

# Soft Skills Demand and Supply Through the Lens of Higher Education Students

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**Abstract:** Soft skills are becoming equally crucial as hard skills in today's labour market. In contrast to hard skills which are teachable typically through formal education, soft skills are non-technical and interpersonal, allowing individuals to be able to find and succeed in their studies, jobs, and professional life. Despite the increasing emphasis on soft skills, many university students are either unaware of or neglect enhancing them. Soft skills deficiency among university students has become a significant concern for employers, educators, and policymakers, as it negatively affects students' academic performance and future employment prospects. The purpose of this study is to investigate students' perceptions of the demand for soft skills and the possibility and availability of learning opportunities. The expected outcomes intend to provide insights about awareness of soft skills among students and pathways to reduce the soft skills gap through training provisions in higher education settings. Furthermore, it aims to find out how the young generation (mainly Generation Z) would perceive digitalisation and specifically gamification as a solution to facilitate soft skills training. This is a mixed method study, in which, an open survey was the data collection media. The survey was conducted during the spring semester of 2023 and analysed using visualisation and summarisation methods. Based on the outcome of 66 master's and bachelor's students attending the digitalisation courses in two classes in Sweden, over 50% of the students perceived a lack of soft skills in their curricula. They were also positive toward the use of gamification as an effective digital strategy, recognising it as a powerful tool to facilitate training and developing soft skills as a part of formal learning in higher education. As a suggested approach, gamifying soft skills training potentially creates simulations that mimic real-world situations to allow students to practice and develop their soft skills in a safe and low-stakes training environment. This facilitates training soft skills for better communication and collaboration during their academic journey and after their graduation and to prepare students for successful careers.

**Keywords:** Soft skills, Skills enhancement, Higher education, Gamification, Technology-enhanced learning

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## 1. Introduction

In the millennium when smart technologies were introduced to general use, society, industry, education and citizens as individuals drifted towards technology abruption and smartphones became the new normal since then (Nasiri et al., 2020). Less than a year ago we experienced another digital paradigm. When the Large Language Models based Generative algorithms succeeded in generating acceptably accurate new knowledge, which was previously believed to be accomplished only by human experts, the academic and business world was shaken (Dwivedi et al., 2023). These are just only a couple of examples of the consequences of entering the digital era. Inevitably, more digital paradigms are yet to come, and probably we won't be able to predict them until they are already entered into reality. Hence, resilience to paradigm shifts is essential, and the competencies associated with it are indispensable and every individual should excel in it to thrive in the digital world. Skills such as adaptability, tenacity, problem-solving, leadership, communication, and so forth (Mobini & Karunaratne, 2019), named soft skills, allow sustaining the existence in the era, as shown by previous research (Lalioi, 2019; Schislyaeva & Saychenko, 2022). In parallel with the digital transformation, the current labour market is rapidly changing to receive the maximum benefit of digitalisation. As recent literature (Börner et al., 2018; Patuzzi, 2021; Petritsopoulou et al., 2021; Susilawati et al., 2020), as well as reports on the labour market dynamics (EU, n.d.; Eurofound, 2017; Eurostat, n.d.), shows, the current and prospective employees may encounter great challenges in fulfilling the ever-changing job requirements (Smaldone et al., 2022), unless the employees are properly trained and skilful to thrive in the dynamic environment. In contrast to hard skills, such as computation, language learning and so forth, which are gained through learning and can be quantifiable and measurable, soft skills learning and assessment are associated with significant pedagogical challenges since the evaluation of the soft skills is not explicit and straightforward (Petritsopoulou et al., 2021; Schislyaeva & Saychenko, 2022). Although the value and the need for assessing and enhancing soft skills are recognised on many occasions from the reports of labour market demands (Glinos et al., 2020; Zhang et al., 2022) to European Commission recommendations (Andrews & Higson, 2008), soft skills learning and assessment is not explicitly embedded in the education programs or professional development programs to date (Admin, 2022; Börner et al., 2018; Cinque, 2016).

