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**AGENCY, EXPERTISE AND WORKING LIFE
SKILLS - STUDENTS' CONCEPTIONS OF THE GENERIC
COMPETENCES REQUIRED IN THE WORLD OF WORKⁱ**

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Abstract:

Fundamental changes in working life highlight the demands on the co-operation between the educational sector and working life, that should contribute to students' employability. In addition to discipline-specific expertise, the development of working life skills has received increasing attention when it comes to employment. Drawing on data from Finnish universities of applied sciences (n=5) and universities (n=3), this paper examines how students (n=380) value the generic competences needed in in the world of work. The study is based on European reforms of labour markets and educational structures. This paper adds to current discourses around employability by highlighting differences between students of universities and universities of applied sciences. The implications of this research suggest paying attention to the concepts of agency, expertise and working life skills as outlined in the integrative pedagogy model, as well as emphasising the requirement for soft skills and generic competences needed in working life.

Keywords: competence-based orientation, employment, generic competence, working life skills, higher education

1. Introduction

Incremental changes in employment are essential drivers for the development of co-operation between the educational sector and working life. In the development of Finnish higher education (HE), the Ministry of Education and Culture (2018) has set the key objective of accelerating the efficient transition to working life and rapid employment. Over the years, the development of competences required in the world of work has received increasing attention in higher education (Fallows & Steven, 2000; Tomlinson, 2007; 2017). Moreover, competence-based orientation in education and training is recommended to modernise higher education (European Union, EU, 2017; 2018). In addition to discipline-specific professional expertise, different studies (Cajander et al., 2012; Gallifa & Garriga, 2010; Nilsson, 2010) highlight the need to develop generic working life skills. Moreover, Chan (2016) defines such as an entity of desired competences that should contribute to economic competitiveness and viable development at the societal level. Research indicates that generic skills affect students' ability to gain employment directly after graduation (Tuononen et al., 2017). The rapidly changing needs of working life emphasize the importance of generic competences as part of education and training (Badcock et al., 2010; Murtonen et al., 2017; Tomlinson, 2007; Virtanen & Tynjälä, 2019).

In its simplest form, strengthening the working life perspective in HE means making an effort to provide students with the individual competences needed in professional life. Importantly, the relationship between the curriculum and working life is not self-evident to students. Therefore, the identification, development and recognition of working life skills is essential; graduates who describe their competences in a diverse

way are more likely to get jobs in their field, gaining employment more quickly (Tuononen, 2019). As working life is not a single actor, professional needs vary by quality, time and scope as students or 'employees' move from more routine tasks to tasks requiring creativity and independent problem solving (see Guile, 2002). From a labour market perspective, competence may refer to the knowledge and skills that can be used to carry out work tasks in an appropriate, up-to-date manner (Mäkinen & Annala, 2010). In addition, quality criteria can be used to define employees' ability to perform, varying based on the job (Billett, 2001) or the level of individual competences required in the job (Ellström, 1997). Generic competences are often seen as transferable skills, emphasising that they can be transferred from one context to another (Canning, 2013; Jääskelä et al., 2018).

In the future, the educational sector will be expected to provide more accurate evidence of qualitative learning outcomes, especially when institutional funding is linked to student achievement and completion (Rhodes, 2012). As one step to strengthen undergraduates' generic competences, Finnish higher education institutions have introduced competence-based curricula (Pyykkö, 2014), in which working-life approaches play a key role (Mäntylä & Haihu, 2014). Indeed, curriculum development can be seen as a complex process, reflecting individual as well as institutional intentions, differences between disciplines and even power relations within and between universities (Annala & Mäkinen, 2017). In this article, we look at the generic competences required in working life in light of the Finnish national will, European reform of the labour market and educational structures, and the latest international research. The research question is as follows: how do students in higher education value the generic competences required in working life?

