions emphasised real-time skill application, interactive learning, and integration with academic assessments. Table 1 illustrates a summary of the low-fidelity prototypes, a range of gamified learning systems from role-playing scenarios to digital simulations.

Table 1: The summary of the eight scenarios.

Group	Challenges (Problems) Identified	Solution Design	Implementation
1	• Lack of a platform for formal training • Students may not be motivated to improve soft skills • Lack of awareness for improving soft skills • Limited resources for implementing new training • Identify stakeholders • Need for a structured and accessible platform	• Using the Addictive Gacha game mechanism • Set up a proper digital platform for students to access • Schedule a designated time • Training for teachers • Attractive Interface • Score accumulation for each user • Leaderboard • Interactive peer-feedback system • Scenario-based/theme-based learning	Skillquest Gacha game - leaderboard - Game GUI - Feedback button
2	• Mismatched learning objectives with current technology • Not an effective teaching • Lack of preparation for future employment • Lack of soft skills can lead to a worse presentation of hard skills	• A school-wide app that awards users with badges if they complete a soft skills quiz or exercise in the app. • These quizzes are optional but completing them will enrol you in a form of lottery with rewards. • Exercises with abstract situations that include soft skills lessons, increasing complexity with age. • *Kobayashi Maru* style situations where you can fail	Develop a quiz platform with badges within LMS (should not be discouraged or punished for not enrolling /not using GPT)
3	• Not having soft skills is a problem • (Skills gap) between academia and industry	• Gamification business case presentation	Presentation material and rewards scheme
4	• Communication and collaboration problems • Social inclusion is lagging	• Bonus credit points for participating in workshops, seminars and presentations and exhibiting soft skills. • Guest lectures on the importance of soft skills	An app similar to Canvas App. The credit points will be added there
5	• The curriculum lacks soft skills • The assumption that soft skills are learnt naturally • New graduates lack the skills needed by the workplace • Misalignment of performance metrics	• Integrated platform offering soft skills training online • Gamified certificates/LLM integration • Built-in customised AI coach	An AI assistant prototype
6	• Students lack skills in how to solve a case • (You need to collaborate, communicate, present, and be analytical)	• Application for solving cases together with other students • Practice presenting and collaborating with others • Collecting points and doing quizzes.	- User network for practice - Challenges - industry onboard for headhunting

Group	Challenges (Problems) Identified	Solution Design	Implementation
7	• Over-reliance on AI • Lack of collaboration, teamwork, cooperation, and critical thinking • Social media, social inclusion	• "Captain" in charge of keeping the organisation of various tasks • A new team of 4 is designated every month, where a new captain is designated every week. • Teams gather points, and a winner is presented at the end of each month. • Prizes are awarded to the top 3.	- Assistant robots to teach presenting - Gamification - Examinations on-site

4.3 Strategic Suggestions and Recommendations Resulting From the Future Workshop

Although the proposed solutions from the student groups remain at the conceptual design stage and lack empirical validation, many of the ideas reflect principles and features commonly identified in the literature on soft skills development. Solutions 1 and 2 (cf. Table 1) take the form of digital platform-based interventions. Notably, Solution 1 aligns closely with existing proposals in contemporary research that advocate for digital environments to support the learning of soft skills (Adhiatma et al., 2019; Aghaee & Karunaratne, 2023).

Interestingly, the students also suggested non-digital approaches (Solutions 4 and 6), which are equally noteworthy. These designs emphasise real-world projects and problem-solving activities that develop soft skills, such as collaboration, leadership, and adaptability, through experiential learning. Several groups also incorporated the use of artificial intelligence, particularly generative AI tools, into their designs. For instance, large language models like GPT were envisioned as the backbone of gamified learning environments or as engines for narrative-driven, case-based learning, as illustrated in Solution 6. These approaches demonstrate an emerging understanding of how AI can be leveraged not just for content generation but also as interactive, adaptive learning companions.

