

Students' Perception of the Development of Generic Competencies in a User Innovation Course Context – A Longitudinal Study Comparing Different Teaching Modes in Higher Education

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Abstract

The development of generic competencies relevant to graduates lies at the heart of higher education. Generic competencies development is challenging in today's VUCA – volatile, uncertain, complex, ambiguous – world, and the COVID-19 pandemic exacerbated this challenge as educators were forced to change from classroom to online teaching with very short notice. In this paper, we analyse how the change in teaching mode influences students' perception of the development of their generic competencies. Our longitudinal data consists of five years of student feedback from a multidisciplinary and practice-oriented user innovation course in a higher education context. We analysed how students perceive their development of specific generic competencies and surprisingly found no statistical differences over the five years studied, not even when moving from blended teaching to a fully online setting. We discuss how the three underlying factors – 1) roots and premises, 2) freedom and independence, and 3) social connectedness and support – enhance the perceived development of generic competencies despite the change in teaching mode, and we conclude with suggestions to business educators.

Keywords:

competencies development; business education; perceived competencies; user innovation; Covid-19; online teaching

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1 Introduction

We live in a world where the pace of change is increasing and which is becoming more unpredictable with each passing day (Anttila et al., 2018). Changes are happening faster and faster – and they are becoming ever more dramatic and disruptive. As events unfold in completely unexpected ways, determining cause and effect becomes impossible. This world is sometimes referred to as *VUCA – volatile, uncertain, complex and ambiguous* (Bennet & Lemoine, 2014; Chan et al., 2017). During the last couple of years, we have all experienced this VUCA world due to the outbreak of the COVID-19 pandemic (Hadar et al., 2020).

The COVID-19 pandemic changed not only society but education as well. Almost all higher education institutions around the world were affected by the pandemic. It changed the traditional classroom teaching setting by forcing business educators to move rapidly to online teaching, often to a fully online teaching mode (Marinoni et al., 2020). In most cases, the main challenges were lack of technical infrastructure, competence in distance learning pedagogy as well as discipline-specific challenges (Adedoyin & Soykan, 2023; Adnan & Anwar, 2020; Beech & Anseel, 2020; Bhuwandeep & Mishra, 2023; Marinoni et al., 2020; Turnbull et al., 2021). However, it also ushered in new opportunities: for instance, more accessible forms of education, new teaching methods and insights into issues such as which parts of courses can be asynchronous and which parts benefit from face-to-face interactions (Beech & Anseel, 2020; Govindarajan & Srivastava, 2020).

The development of generic competencies relevant to graduates lies at the heart of higher education. These competencies are important not only to ensure work-ready graduates (e.g. Chan et al., 2017; Freeman et al., 2017; Pažur Aničić et al., 2023), but also to enable employees to keep up with all the changes influencing future work (Anttila et al., 2018; Ekonomit, 2020). Generic competencies are also of interest to policymakers. For example, in educational policy, several lists of important generic competencies have been drafted (e.g. OECD, 2019; Opetushalitus, 2019), and suggestions for life-long learning policies have been developed (Anttila et al., 2018). The development of generic competencies is more important than ever in the VUCA world, in which students struggle substantially with their circumstances (Hadar et al., 2020). Generally, there is a growing research interest in how students learn generic competencies (Boelt et al., 2022; Tuononen et al., 2022) and how they perceive the importance of generic competencies (Koponen et al., 2022). Moreover, pedagogical practices fostering the learning of generic skills in higher education have been studied (Bautista, 2016; Boahin & Hofman, 2014; Lee et al., 2019; Virtanen & Tynjälä, 2019).

The effects of teaching modes have so far received only limited attention in research on the learning of generic competencies (e.g. Tuononen et al., 2022), especially when it comes to comparing the achievement of similar learning goals in different teaching modes (e.g. Jaskari & Jaskari, 2016). Thus, there is a need for more research to gain insight into how students learn generic competencies in different teaching modes. This is especially true now, as online and blended teaching have become increasingly important in education around the world.

Therefore, in this article, we study students' perceptions of the development of generic competencies in higher education. Our specific context is a multidisciplinary course on user innovation. A longitudinal study design enables us to compare the students' perceptions during a time when the teaching mode was changed due to COVID-19 restrictions. More specifically, we aim to answer the following research questions:

- (1) How did the students perceive the development of generic competencies in the individual years of the analysed time frame?
- (2) How did the perception of the development of generic competencies change within the time frame when comparing years with blended and online teaching modes?
- (3) What aspects of the students' learning experience can be interpreted as positive elements enhancing the development of generic competencies?