Previous studies about educators' and employers' perspectives on soft skills learning can be found in the contemporary literature (Ngang et al., 2015; Selvadurai et al., 2012; Susilawati et al., 2020). However, it is equally important to encompass the learner perspectives in this regard, which is an under-investigated and grey area in contemporary research. Specifically, university students are the mainstream task force in the prospective labour market who are being affected greatly by the dynamic job profiling (Petritsopoulou et al., 2021). Hence, how higher education students perceive the importance of learning soft skills is essentially a main requirement for bridging the knowledge gap in this domain of learning. In addition, despite the increasing emphasis on soft skills, university students often lack these essential abilities (Börner et al., 2018; Hanapi & Nordin, 2014). This deficiency in soft skills among university students has therefore become a significant concern for employers, educators, and policymakers (Mobini & Karunaratne, 2019), as it may negatively affect students' academic performance and future employment prospects (Malik & Ubaidillah, 2021; Salas-Velasco, 2021).

Technology-enhanced learning has become an integral part of today's formal education. Gamification is one of the advanced technologies that can be used to facilitate learning different skills, including soft skills (Adhiatma et al., 2019). Gamification, when it is embedded into game-based learning, supports and improves motivation and engagement in learning among students (Módné Takács et al., 2022) and develops different skills, including soft skills, as experimented in skill generator assessment game, for example (Dochie et al., 2017). In addition, Adhiatma, et al. (2019) reflects on gamification as a new concept for effective and targeted training to improve individual soft skills and motivate and facilitate soft skills development. Gamification in the digital age is a new way of involving students and motivating them to learn and train new concepts.

Higher education institutions possess a great responsibility in preparing their current students suitable to compete in the new job profiles and succeed in their professional lives (Brunello & Schlotter, n.d.; World Economic Forum, 2022; Cleary & Noy, 2014). However, the question is if the universities have recognised or, given attention to this need from the labour market and if their education programs help facilitate this need. The best stakeholder group if this need is supplied by the responsible entities is the university students. Hence, it is important to understand, firstly, if the students understand this need and, secondly, if they perceive the university to cater to the need for soft skills enhancement. Therefore, this study instruments an empirical study to systematically investigate the students' perception of soft skills demand and learning of soft skills. Accordingly, this study attempts to seek answers to research questions 1) How do higher education students perceive the need of learning and enhance soft skills 2) How can soft skills be learnt and assessed efficiently using a technology-enhanced learning approach of gamification.

The rest of the paper is organised as follows. The next chapter briefly describes the background and fundamentals of soft skills. Chapter 3 illustrates the methodological approach of this empirical study and chapter 4 analyses and summarises the main findings. Lastly, chapter 5 discusses the final concluding remarks including the potential way forward in the inclusion and application of soft skills learning into mainstream formal education.

## **2. Soft Skills Demand and Supply**

Soft skills, also known as interpersonal or non-technical skills, have gained significant attention in scientific articles across various fields in many countries (Deep et al., 2019). Despite that the exact findings and discussions may vary depending on the specific context and the countries, several common themes and topics emerge when examining the existing literature on soft skills (Marin-Zapata et al., 2022). By definition, "a skill is defined as the ability to perform a certain physical or mental task that is functionally related to attaining a performance goal" (Marin-Zapata et al., 2022). Some key points to consider include the importance of soft skills in the new generation of learners and job seekers as well as the importance of soft skills training and development in educational settings (Andrews & Higson, 2008; Börner et al., 2018; Cinque, 2016; Marin-Zapata et al., 2022).

Different studies categorise soft skills differently and define the most important soft skills, from different perspectives (Böttcher et al., 2012; Mobini & Karunaratne, 2019). However, the prioritised skills and the expressed percentage of the importance of each component, and somehow their definition of each soft skill is different. For example, Robles (2012) discusses the business executives' perception of the 10 most important skills: integrity, communication, courtesy, responsibility, social skills, positive attitude, professionalism, flexibility, teamwork, and work ethic. Based on a literature review and different studies Susilawati et al. (2020) claim the need for 12 soft skills in science learning. These skills are critical thinking, teamwork, creativity and

innovation, communication, problem-solving, curiosity, rigour, integrity, analysis, research and inquiry, information literacy, and objective (Susilawati et al., 2020). From another perspective, Dell'Aquila (2017) defines the concept of soft skills, and the importance of different skills, based on various literature sources and highlights soft skills as a vital role player in students' performances and career advancements. This study also shows that employees greatly benefit from these skills as they enable effective interaction with customers and foster engagement with organisational objectives.