Using badges as a reward system is not new in skills training programs (Mobini & Karunaratne, 2019), yet it has not been systematically integrated into formal pedagogical approaches for upskilling. The use of quizzes to assess soft skills is also being discussed and prototyped (Mobini & Karunaratne, 2019). However, integrating these innovative features into mainstream pedagogical frameworks remains a significant methodological and institutional challenge.

5. Conclusion and Future Work

This study explored how students perceive the need for and approaches to learning soft skills. Based on a participatory design approach to explore potential ways forward in addressing the growing need for soft skills development in higher education, this approach not only develops innovative learning solutions but also contributes to more authentic, engaging, and contextually relevant educational experiences by engaging students as co-creators. The Future Workshop methodology proved effective in surfacing student perspectives and generating actionable ideas that align with both pedagogical and technological shifts. This work contributes to the discourse on digital learning design by demonstrating how student-driven processes can inform the development of gamified interventions aimed at real-world skill application.

Future research should focus on translating these prototypes into functional learning environments and empirically evaluating their effectiveness in improving student engagement, collaboration, and skill acquisition over time.

Ethics Declaration

In collecting empirical data, this study followed the ethical requirements of the respective university. As described in section 3.4, this research study has not collected any sensitive data from the data subjects and, hence, did not require ethical approvals from the university. However, information about the study and the possibility of publication was provided to all workshop participants, and informed consent was obtained prior to data collection.

AI Declaration

No AI tools were directly used in conducting the research. Language correction tools were employed during the development of the workshop and the writing of the manuscript to proofread and correct language errors.

References

Adhiatma, A., Rahayu, T., & Fachrunnisa, O. (2019). Gamified training: A new concept to improve individual soft skills. *Jurnal Siasat Bisnis*, 127–141. https://doi.org/10.20885/jsb.vol23.iss2.art5

Aghaee, N., & Karunaratne, T. (2023). Soft Skills Demand and Supply Through the Lens of Higher Education Students. *European Conference on E-Learning*, *22*(1), 1–10.

Brieven, G., Moraes, M., Pawelczak, D., Vasilache, S., & Donnet, B. (2025). Integrating Soft Skills Training into your Course through a Collaborative Activity. *Proceedings of the 56th ACM Technical Symposium on Computer Science Education V. 1*, 151–157. https://doi.org/10.1145/3641554.3701877

Clarke, S. J., Peel, D. J., Arnab, S., Morini, L., Keegan, H., & Wood, O. (2017). EscapED: A Framework for Creating Educational Escape Rooms and Interactive Games to For Higher/Further Education. *International Journal of Serious Games*, *4*(3), Article 3. https://doi.org/10.17083/ijsg.v4i3.180

Dell'Aquila, E., Marocco, D., Ponticorvo, M., di Ferdinando, A., Schembri, M., & Miglino, O. (2017). Methodology and Design of Technologically Enhanced Educational Role-Playing Games for Soft Skills Training. In E. Dell'Aquila, D. Marocco, M. Ponticorvo, A. Di Ferdinando, M. Schembri, & O. Miglino (Eds.), *Educational Games for Soft-Skills Training in Digital Environments: New Perspectives* (pp. 39–61). Springer International Publishing. https://doi.org/10.1007/978-3-319-06311-9_3

Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: Defining "gamification." *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments*, 9–15. https://doi.org/10.1145/2181037.2181040

Egalite, A. J., Mills, J. N., & Greene, J. P. (2016). The softer side of learning: Measuring students' non-cognitive skills. *Improving Schools*, *19*(1), 27–40. https://doi.org/10.1177/1365480215616313

EU. (n.d.). *New Skills Agenda for Europe—Employment, Social Affairs & Inclusion—European Commission*. Retrieved April 13, 2020, from https://ec.europa.eu/social/main.jsp?catId=1223

Jungk, R., & Müllert, N. (1987). *Future workshops: How to create desirable futures*. Inst. for Social Inventions.