Regarding RQs 1 and 2, we apply a quantitative survey method to analyse the students' ratings of their development of specific generic competencies. To answer RQ3, we use a qualitative method and analyse the students' reflections on their positive course experiences.

We contribute to the literature on teaching and learning of generic competencies in a business education context by showing that the change in the teaching mode did not influence students' perception of the development of generic competencies and arguing that roots & premises, freedom & independence, and social connectedness & support were the three underlying positive elements enhancing the development of generic competencies.

The paper proceeds as follows: in Section 2, we briefly look into earlier literature on developing generic competencies. In Section 3, we introduce our case course, and in Section 4, we describe our research data and method. In Section 5, we present our findings regarding the students' ratings of the development of specific generic competencies. In Section 6, we describe our results related to positive elements enhancing the development of generic competencies. We finally conclude in Section 7 with suggestions to business educators.

2 Developing generic competencies

The term competence is central in education. However, it is defined in many different ways, and in many studies only implicitly (El Asame & Wakrim, 2018; Le Deist & Winterton, 2005; Parry, 1998; Passow & Passow, 2017), if at all. There are also several terms used when referring to competence, such as competency, skills, capabilities and attributes (Chapman & O'Neill, 2014; Kallioinen, 2010; NCVR, 2003; Passow & Passow, 2017; Schlee & Karns, 2017), and these terms are often used interchangeably (Edwards-Schachter et al., 2015; Le Deist & Winterton, 2005; Salman et al., 2020). In this study, we define competence as knowledge, skills, attitudes and values that can be applied in a specific job, role and situation (Mulder et al., 2009).

The multiple definitions of competence seem to have three dimensions in common. First, competence is defined as a characteristic of an individual, which consists of different components such as knowledge, skills and attitudes. For example, Edwards-Schachter et al. (2015) conclude that the concept of competence identifies both the combination of related traits, knowledge, values, attitudes, skills and abilities in a determined context and the process of their development.

Second, in addition to the abovementioned individual characteristics, the definition of competence includes its context-dependency, for example, "in a determined context" (Edwards-Schachter et al., 2015) or "necessary conditional for task performance and problem-solving in a certain profession, organisation, job, role and situation" (Mulder et al., 2009). Also, competence can relate to a specific occupation or domain, referred to as, for instance, occupational or functional competence (Salman et al., 2020).

Third, the definitions point out that competence is something that can be learned and that competence development occurs in a learning process (Edwards-Schachter et al., 2015).

For example, Hoffmann (1999) describes two approaches: an output-based approach describing what needs to be done by individuals to demonstrate competence, and an input-based approach focusing on the content of training and learning experiences that will lead to competent performance. In both cases, learning or the process of learning is evident. Our study adopts the input-approach in the sense that we focus on the learning experience of the students and how it enhances how they perceive their competence development.

Generic competencies (also e.g. transferable skills, soft skills, generic skills) are not tied solely to a certain context, degree or occupation. They can be deployed in various contexts and are transferable by nature (Edwards-Schachter et al., 2015). Following our earlier definition of competence, we adopt a definition of generic competencies as clusters of knowledge, skills, attitudes and values, which can be applied in different situations regardless of discipline (Edwards-Schachter et al., 2015; Passow & Passow, 2017).

Earlier research has studied generic competencies in the higher education context from different perspectives. One of the most cited sources in generic competencies development in higher education, Evers et al. (1998), focuses on generic competencies needed to improve work-readiness in higher education. Tuononen et al. (2019) highlight the importance of diverse generic competencies, and also an ability to recognise them at the time of graduation, not only in employability but also in terms of later career success. The importance of explicit development of generic competencies in higher education was also noted by Tuononen et al. (2022). In their review, they synthesised theoretical, methodological and empirical viewpoints on learning generic skills in higher education. They found, for instance, that students developed generic competencies in courses that intentionally integrated the learning of them. Regarding enhancing and impeding factors of learning generic competencies, the results indicated that these factors were contextual, especially with respect to the teaching and learning environment. For example, active learning methods emphasising students' own activity and role were seen as enhancing the learning of generic competencies.