2. Generic Competences Needed in Working Life

At present EU countries seem to have various methodologies and approaches both in assessing and teaching generic competences – rightfully so given the numerous ways of defining and describing the generic competences needed in working life. The SOSTRA Project (2019), for example, seeks to identify the need for and importance of generic competences called soft skills in European adult education. SOSTRA is among the first projects responding to the new EU Council Recommendation on Key Competences for Lifelong Learning (2018) to foster the development of soft skills, and therefore we considered the recent results of the EU-level project when planning data collection for this article. Fostering competences is the object of educational programmes, and SOSTRA concentrates on the essence of soft skills and the role of adult educators. SOSTRA holds that the most important soft skills include respect for others, diversity, inclusiveness, self-consciousness/self-awareness and positive attitude.

In terms of employment, interpersonal, social skills are considered especially desired in working life (Sánchez Carracedo et al., 2018). Various industries prioritize transversal, generic competences, such as willingness to learn, communication and

teamwork skills (Jiang & Alexis, 2017; Salas Velasco, 2014; Suleman, 2016). Thus, contemporary educational practices should also advocate the development of intercultural competence (Cajander et al., 2012) e.g., to collaborate effectively and appropriately in intercultural situations (Deardorff, 2006). Still, few studies list individual competences based on educational structures with emphasis on the subject area level, that is the content of studies, like in The Tuning project, where the data is collected from both HE Graduates and Employees (Beneitone & Bartolomé, 2014). The Tuning Project has been following the development of the generic competences required following the initial stages of the Bologna Process (European Commission, 2020). The Project distinguishes three types of generic competences: instrumental, interpersonal and systemic and introduces the 16 global generic competences (Beneitone & Bartolomé, 2014, 60-61):

1. Ability to apply knowledge in practice;
2. Problem solving;
3. Capacity for abstract thinking, analysis and synthesis;
4. Ability to work autonomously;
5. Decision making;
6. Oral and written communication;
7. Capacity to learn actively;
8. Information management skills;
9. Teamwork;
10. Critical and self-critical abilities;
11. Concern for quality;
12. Creativity;
13. Computing skills;
14. Interpersonal skills;
15. Ethical commitment.

Commitment to environmental conservation Beneitone and Bartolomé (2014) discuss these competences in terms of importance, achievement and capacity gaps in Europe. They advise to pay attention to the complete picture of combination of elements, relevance of the context and global trends.

Ten years ago, the Global Foresight Report (Davies et al., 2011) outlined the six most important and relevant drivers reshaping the work landscape in the 2020s: extreme longevity, rise of smart machines and systems, a computational world, new media ecology, super structured organizations, and a globally connected world. The digital transformation thus far has not led to reduced employment, slowed down job growth or increased labour productivity growth in the Nordic economies (Rolandsson, 2020). However, current labour models are faced with major transformations such as digitalisation and technological advances, new forms of employment and new labour market agents resulting e.g., emerging demands for digital skills, changes in work

organization and upgrading of work in practice (Rolandsson, 2020). This will entirely transform our ways and views of working and pose opportunities and challenges for the world of work. The metaskills needed to enhance change management at the national, nordic and even global level will become increasingly important.

The Competences and Skills in 2035 report investigates changes in the importance of competences and skills while anticipating the most important skills in 2035 at the Finnish national level (Finnish National Agency for Education, 2019). This report utilised a three-level classification of qualifications: generic skills, common working life skills and skills specific to vocational fields. It also examined citizens' digital skills. The resulting metaskills include problem solving, self-regulation, ability to learn, development and management of personal competence, and information evaluation skills. The importance of skills related to digitalisation, such as the ability to utilise digital solutions and platforms, will also increase. In listings drawn up by 30 sector groups of discipline-specific professional expertise, two skills in particular emerge: skills in customer-oriented development of services and knowledge of sustainable development. The service sector emphasises the importance of skills in the customer-oriented development of services. In the future, new types of solutions will be needed in interactive customer service, increasing the role of service design and automation. In industrial sectors especially, knowledge of sustainable development will become an important basic skill. The report noted the importance of the ability to learn while also highlighting the development and management of personal competence in the world of work. Problem solving skills and information evaluation skills, on the other hand, are essential metaskills. Finally, the report discussed the challenges facing continuous (lifelong) learning as a future metaskill (Finnish National Agency for Education, 2019).