There have always been expectations and demands on graduates in their academic life, due to the increasing globalisation and digitalisation of professional careers. Students are compelled to excel academically and as well as to create and enhance their soft skills (Selvadurai et al., 2012). Unfortunately, the current academic system doesn't facilitate soft skills learning as mentioned above, but these skills are demanded by employers for graduates to be effective and efficient in their prospective occupations (Robles, 2012). Many of these soft skills are an essential part of employability and some even consider and place them more valuable than the subject matter in academic life. Though soft skills are described in our curriculum explicitly, they have been ignored for decades. The results are devastating and discouraging. Consequently, as a result, students happen to lack confidence, the ability to work as part of a team, have poorly written and oral communication, etc. (Deep et al., 2019).

### **3. Methodological Approach**

The purpose of this study was to investigate the level of university student's knowledge and understanding of soft skills. It also intends to explore how students perceive the need and usefulness of soft skills and if technology-enhanced learning methods such as gamification would be a sufficient medium to facilitate soft skills training. Such research demands an instrument of explorative research strategy-based survey study. The data collection was based on a semi-structured questionnaire. A questionnaire is beneficial as a data collection instrument when the unit of measurement is drawn from a large sample where data is required to be collected and analysed through quantitative means (Jacobsen, 2000; Roni et al., 2020). As the focus of this study is on the general perspective and experiences of students, regarding the understanding of the concepts and training of soft skills in higher education, a representative data sample was needed to be able to make the study more transferable, through the survey results, and as mentioned by (Bryman, 2006), quantitative methods are appropriate when it comes to reflections on the current situation and trends, the relationships and patterns.

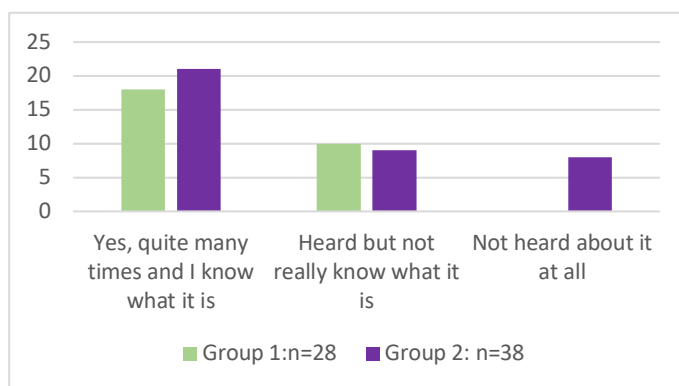
Due to the fact that awareness of soft skills may depend on several parameters (Glinos et al., 2020), including demographic variations (Andrews & Higson, 2008; Cinque, 2016), a case study was chosen for providing a deeper understanding of the unit of measurement in relation to specified characteristics. This study was done during the spring semester of 2023, and the case was conveniently chosen as the international students at LUSEM (Lund University School of Economics and Management), in Sweden. The questionnaire was distributed to international bachelor's and master's students, along with the informed consent and appreciations, during the digitalisation courses. There was a total of 66 students, in two classes, and the responses were received from almost 54-58 students (84,8% response rate). Composition of the questions includes, three segments, namely, 1) the awareness, definitions and understanding of the need for soft skills 2) availability and opportunities for learning soft skills 3) learning methods and if gamification could be a good approach to learn soft skills. Accordingly, a mixture of structured and open questions was used to define their perception and understanding of soft skills. This is followed by questions to rate the level of importance of each soft skills attributes specifically for them, in connection to the course concepts. The students were asked to answer only based on their own knowledge and understanding of these soft skills terms and not by refereeing to any resource. For structured questions, a Likert scale was used, while not for all questions, to avoid bias in scaling and rather to let the respondents choose among different options than just rating the skills. Half of the survey questions were open questions with qualitative data collection aimed to get students' understandings and reflections in their own words. However, the finding themes and the codes based on the open questions were also used in a quantitative way.