The development and learning of generic competencies to enhance the employment of graduates and their success in their careers has also received much attention in business education (e.g. Ekonomit, 2020; Finch et al., 2012; Finch et al., 2013; Freeman et al., 2017; Gray et al., 2007; Hopkins et al., 2011; McArthur, 2017; Plant et al., 2019; Schlee & Karns, 2017). To illustrate, Schlee and Harich (2010) found that new and recent marketing graduates rely more on generic competencies than marketing knowledge and skills when they enter the workforce. Bedwell et al. (2014) discuss ways to effectively integrate interpersonal skills into MBA programmes, as executives see these as critical for their work performance, but expect those skills to be learned before entering the workforce. Also, Koponen et al. (2022) conclude that future leaders perceive that communication competencies are highly necessary. Finch et al. (2012) even – based on a practitioners' perspective – suggest that learning outcomes linked to the development of generic competencies should be prioritised over subject-specific knowledge in course and programme development. A literature review by Chan et al. (2017) shows that there are challenges in the development and implementation of generic competencies in the higher education curriculum, such as lack of institutional and curriculum support, operational challenges (conceptualisation, teaching pedagogy and assessment) and teachers' and students' perceptions of generic competencies development.

Even though the importance of the development of generic competencies is acknowledged and there is a growing research interest in how students learn generic competencies, not much is known regarding how students develop generic competencies, how these should best be

taught, or how different teaching modes influence the learning of generic competencies (Boelt et al., 2022; Smith & Bath, 2006; Tuononen et al., 2022; Virtanen & Tynjälä, 2019). The recent and imperative shift to online teaching due to the COVID-19 outbreak provides a fruitful context to study how students perceive the development of generic competencies in two different teaching modes. Next, we present our study context.

3 Case course: User Innovation

The specific course used as the case for our study is a 5 ECTS course in User Innovation, which was open to students from different disciplines at the University of Vaasa, Finland in 2016–2021. In 2016, the course was carried out as a pilot, and our data collection stems from the five years (2017, 2018, 2019, 2020 and 2021) when the course had found its general course structure after the pilot round in 2016. Due to a change in the study programmes, the User Innovation course has not been offered after 2021.

The course structure is visualised in Figure 1. The main learning goal of the course was that the students understand and experience a user innovation process through a user innovation (UI) team project. The user innovation project was carried out by a multidisciplinary team including students from different disciplines at the University of Vaasa (business studies, technology, administrative studies and communication studies). The multidisciplinary student teams had four to six members and were formed at the beginning of the course by the course coaching team. This experiential project was supported in two ways during the course: first, by individual theoretical assignments (IAs) based on video lectures and other online materials, and second, by team-specific coaching sessions (TCSs) and related team assignments (TAs). In the coaching sessions, each team discussed its progress in the user innovation project with a multidisciplinary coaching team consisting of university staff members. The course spanned over the autumn semester, from September to December, lasting 12–13 weeks in total. As Figure 1 shows, it included a course kick-off, three team-specific coaching sessions, and a final event where the student teams presented the user innovations developed in the course.

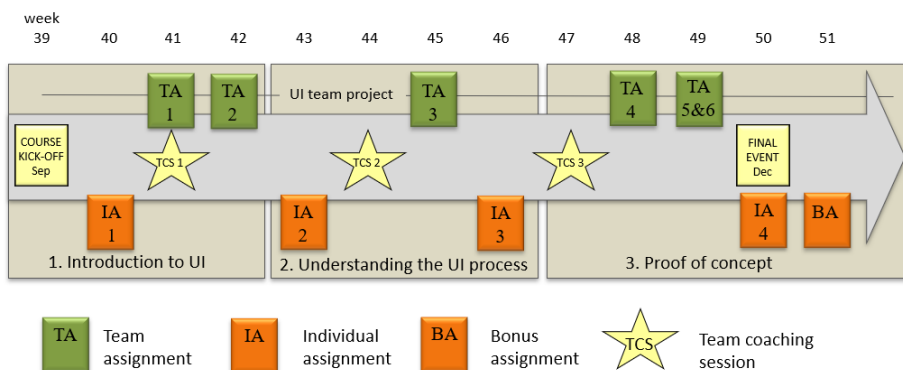


Figure 1. General User Innovation course structure.

Regarding intended learning outcomes, the course description lists the following: after completing the course, the student should be able to (1) identify, explain and compare basic concepts of user innovation, (2) explain the different parts of the user innovation process, (3) apply the tools of user innovation, (4) create a user innovation concept in teams, and (5) evaluate the success of user innovations. In addition to this, the working life skills of taking initiative, teamwork skills, innovativeness, and creativity were explicitly mentioned in the course description.

How did the COVID-19 pandemic affect the teaching mode of the case course? Table 1 summarises the differences in the course format before and during the pandemic.

Table 1. User Innovation course arrangements before and during the COVID-19 pandemic.