3. Theoretical Framework

Many have debated the competences and skills students learn from the working life perspective (Gilbert et al., 2007; Jääskelä et al., 2018; Tynjälä et al., 2016). Several studies have tried to define different types of generic competences (e.g., Gilbert et al., 2007; Kallioinen, 2010). Predominant socio-cultural theories of learning and professional development emphasise the student's active role in constructing identities in terms of social participation and collective learning in socio-culturally determined knowledge communities (Lave & Wenger 1991; Sfard, 1998; Wenger, 1998). In our study, we apply the integrative pedagogy model as it explores the development of expertise and learning as a combination of several theoretical elements. This model has proven promising in educating future experts (Tynjälä, 2007; Tynjälä et al., 2011; Virtanen et al., 2012; Virtanen & Tynjälä, 2019).

The basic premise of the integrative pedagogy model is to enhance the most important factors required for learning to take place, thus guaranteeing the beneficial learning outcomes related to the needs of working life. Supported by versatile pedagogical methods, students gain self-awareness about their own competences and the

kinds of competences they should develop for working life (Tuononen, 2019). The pedagogical elements of teaching enhance the students' learning. However, according to the competence-based curriculum, students themselves hold a major responsibility for their own learning. They are expected to understand the needs of working life related to their own competences.

In this research into generic competences, the integrative pedagogy model forms a framework for the main concepts of agency, working-life skills and expertise. The basic assumptions which construct the professional expertise are theoretical and practical knowledge, as well as self-regulative and socio-cultural knowledge (Tynjälä et al., 2011). The theoretical knowledge supports solving practical problems and, correspondingly, the practical experiences assist in understanding and using theoretical concepts. The integration of theory and practice gradually leads to a deeper understanding of real-life, authentic phenomena. The necessary elements of learning and developing in this process include self-reflection and reflection with others. According to several researchers, the term expertise has come to be used to refer to competences relying on internal knowledge structures. It also refers to practical knowledge and social competences with knowledge building and knowledge creation as well as the competences of metacognitive awareness (Bereiter, 2005; Hakkarainen et al., 2004; Pylväs, 2018; Tynjälä, 2007; Wenger, 1998). The development of expertise from a cognitive perspective can be classified into several stages, including novice, beginner, competent, skilled and expert (Dreyfus & Dreyfus, 1986).

Curricula often emphasise discipline-specific skills representing the specific core knowledge and capabilities (Barnett & Coate, 2005) crucial to a student's progress academically and professionally in their chosen field of expertise. The notion of "*transferable decontextualised generic competences*" (Canning, 2013, 136) reflects both employers' interest and a technical rationality approach to educational practices. Still, the student's adoption of working-life related practices and required actions may also vary at different universities. Because of the quick changes in working life, it remains difficult to predict the kind of competences that will be needed in future workplaces (Jääskelä et al., 2018) despite stakeholder involvement. Even if students are expected to develop their working life skills during their studies, the task is not straightforward for them or for their teachers. If students do not see the value of competences in working life, none of the innovative approaches in curricula can motivate them to develop the generic competences needed in working life (Isopahkala-Bouret et al., 2011).

A study by Annala and Mäkinen (2017) showed that curriculum change is a highly complex social process, which is related to the individual, disciplinary and institutional identities and reflects the power relations within the academy (p. 24). Their recent study results (Annala et al., 2021) describe these structures to enable or prevent agency. Barnett and Coate (2005) point out qualities of engagement in curriculum design as areas of knowing, acting and being. Annala and Mäkinen (2017) explain how these three domains describe curriculum as a process, taking students' perspective and agency into account. Themes of agency have gained popularity as a research subject and pedagogical