The respondents were divided into two groups: group 1, 28 participants from the master program, who answered almost all questions. The range of age among group 1 was from 1977-1999, with a larger weight of 2/3, belonging to birth years 1990-1999. Group 2, 40 participants from the bachelor programs, answered most of the questions, but less frequency of answers for open-ended questions. The range of age among group 2 was

1997-2004, with a larger weight on students born after the year 2000. Both groups of students were informed that their participation is fully voluntary, and this will not in any way have any influence on their course results and grades. An informed consent was shown to the participants to get their agreement, before starting the data collection. The respondents were given the option to stop at any time or skip any questions if they do not wish to answer any questions. Furthermore, none of the sensitive or personal information was collected through the questionnaire.

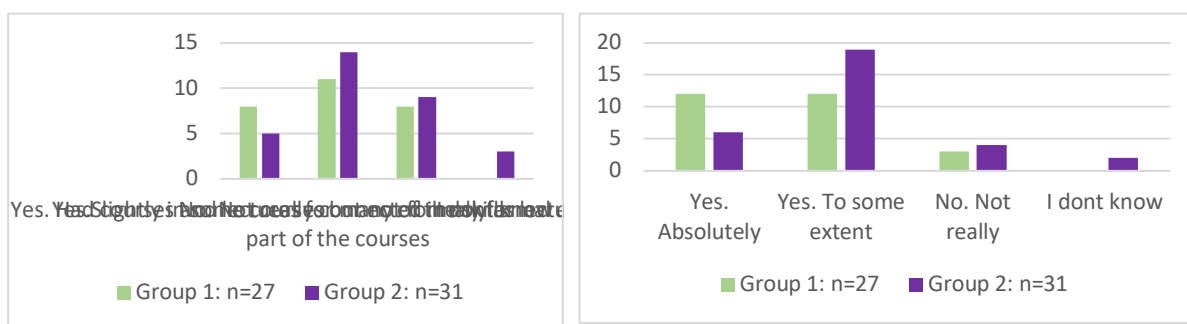
#### 4. Results and Discussion

As stated above, the literature claims that soft skills have gained significant attention and are recognised by different educators and learners in the recent past (Marin-Zapata, et al., 2022; Selvadurai et al., 2012; Robles, 2012). The results revealed that among the respondents in this study, almost 41% of students were fully or partly unaware of what are soft skills (c.f. Figure 1).



**Figure 1: Awareness of soft skills among bachelor's and master's students.**

Almost 70% of the students, who responded to the survey, have not had an opportunity to learn and practice the soft skills as a part or in concurrent with their formal education (c.f. Figure 2 -left). However, according to Figure 2 (right), most of the respondents (almost 76%) proclaim that training and education about soft skills in formal learning settings is missing or is quite poor. Furthermore, almost 84% showed interest and would like to have more soft skills training in their higher education.



**Figure 2: The distribution of the responses on the previous opportunity to learn soft skills (left), and if learning opportunities are missing or not in the current education system (right)**

Previous studies define and describe soft skills, and also have prioritised (Robles, 2012; Aznam, 2020) skill sets that are important in general as well as specific to occupations in the job market (Mobini & Karunaratne, 2019). We defined a list of 10 skills based on the literature and asked the students about their knowledge for those skills. The responses were as in Figure 3. Accordingly, the majority of respondents know about communication and collaboration, problem-solving, and critical thinking as soft skills.

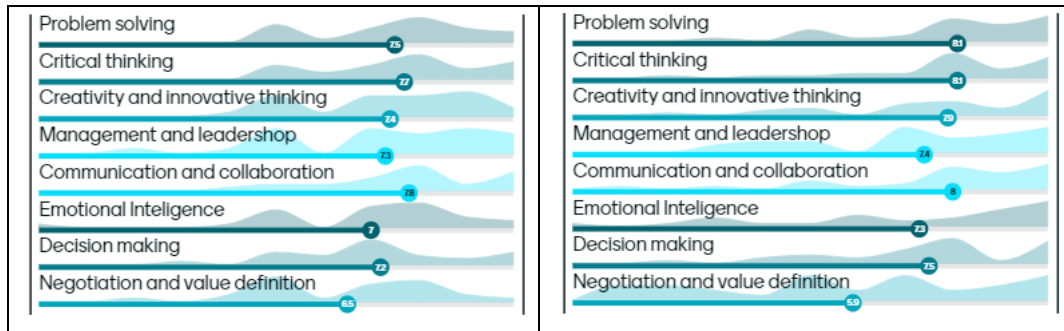


Figure 3: Students awareness of the soft skill types; masters' students n=25(left) and bachelors students n=31