PRE-PANDEMIC ARRANGEMENTS 2017–2019	ARRANGEMENTS DURING THE PANDEMIC 2020–2021
Face-to-face sessions with all course participants present (course kick-off, final event)	Online sessions with all course participants present (course kick-off, final event)
Online asynchronous video lectures and learning materials	Online asynchronous video lectures and learning materials
Face-to-face sessions with the student and the coaching team present (team coaching sessions)	Online sessions with the student and the coaching team present (team coaching sessions)
Face-to-face meetings of the student team throughout the course	(Mostly) Online meetings of the student team throughout the course

As Table 1 shows, all the sessions arranged face-to-face in 2017–2019 were carried out online in 2020–2021. Specifically, the course kick-off, the team-specific coaching sessions and the final event were arranged as face-to-face sessions before the pandemic, and as online sessions during the pandemic. The meetings of the student teams were also mainly arranged online during the pandemic. Asynchronous online teaching, namely videos and assignments, was kept online – only one exam that ran earlier in the electronic examination room on the university campus was transferred to the Moodle learning management system.

As described above, creativity and teamwork in a multidisciplinary setting are key elements of the course. Earlier research on innovation acknowledges the importance of cross-functional elements in the innovation process; however, companies often struggle to implement them successfully (McDonough, 2000). The user innovation course aims to develop innovativeness and creativity as generic competencies, and we assume that giving students the possibility to work in multidisciplinary teams is an essential learning experience that effectively prepares them for meeting the demands of future workplaces. Earlier research has shown that teamwork in general, and multidisciplinary teamwork in particular, is difficult to carry out without face-to-face sessions and discussions (Jaskari & Jaskari, 2016), and thus our study design provides an interesting setting to assess the challenges of online teaching. Next, we describe our research data gathering and analysis methods.

4 Research data and analysis

The data for this study was collected with an evaluation and reflection assignment at the end of the case course. The assignment was voluntary and the students were informed that the data would be used for course development and educational research purposes. The data collection period was 2017–2021.

The final dataset includes data from five different years and from five different student groups. The data consists of 136 responses, of which 45% were male, 47% female and 8% were N/A. During the five years, the number of participants in the course, as well as the number of responses received, decreased mainly due to changes in study programme requirements. The detailed number of responses per year is shown in Table 2.

Table 2. Number of student responses to the evaluation and reflection assignment.

YEAR	N	%
2017	42	30,9
2018	21	15,4
2019	29	21,3
2020	26	19,1
2021	18	13,2
Total	136	100,0

Regarding the categorisation of generic competencies, the existing literature proposes a variety of models (e.g. Binkley et al., 2012; Evers et al., 1998), in the same way as there are various definitions of the term competence (see Section 2). In our study, we apply the comprehensive list of 16 generic competencies defined and described by Passow and Passow (2017), which was also applied in Enell-Nilsson et al. (2019). Passow and Passow (2017) employed an extensive quantitative synthesis and qualitative thematic analysis focusing on engineering education, discussing generic competencies and their relative importance for professional practice. The list was compiled from an engineering point of view, but it functions well in other contexts too, as the competencies “are important across disciplines and practice areas”, as pointed out by Passow and Passow (2017: 503), and it has been used by others in the business education context as well (e.g. Depoo et al., 2020). For the context of our study – a user innovation course offered to students from different disciplines – Passow and Passow (2017) forms a suitable framework since the competencies described relate to different aspects of (team) innovation processes, which corresponds with the main learning goal of the case course.

The generic competencies are (Passow & Passow, 2017): (1) solve problems, (2) communicate effectively, (3) coordinate efforts, (4) take initiative, (5) think creatively, (6) take responsibility, (7) measure accurately, (8) interpret data, (9) define constraints, (10) devise process, (11) gather information, (12) expand skills, (13) make decisions, (14) design solutions, (15) apply knowledge and (16) apply skills. For the context of our study, we made the decision to exclude *devise process*, since it did not really relate to the User Innovation course contents, as the course focused on teamwork rather than project management as such. Instead, we included the competencies of *cross-cultural skills*, *multidisciplinary teamwork* and *time management*. These are all covered by Passow and Passow (2017) as aspects of some of the 16 competencies listed

above: Passow and Passow (2017) see time management as an element of *define constraints*, and cross-cultural skills and multidisciplinary teamwork are both included in *communicate efficiently*. As the format of our evaluation form did not allow for the inclusion of any longer definitions, we felt it was important to explicitly mention these three, as they all were important elements of the User Innovation course.