approach to professional development (Eteläpelto et al. 2013), with different disciplines defining the concept of agency in various ways. When explaining the concept with a psychological focus, Bandura (1999) has defined human agency as an idea that a person contributes to her/his own actions by reflection, motivation, and creative and self-determined actions. Other perspectives view agency as a professional agency, agency at work, and a discourse of one's professional identity, academic work or occupational career (Biesta & Tedder, 2007; Eteläpelto et al., 2013; Harteis & Goller, 2014); these discourses are enacted by influencing and making choices (Vähäsantanen & Eteläpelto, 2015). Both definitions emphasise human's self-efficiency, self-management and self-control as meaningful factors in practicing agency. People practise agency when they control their own actions to construct desired ends (Prawat, 1996). Agency refers to a human's capacity to make choices and also execute those choices (Bandura, 1999; Prawat, 1996). A contradictory idea is the deterministic view that a human is just a victim of fate, who has only a limited capacity to influence her/his life and future.

Curriculum development has been studied from the institutional perspective and in different national contexts (Blackmore & Kandiko, 2012; Shay, 2015). There are also studies focussing on individual experiences of curricula reform (e.g. Venance et al., 2014), and some on academic growth and identity during university changes (Clegg, 2008; Ylijoki & Ursin, 2013). In Finland, Annala and Mäkinen (e.g. 2017) have been attempting to understand university-wide curriculum changes in academic communities. According to several studies targeting graduates, higher education did not provide the generic skills needed for working life (Jääskelä et al., 2018; Teichler, 2007; Tynjälä et al., 2006). From the student's perspective, the research gap is obvious when it comes to working-life related skills, especially when it comes to generic competences. This gap becomes apparent when we try to describe how students understand the concept of generic skills. In this study, we aim to explore the confrontation problem of working life and student expectations by focussing on students' understanding of the generic competences required in the world of work.

4. Research Question

This study aims to explore the kinds of generic competences students in HE consider to be most important; it also seeks to determine which qualities they characterize as secondary.

RQ1: How students value the generic competences required in the world of work?

RQ2: How these conceptions meet the needs of working life?

We measure students' opinions of agency, expertise and working life skills as generic competences related to 34 different statements based on previous international research, the Finnish national anticipation work and pan-European recommendations to reveal the potential confrontation problem. We also consider differences between students of universities and universities of applied sciences. Theoretically, this study

draws attention to the concepts of agency, expertise and working life skills as applied in the integrative pedagogy model (Virtanen & Tynjälä, 2019).

5. Materials and Method

5.1 Data Collection

The Finnish higher education system consists of universities and universities of applied sciences (UASs). According to Vipunen - Education Statistics Finland, there were 117,132 and 113,469 full-time equivalent students in Finnish UASs and universities in 2019, respectively. In the UASs, most students were in the fields of health and welfare (31%); engineering, manufacturing and construction (23%), and business, administration and law (21%). In the universities, the students were fairly equally distributed by educational field. The largest fields were arts and humanities (16%); business, administration and law (15%); and engineering, manufacturing and construction (14%) (Vipunen - Education Statistics Finland, 2019).

The context of this study is Finnish higher education in both universities (n=3) and UASs (n=5) located across the country. Data collection was conducted between October and November 2019 in English and Finnish. The quantitative sample was not completely random in terms of how we selected the respondents. The survey focused on students participating in working life oriented courses at that moment, preferably those beginning their bachelor's or master's studies. By narrowing the sample, we aimed to improve the response rate. Participation in the survey was completely voluntary, and students already considering these questions would be more likely to participate. In data collection, efforts were made to ensure that all potential target group respondents were invited to respond to the survey. However, due to the research's voluntary nature, it was not possible to ensure that responses would equally represent all educational institutions involved or all selected fields of study.