As a follow up question, we asked students to prioritise the three most important skills that they wish to learn. As shown in the following word clouds, in Figure 4, the respondents in two separate groups, first indicated the soft skills they know and then defined their three highest prioritised soft skills, which they would like to learn. There is a slight difference between the BSc & MSc students. Accordingly, critical thinking, problem-solving and communication were picked as the known and the most important skills. These skills, as defined by previous studies, are essential for both managers and employees, as well as students and leaders, to facilitate the achievement of organisational missions, and the shaping of future directions and visions, as well as to guide teams towards achieving the shared goals through collaborations (Robles, 2012; Dell'Aquila, 2017). However, it should also be noted that when some known soft skills such as communication and problem-solving are listed, there is a higher probability that by default students may recognise them as important and pick them up, although they may not fully comprehend the need of the soft skills in the labour market.

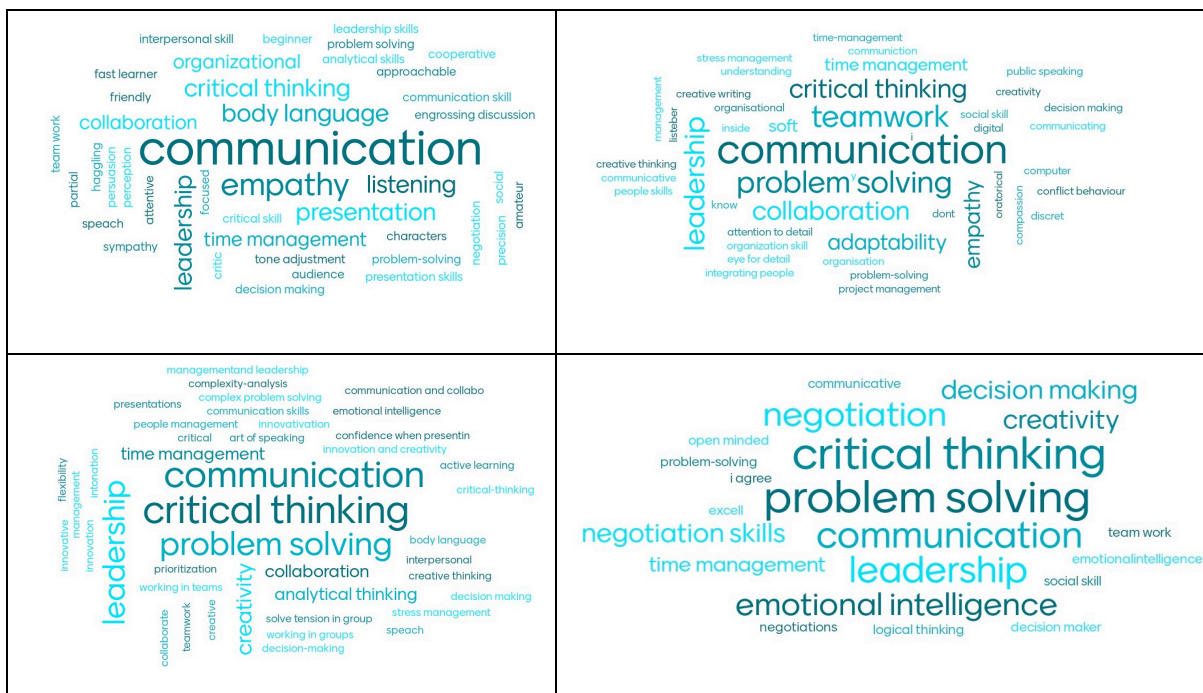
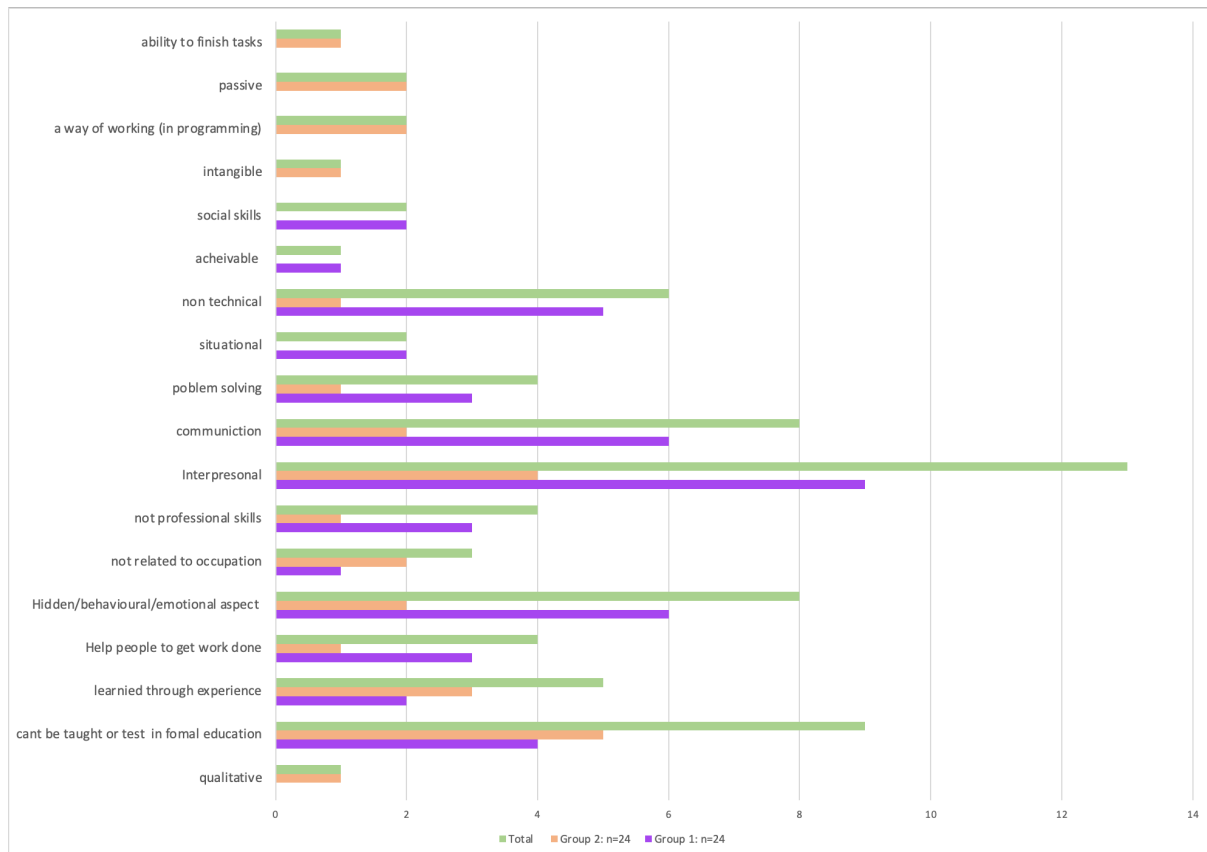