We were interested in students' perceived competencies. The term perceived competencies refers to students' self-reports of their knowledge acquisition, typically based on some self-reflection, whereas actual competencies refer to a change identified with some rigorous measurement system (Bacon, 2016). As modern pedagogies emphasise the use of different assessment methods, such as students' capability for self-assessment, the perceived competencies development provides a valuable point of view and is thus adopted in this study. This approach is also widely used when investigating students' learning of generic competencies (Boelt et al., 2022; Tuononen et al., 2022).

Students' perception of their development of the chosen competencies was measured using a Likert scale 1–5, where 1=Very much and 5=Very little. For the analyses, the variables were reversed so that 5=Very much and 1=Very little. In order to answer RQ 1, we analysed the ratings of each generic competence for each year, and for RQ 2, an analysis of variance was used to pinpoint differences in student groups (Metsämuuronen, 2009: 782). We used IBM SPSS Statistics 26 in our statistical analysis.

In order to answer RQ 3, we analysed the responses the students provided to one of the open-ended questions in the evaluation and reflection assignment. In this question, we asked the students to mention the three best things about the course. We chose to analyse the responses to this question in greater depth since our general analysis of the responses to the open-ended questions showed that students mostly highlighted aspects of perceived learning in this part of the course evaluation.

The responses to the open-ended questions were analysed using qualitative content analysis (Eriksson & Kovalainen, 2016; Miles and Huberman, 1984). The anonymous responses were transferred to a shared sheet. At this point, we had 394 mentions about the best things of the course. For each of these, the keyword was identified and coded using open-ended inductive coding. Each author conducted parts of the data coding independently, and after this the authors discussed, compared and reviewed the individual results until an agreement on the coding was reached. The authors categorised and combined codes using the abductive method, and this thematic iteration led to the formulation of three partly overlapping themes: roots and premises, freedom and independence, and social connectedness and support.

5 Students' perceived generic competencies development

In the first part of the analysis, we focused on how the students perceived the development of generic competencies. In order to answer RQ 1, "how did the students perceive their generic competencies development in the individual years 2017–2021", we analysed the responses year by year in the final course evaluation and reflection assignment to the question, "How did the course support the development of the following competencies/skills relevant for working life?" The mean rates for the different generic competencies in the five analysed years are shown in Table 3. The table applies a Likert scale ranging from 1–5, where 1=Very little and 5=Very much. The numbers to the right of the mean indicate the position in the 1–5 ranking for each individual year.

Competence	2017	2018	2019	2020	2021	Total
Think creatively	4,50 1	4,57 1	4,55 1	4,62 1	4,72 1	4,57
Design solutions	4,31 2	4,19 4	4,14 4	4,23	4,56 2	4,27
Make decisions	4,14 3	4,14	4,24 3	4,27 5	4,28 4	4,21
Multi-disciplinary teamwork	4,02 5	4,05	4,31 2	4,36 2	4,18	4,17
Communicate effectively	3,88	4,05	4,14 4	4,31 3	4,22 5	4,09
Take responsibility	3,86	4,29 2	3,86	4,19	4,33 3	4,05
Take initiative	4,05 4	4,19 4	3,83	4,08	4,22 5	4,05
Solve problems	3,98	4,20 3	3,86	4,08	4,17	4,03
Coordinate team's efforts	3,95	4,00	3,79	4,31 3	4,17	4,02
Coordinate multiple competencies to accomplish a goal	3,76	4,05	3,66	4,17	4,00	3,89
Apply knowledge	3,88	3,86	3,76	3,88	3,94	3,86
Time management	3,74	3,67	3,83	3,92	4,11	3,83
Apply skills	3,76	4,05	3,55	3,81	3,94	3,79
Cross-cultural skills	4,00	3,67	3,75	3,23	3,31	3,67
Gather information	3,48	3,67	3,66	3,88	3,72	3,65
Expand skills	3,43	3,81	3,48	3,68	3,94	3,61
Define constraints	3,33	3,55	3,54	3,80	3,83	3,56
Interpret data	3,17	3,33	3,21	3,42	3,78	3,33
Measure accurately	3,14	3,25	3,00	3,54	3,50	3,26

Table 3. Mean rates and ranking positions 1–5 for the generic competencies.