Kim, S., Song, K., Lockee, B., & Burton, J. (2018). Students' Perception of Gamification in Learning and Education. In S. Kim, K. Song, B. Lockee, & J. Burton (Eds.), *Gamification in Learning and Education: Enjoy Learning Like Gaming* (pp. 49–57). Springer International Publishing. https://doi.org/10.1007/978-3-319-47283-6_6

Koivisto, J., & Hamari, J. (2019). The rise of motivational information systems: A review of gamification research. *International Journal of Information Management*, *45*, 191–210. https://doi.org/10.1016/j.ijinfomgt.2018.10.013

Liu, D., Santhanam, R., & Webster, J. (2017). Toward meaningful engagement. *MIS Quarterly*, *41*(4), 1011–1034.

Marin-Zapata, S. I., Román-Calderón, J. P., Robledo-Ardila, C., & Jaramillo-Serna, M. A. (2022). Soft skills, do we know what we are talking about? *Review of Managerial Science*, *16*(4), 969–1000. https://doi.org/10.1007/s11846-021-00474-9

Mobini, P., & Karunaratne, T. (2019). Towards an ICT Enabler for Enhancing Non-Cognitive Skills in a Lifelong Learning Setting. *European Conference on E-Learning; Kidmore End*, 396-405,XIII,XV. http://dx.doi.org.ezp.sub.su.se/10.34190/EEL.19.084

Módné Takács, J., Pogátsnik, M., & Kersánszki, T. (2022). Improving Soft Skills and Motivation with Gamification in Engineering Education. In M. E. Auer, H. Hortsch, O. Michler, & T. Köhler (Eds.), *Mobility for Smart Cities and Regional Development—Challenges for Higher Education* (pp. 823–834). Springer International Publishing. https://doi.org/10.1007/978-3-030-93904-5_81

Ngang, T. K., Chan, T. C., & Vetriveilmany, U. D. a/p. (2015). Critical Issues of Soft Skills Development in Teaching Professional Training: Educators' Perspectives. *Procedia - Social and Behavioral Sciences*, *205*, 128–133. https://doi.org/10.1016/j.sbspro.2015.09.039

Nørgård, R. T., Toft-Nielsen ,Claus, & and Whitton, N. (2017). Playful learning in higher education: Developing a signature pedagogy. *International Journal of Play*, *6*(3), 272–282. https://doi.org/10.1080/21594937.2017.1382997

Plass, J. L., Homer ,Bruce D., & and Kinzer, C. K. (2015). Foundations of Game-Based Learning. *Educational Psychologist*, *50*(4), 258–283. https://doi.org/10.1080/00461520.2015.1122533

Qiong, L., Rongrong, X., & Minhui, L. (2025). Factors influencing positive perceptions of hybrid teaching in higher education: A case study of an engineering university. *International Journal of Educational Technology in Higher Education*, *22*(1), 24.

Ruiz-Ezquerro, A. (2021). Rolling dice and learning: Using role-playing games as pedagogy tools. *Journal of Campus Activities Practice and Scholarship*, *3*(2), 50–56. https://doi.org/10.52499/2021022

Schislyaeva, E. R., & Saychenko, O. A. (2022). Labor Market Soft Skills in the Context of Digitalization of the Economy. *Social Sciences*, *11*(3), Article 3. https://doi.org/10.3390/socsci11030091

Succi, C., & and Canovi, M. (2020). Soft skills to enhance graduate employability: Comparing students and employers' perceptions. *Studies in Higher Education*, *45*(9), 1834–1847. https://doi.org/10.1080/03075079.2019.1585420

Vidal, R. V. V. (2006). The future workshop: Democratic problem solving. *Economic Analysis Working Papers*, *5*(4), 21.

Warmelink, H., Koivisto, J., Mayer, I., Vesa, M., & Hamari, J. (2018). *Gamification of the work floor: A literature review of gamifying production and logistics operations*. http://hdl.handle.net/10125/50026

Whitton, N. (2018). Playful learning: Tools, techniques, and tactics. *Research in Learning Technology*, *26*. https://doi.org/10.25304/rlt.v26.2035

Xia, Q., Weng, X., Ouyang, F., Lin, T. J., & Chiu, T. K. F. (2024). A scoping review on how generative artificial intelligence transforms assessment in higher education. *International Journal of Educational Technology in Higher Education*, *21*(1), 40. https://doi.org/10.1186/s41239-024-00468-z