Figure 4. Word Clouds indicate the soft skills they have heard before by masters' students (n=27 – top left) and bachelors students (n=32 – top right), the three most important soft skills among masters' students (n=27 – bottom left) and bachelor's students (n=36 – bottom right).

When defining soft skills based on previous knowledge and understanding or, based on the use of the skills in educational settings, most of the students responded that they have not learned about these skills, they did not have the training, and this kind of skills are more interpersonal and must have specific training than just being informed and get some theoretical teaching about them. For instance, one respondent described soft skills as “Skills that are not formally taught, but that can be **learned through experience** whether in a professional environment, educational environment, or otherwise”. According to another respondent “Soft skills, from my

point of view, is connected to more **personal characteristics**, rather than knowledge of tools". Another interesting response was "soft skills are those that can be **developed through practical experience** and have much to do with daily life and attitude". This mean that the students have no clear understanding of enhancing soft skills is a possibility irrespective of the evidence from literature about how soft skills can be enhanced and improved (Petritsopoulou et al., 2021). Not many respondents reflected on the definition of soft skills. However, the respondents reflected clearly on the usefulness of soft skills in educational settings and in connection to their future work and their interest in using technology support (in-line with Deep et al., 2019) and specifically gamification (in-line with Takács, et al., 2022; Dochie, 2017; Adhiatma, et al., 2019) for this kind of training in higher education. Figure 5 is the overview of the different themes that emerged from the texts that respondents used for defining and describing soft skills.