Table 3 reveals that the competence *think creatively* is ranked the highest in each analysed year. The competencies *design solutions* and *make decisions* are also ranked high each year, with both of them being included in the top 3–6 in the individual years. In general, the ten competencies at the top of the list (*think creatively* – *coordinate multiple competencies to accomplish a goal*) are ranked with high scores in the years 2018, 2020, and 2021: in 2020, all competencies ranked with a mean of 4,17 or more can be found in this group. In 2018, the competencies ranked 4,05 or higher belong to this group except for *apply skills*. In 2021, *time management* is in addition to these competencies ranked 4,00 or higher. In the years 2017 and 2019, there are in general less competencies ranked with a mean of 4,00 or higher. However, also in these years, the competencies that are ranked high can be found among the five first on the list, with the exception of *cross-cultural skills*, ranked with a mean of 4,00 in 2017. Reflecting back upon the working life skills explicitly mentioned in the User Innovation course description (see Section 3) – taking initiative, teamwork skills, innovativeness and creativity – we can say that the students’ competencies development perception is in line with the intended course outcome, as *think creatively*, *multidisciplinary teamwork* and *take initiative* are typically ranked high; in the years 2017, 2019 and 2021 they can be found in the top five.

All years and competencies combined, the students perceived that the course developed mostly their ability to *think creatively* (M=4,6, SD 0,6), followed by *design solutions* (M=4,3, SD=0,8) and *make decisions* (M=4,2, SD=0,8). The only statistical difference based on gender in perceived competencies was in *cross-cultural skills*, where females perceived greater competencies development (M(M)=3,3 vs M(F)=4,0), F=5,064, sig,008.

In order to answer RQ 2, “How did the perception of the development of generic competencies change within the time frame when comparing years with blended and online teaching modes?”, we analysed whether the years differed statistically in terms of perceived generic competencies development. Since there were five groups, an analysis of variance (ANOVA) was

used (Metsämuuronen, 2009: 783). To our surprise, the analysis shows no statistical differences between any of the 19 listed competencies in different years. These findings are aligned with Virtanen and Tynjälä's (2019) claim that the learning of generic skills does not depend on any single method of teaching. This finding led us to look deeper into the open-ended question about the best things in the course.

6 Positive elements of the learning experience

To look behind the numbers, we analysed the answers to the open-ended question: what were the three best things during the course? The 394 mentions were initially coded inductively, forming several themes ranging from course structure to freedom to innovate, from coaching sessions to the final event, and from individual assignments to multidisciplinary teamwork. After thematic iteration, three main themes arise from our data: 1) roots and premises, 2) freedom and independence; and 3) social connectedness and support. As with the quantitative data, there were no clear differences between the years studied: similar themes arose every year in the open-ended question.

6.1 Roots and premises

The roots and premises laying the ground for competencies development include the categories of the course topic itself, learning by doing and course structure. These categories emphasise the knowledge factor of the course, the practical application of that knowledge, as well as the instructional design made in planning and implementing the course.

Several students mentioned that the course topic itself was interesting and new to them. They already had an interest in the topic when they enrolled in the course and potentially had the internal motivation to study the subject. It is not surprising that they appreciated the theoretical knowledge content; as one of the students described it: *Learning the theory behind user innovation.* (F_18_2020)¹

Some of the students emphasised the practical side of the course – learning by doing – not only knowing and understanding the different phases of the user innovation process, but actually exploring the phases themselves. For some of the students, this kind of course was something totally new, whereas others were more familiar with learning by doing. As two of the students described:

Main focus on the team project, best to learn by going to the user innovation process by ourselves. Project divided into many steps, good for not postponing the work and doing the project in the last week with poor quality. The course was informative and useful, I had never really thought about the possibilities of users innovating. (M_12_2020)

Learning how user innovations come to life and what is the process from an idea to a product for consumers. (F_8_2018)

The course structure, including for example modules, tasks and schedules, was mentioned several times. The students seemed to find the balance between individual tasks and teamwork successful; as one of the students wrote:

¹ All examples from the user innovation course evaluation and reflection assignment in the following are quotations.

I enjoyed how this course was formulated. The course was very well balanced and the content of the individual assignments, team assignments, coaching sessions and the final event was great. (F_02_2021)

The findings show that the premises that lay the ground for competencies development (such as knowledge content, practical application and course design, including for example modules, tasks and schedules) were perceived as one of the best parts of the course in both the blended and online modes. Also, earlier research has recognised that skillful pedagogical course design and the usage of various teaching and learning methods are essential when investigating students' learning of generic competencies (Virtanen & Tynjälä, 2019). Thus, our findings emphasise the importance of the pedagogical know-how of the educators.