**Figure 5: Definition and description of soft skills**

It is interesting to see the breadth of the spectrum of the soft skills descriptions in Figure 5. There are many students who think that soft skills cannot be learnt (9), also some students think that soft skills do not impact on professional life, but it is just a way of dealing with the issues when one exists as a human being. Furthermore, according to some students' soft skills are just communication skills or skill of problem-solving. Many students assume it involves interpersonal skills; they, however, distinguish it from hard skills. Nevertheless, these outcomes comply with similar studies in other contexts, such as for unemployed adults (Petritsopoulou et al., 2021).

Using technology to train soft skills is examined and studied by different studies (Dell'Aquila, 2017; Aznam, 2020). Lack of soft skills and importance of it is also reflected by some previous studies (Hanapi & Nordin, 2014; Deep et al., 2019) The majority of respondents believe Technology enhanced solutions is mediating skills enhancement, e.g., "I think a lot of the tools we already have, do that - teamwork for group projects, class discussions, etc. I just think it needs to be clearer which educational activities are teaching which skills" according to one respondent. Figure 5 shows how students presume learning of soft skills.

The potential of Gamification in facilitating skills learning is positive as illustrated in Figure 6. Accordingly, majority of the respondents believe it is a good idea. In the attempt of capturing the perception of the students about gamification and game-based learning, it is found that all but five respondents knew or had experience

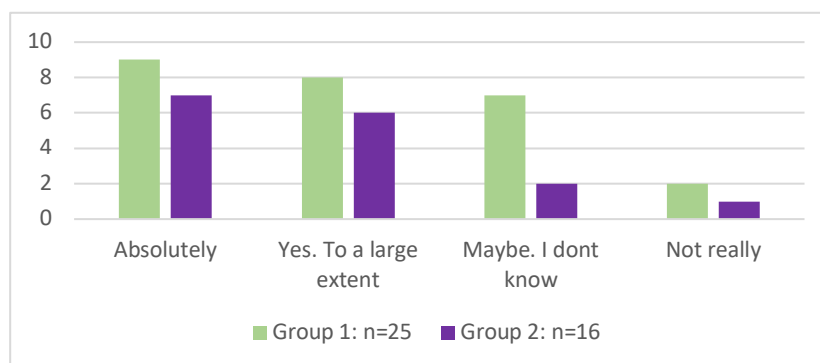
with it. They have been using game environments in the past, e.g., “Language learning applications that use gamification techniques such as **reward systems** in order to encourage the user to continue using the app and in the process, learning a language”, according to one respondent. “Some teachers have used **classroom games** to get us to understand concepts. Online educational games intended to teach different subjects were also a large part of my childhood.” according to another viewpoint. However, many respondents were referring to the tool (application) Duolingo as a good example that can be extended to use in the context of learning soft skills. Specific mentions of the features of the app were the “to-do” list, the game environment, badges, reward system, scoreboard of progress, and so forth. Virtual reality (VR) was highlighted as another potential application, where “Business simulation or marketing simulation where it creates a virtual world that would act as how it would be in practice” was a user story perceived by a respondent. Another participant thought as previous studies (Takács, et al., 2022; Dochie, 2017; Adhiatma, et al., 2019) also reflected “It is (gamification) everywhere. A lot of apps use it to motivate you to use it more. Duolingo is a good example with a scoreboard”.

When it comes to the question of how soft skills can be learnt and assessed efficiently, game-based learning was recognised as a potential methodology for formal training of soft skills. Gamification is adding game mechanisms into nongame environments, to facilitate learning. In reflection on this, it can be an option for learning about soft skills, based on the result of this study, which over 60% of the students reflected positively on the use of technology and specifically gamification in training soft skills; although, they have not been explicitly using game environments in their education.

Technology/Tools	Methods/Pedagogy	Mode/Medium
<ul style="list-style-type: none"> <li>• Coursera</li> <li>• LinkedIn Learning</li> <li>• Machine Evaluation tools</li> <li>• Self-assessment</li> <li>• Visualisations</li> <li>• ChatGPT</li> <li>• Duolingo</li> <li>• Learning</li> <li>• Canva</li> <li>• Game applications</li> <li>• VR</li> <li>• Simulations</li> </ul>	<ul style="list-style-type: none"> <li>• Quizzes</li> <li>• Game-based learning</li> <li>• Learning Scaffolding</li> <li>• Technology enhanced learning</li> <li>• Group work</li> <li>• Case study</li> <li>• Writing/Pitch speech</li> <li>• Interactive/active learning</li> <li>• Problem/case-based learning</li> <li>• Role playing</li> <li>• Experience-based learning</li> <li>• Social learning</li> <li>• Scenarios</li> <li>• Class discussions</li> </ul>	<ul style="list-style-type: none"> <li>• Face to Face</li> <li>• Learning Management Systems</li> <li>• Coursera</li> <li>• LinkedIn Learning platform</li> <li>• Training at school</li> <li>• Online MOOCS</li> <li>• Zoom Lectures</li> <li>• Mobile applications</li> </ul>

**Figure 6: How can the soft skills be learnt?**

A reflection is “A learning platform where we were asked quiz questions and if we answered wrong, we got promoted to read on the material, if right we scored points to collect and reach a new level of questions”. As shown in Figure 7, most students find the use of gamification relevant to soft skills training since the knowledge cannot be just gained theoretically, but rather through scenarios and gaming functions. However, again, this is the fact that some students have not had any experience with gamification in formal learning, and those who had, believed that gamification in formal learning could be a very good tool for training and gaining new skills.



**Figure 7: Can soft skills be learnt through gamification?**

In summary, the students are recognising the need of learning soft skills, although in the beginning of the questionnaire a little less than half of the responder group was not aware about exactly what soft skills are. Moreover, the way and opportunities for learning soft skills in the frame of formal learning at the level of higher education is inadequate as perceived by the students. A need to have a clear structure and transparent process of inclusion learning and assessment of soft skills is raised. All in all, technology medication is recognised, and many methods, tools, and modes were named appropriate for the task according to students. Among those methods a specific focus was made on game-based learning, due to its potential in adapting to uncertain learning tasks, and ultimately students perceived it is a potential way of learning soft skills.

## 5. Concluding remarks

The purpose of this scientific paper is to investigate students' perception and understanding of soft skills and to reflect on how much they know about these skills, and how much they believe there is a lack or need for such skills training in higher education. The aim is to find out how technology and specifically game-based learning could be a solution for this filling in this gap of training, and, how the new generation (mainly focusing on Generation Z) would prefer to learn about these skills. We define Generation Z, as the demographic cohort succeeding Millennials and preceding Generation Alpha. By analysing the current literature and conducting original research through open surveys, this paper aims to provide insights into the strategies that can be used to improve the soft skills in university settings and to facilitate training soft skills for students and prepare them for successful careers and even better communication and collaboration during the academic journey.

Overall, the conclusion and contribution of this study is 1) training of soft skills is a lack of knowledge and practice among university students and 2) gamification can be an effective digital strategy and a powerful tool to facilitate training and development of soft skills among university students, as a part of formal learning in higher education. Gamification can provide an engaging and effective way to practice and develop the important soft skills attributes for academic and professional success among university students. By incorporating game-like elements into learning activities, such as points, levels, rewards, and badges, students can be motivated to engage with the material and practice their soft skills in a fun and engaging way.

As suggested by different students, as a part of the result in this study, one approach to gamifying soft skills training is to create simulations that mimic real-world situations in which these skills are needed, such as team collaboration, conflict resolution, and effective communication, to put students in real-life cases to learn from and handle the situation. These simulations can allow students to practice and develop their soft skills in a safe and low-stakes training environment. The system may also provide student-teacher communication possibilities, to facilitate receiving feedback and guidance along the way from the teacher team. Another approach is to use game-based assessments to measure students' soft skills and provide personalised training and feedback on areas for improvement. As some students mentioned, interactive communication and assessments, such as quizzes or scenario-based games can assess a student's ability to listen actively or demonstrate empathy in a certain situation and provide feedback and tips for improvement based on their performance. One point of caution is that skills learning elements must be transparent in terms of why, how, and which soft skills are learned and assessed during their academic courses. These conclusions of this research can feed forward to create learning solutions in higher education courses in the future.

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