6.2 Freedom and independence

The second theme that arises concerns students' self-directedness and autonomy. Many respondents mentioned freedom and independence in their answers. The students valued the possibility of being creative and innovative during the course, both individually and in their teams. As one of the students formulated it:

The best aspect of this course was the freedom with the innovations! I really like to be creative and go wild with the ideas and that is exactly what we could do during this course. (M_07_2017)

Others also mentioned the innovative project as a positive aspect of the course: *the chance to be innovative and creative (F_09_2018)* and *have freedom to innovate (M_21_2018)*. They stated that the course built confidence that users can create great things: *the understanding that how one can innovate and the confidence that we users can create great things (M_12_2021)*.

The nature of independence during the course was described as the freedom given to each project team to work independently and take responsibility for its work. Sometimes, independence can also cause uncertainty and hopes for more guidance, as one of the students explained:

The third aspect that I would like to pick from the course is the ability to conduct the innovation course quite freely and independently in teams, however, I would have wanted a bit more guidance in the course. (M_6_2019)

Earlier research (e.g. Boelt et al., 2022; Tuononen et al., 2022) has shown that teaching approaches and learning methods emphasising students' own activity and encouraging students to engage in self-directed learning and taking an independent role can enhance the learning of general competencies. Moreover, our findings are supported by Wood (2003), who introduces the concept of psychological ownership as a key part of success in student learning. He argues that psychological ownership is more than an involvement – it is a state of mind where students feel that the project is truly theirs due to their sense of power and influence (Wood, 2003).

6.3 Social connectedness and support

Many of the students mentioned teamwork and group assignments as one of the best things in the course. Teamwork helped the students to think from different perspectives and to get new ideas. Team meetings and group assignments were mentioned along with learning teamwork skills. As one of the students wrote:

Also, it was really instructive to work on an own innovation with the team. (M_23_2019)

The teams were formed by the teachers during the first session so that each group had members from different disciplines. This was a positive aspect for many participants, as several students mentioned these multidisciplinary teams as one of the best things in the course:

Group projects offered a nice chance to enhance the ideas together. We were able to learn a lot from each other as we all had different majors. (F_33_2017)

Fellow students in the group were from different faculties. In my opinion this kind of group work was a wonderful opportunity to interact, exchange ideas and learn. (N_13_2017)

The multidisciplinary teamwork was not always easy, but some of the students were able to see it as a learning opportunity:

I enjoyed the multidisciplinary aspect of it – it is challenging and at the same time beneficial to work with people from different study area and learn other “languages” business vs engineering. (F_7_2020)

On top of multidisciplinary teams, some teams were culturally diverse. This forced the teams to communicate in English and also made them more aware of the cultural differences, as one of the students described:

To learn working in English and having different cultures that needed to take into consideration also innovating together was fun once the group was familiar with each other. (F_08_2021)

One aspect of the course that gained plenty of mentions each year was the coaching sessions. The format of the coaching sessions was such that the students always first presented their project process and then received feedback from a panel of coaches. These coaches were teachers, PhD students and university specialists in commercialisation and innovation. Different coaches attended at different times, making it easier for each coach to participate. The students appreciated the coaching staff's “heavy involvement” (M_20_2019) and “personal support” (M_04_2021), as well as the atmosphere of the sessions:

Really liked those coaching sessions where the teachers gave the attention to our group and in the process there was no pressure from other teams and competition. (F_8_2018)

The course was organized really well. I liked the fact that even though we were working mostly in groups by ourselves, the teachers had team coachings with us. I have had a lot of group as-

signments this fall, and this is the only course where I felt the teachers were really focused on us students and wanted us to do well. As we got feedback about our work and ideas throughout the course, it encouraged me to keep working hard together with the team members. It also created a sort of a nice community for us students, teachers and other faculty members participating in this course. (F_8_2020)

The final presentations were mentioned several times and each year. During the pre-pandemic year, we organised a public innovation fair. All the innovations and their proofs of concept were presented to the public in the library lobby. Not only the students, but other visitors as well were able to attend the fair and vote for the best innovation ideas. There were prizes for different categories, such as the most innovative and most feasible innovation. This fair had an impact on many students, as two of the students described:

The final presentation session: we got to introduce our project to so many. (F_14_2019)

The final event where we presented our concept was really inspiring, at least to Finns like me it is good to get used to marketing your own ideas. (M_25_2017)

When planning the online course, we thought that it would not be possible to have a fair online. However, we decided to arrange the fair in Teams. It succeeded quite well, as some students stated that the final event was one of the best things about the course even during those years: *the final event was a fun way of presenting the ideas. (M_16_2020)*

One of the students nicely wrapped up the main point of social connectedness and support resulting in a learning community:

It also created a sort of a nice community for us students, teachers and other faculty members participating in this course. (F_8_2020)

These extracts show the importance of the social dimensions of learning environments. Multiple students stated that not only the teamwork but specifically the interactions in multidisciplinary teams were the best parts of the course. These findings are aligned with earlier research. For example, Smith and Bath (2006) found that generic competencies tend to be best developed in contexts with high interaction and collaboration with peers and faculty. Also, other studies (e.g. Ballantine & McCourt Larres, 2007; Boelt et al., 2022; Crebert et al., 2004; Kember & Leung, 2005) support our findings on social connectedness and support the argument that interaction, collaboration and group activities are an essential part of the learning of generic competencies.

To sum up, our findings show that roots and premises, freedom and independence, as well as social connectedness and support are perceived as positive elements enhancing the development of generic competencies.

7 Conclusions

In this study, we have looked into students' perceived learning of generic competencies in the context of a multidisciplinary User Innovation course in the higher education context. We were particularly interested in seeing whether and how the perception of competencies development has changed, as the teaching mode had changed to a fully online mode during the

COVID-19 pandemic. Further, we wanted to analyse what aspects of the course the students perceived as positive elements enhancing generic competencies development. We collected data over a five-year period; three years before the pandemic and two years during the pandemic.

The User Innovation course and its implementation is perceived to support the development of the generic competencies of the students. It was an interesting finding that the results were similar in both the blended and online modes of teaching, as students' perceptions of the development of different generic competencies were stable over the years within the analysed period of time. Thus, the change from a blended teaching mode to a fully online mode is not reflected in the students' perceptions of the development of generic competencies. From the student perspective, the teaching mode itself does not seem to influence how they perceive their learning of generic competencies.

Pre-pandemic research had a rather pessimistic view of online teaching settings for courses with a constructive approach. For example, a study on constructive coaching in sales management courses, at a time when it was uncommon to include synchronous sessions in online courses, found that constructive client-based teaching was very difficult to manage in an online setting (Jaskari & Jaskari, 2016). However, COVID-19 resulted in a radical shift to online teaching. Despite its difficulties, the technical and pedagogical challenges were mostly conquered (Beech & Anseel, 2020; Govindarajan & Srivastava, 2020; Marinoni et al., 2020). Also, students were forced to learn new ways to learn. Indeed, in just a few short years, much has happened in educational technology. Now, technical solutions enable teachers and students to communicate online more easily, and new pedagogical methods and practices for online teaching have emerged. Indeed, the student feedback from the User Innovation course shows the importance of synchronous coaching sessions; discussions (whether blended or online), social interactions in multidisciplinary groups and the coaching sessions were reported as the best parts of the course. Earlier studies (e.g. Ballantine & McCourt Larres, 2007; Boelt et al., 2022; Crebert et al., 2004; Smith & Bath, 2006) support our findings on social connectedness and support the argument that interaction, collaboration and group activities contribute to the development of generic competencies.

Based on our findings we want to conclude with three recommendations to business educators. First, we encourage teachers to continue using online tools to teach remotely in cases where it is pedagogically reasonable. After the shift to online teaching during the pandemic, many higher education institutions have pondered what amount of teaching can be done remotely and what needs to be carried out in face-to-face contact. It is generally considered that online teaching will become increasingly important in the future. However, we urge business educators to be sensitive to the learning outcomes – which of them can be acquired via online teaching and how can the online teaching be implemented?

Second, we encourage business educators to put emphasis on interactive, social methods while teaching generic competencies. As Virtanen and Tynjälä (2019) found, traditional forms of university teaching and studying, such as reading, lecturing and working alone, actually correlated negatively with the learning of generic skills. Our findings highlight the positive elements of social interaction in learning new skills through team innovation.

Third, as earlier research suggests (Finch et al., 2012; Hadar et al., 2020; Koponen et al., 2022), generic competencies are essential for business graduates in a VUCA world and should continue to be intentionally integrated in business curricula. In this context, the findings by Tuononen et al. (2022) are important to consider: students tend to develop generic competencies in courses that intentionally integrate the learning of them. Thus, higher education insti-

tutions need to explicitly consider what generic competencies should be developed and how they are enhanced, not only during one particular course, but at the programme management level in general.

Our study is not without limitations. First, even though the students' subjective perception of the development of competencies is important and has been commonly used in earlier studies (Tuononen et al., 2022), future studies could focus more on the actual learning of specific generic competencies (Bacon, 2016) or self-assessment based on more defined evaluation criteria or using a more diverse competencies framework. Second, the open-ended feedback focused only on the positive aspects of the course. Future studies could also use other methods, such as interviews, to gain a more holistic and balanced view of the students' perceptions.

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