Beneitone and Bartolomé (2014) remind readers that understanding the concept of competence is always culturally contextual. In this article, we regard the Finnish national will, pan-European recommendations, and the latest international research while considering the generic competences required in working life. The questionnaire was built considering the identified competence frameworks, development initiatives and pedagogical models, following the most findings from the following:

- 1) Competences and Skills in 2035 (Finnish National Agency of Education, 2019)
- 2) SOSTRA - Soft Skills in European Adult Education (Sostra, 2019), based the new EU Council Recommendation on Key Competences for Lifelong Learning (EU, 2018)
- 3) The concepts of agency, expertise and working life skills as applied in the integrative pedagogy model (Virtanen & Tynjälä, 2019).

The integrative pedagogy model reflects on working-life experience in light of theoretical knowledge, complementing and subsidizing the operational models for the development of students' working-life skills, curricular reforms, and work-integrated

pedagogy and guidance; it also has implications for the linkage between research, development and innovation (RDI) activities and education (Tynjälä, 2018). Using these noteworthy factors as background information, we sought to comprehensively describe students' understanding of the generic competences required in working life. The survey included a total of 34 statements (see Appendix 1) related to generic competencies and a background information section. Respondents marked their answers on a Likert scale of 1-5, with 1 referring to 'strongly disagree' and 5 meaning 'strongly agree'. The statements in the survey were divided under three headings: Agency (n=13), Expertise (n=8) and Working Life Skills (n=13). It should be noted that we used these headings to organize all of the statements from different frameworks according to our knowledge. The first version of the survey was piloted in one academic university (13 respondents) and one UAS (27 respondents). The survey form was created in cooperation with the University of Oulu, the University of Jyväskylä, the University of Lapland, Aalto University, and the Häme UAS.

5.2 Data

The finalized survey was sent at a total of 450 students in eight different Finnish HE institutions. 380 higher education students living in Finland took the survey. 69 of the respondents chose to answer the English version of the survey. The sample was 73% female and 25% male. A small portion (2%) of respondents reported another gender or preferred not to answer. UAS was the learning environment for 63% of respondents and 37% studied at the university. In the field of education, the distribution of respondents was as follows: social services, health and sports (34%); humanities and education (31%); social sciences, business and administration (21%); technology, communication and transport (8%); culture, tourism, catering and domestic services (4%), and other fields of education (2%).

The response rate was 85%. For one group, the survey was emailed, and the response rate for this group was remarkably low (22%) compared to other groups who responded to the questionnaire in a contact session during classroom or distance learning. If this group were left out, the actual response rate would have even been 98%. The students answered an online questionnaire as a part of their studies and were guaranteed anonymity. Students were given the opportunity to refuse to participate in the research and opt out of the survey without giving any reason.

5.3 Measures and Statistical Tests

To measure students' agency (i.e. self-efficiency, self-management and self-control) as a generic working life skill, we asked participants to provide their opinions on 13 items (Table 1). Cronbach's Alpha (α) for those items was .88. The items were followed by these alternatives: Strongly disagree=1, Disagree=2, Neither agree nor disagree=3, Agree=4 and Strongly agree=5. A Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) of .88 showed that the data were suitable for performing a principal components analysis (PCA) with promax as the rotation method. The explanation of total variance was 60.3%.

Table 1: A PCA of agency

Variable	Respectfulness	Agency	Teamwork
Respect for others	.743		
Openness to diversity	.764		
Empathy	.770		
Ethics	.608		
Multicultural skills	.561		
Communication skills	.444		
Self-management		.793	
Critical thinking 1		.734	
Self-development		.710	
Creativity		.683	
Self-awareness		.438	
Teamwork			.872
Working together			.839
<i>Eigenvalue</i>	5.506	1.329	1.003
Exp. of total variance %	42.4	10.2	7.7

To measure expertise as a generic working life skill, the participants were asked to reply with their opinions for eight items (Table 2), $\alpha=.85$. The items were followed by these alternatives: Strongly disagree=1, Disagree=2, Neither agree nor disagree=3, Agree=4 and Strongly agree=5. The KMO was .86, showing that the data were suitable for performing an exploratory factor analysis (EFA) with promax as the rotation method (kappa 4). The explanation of total variance was 62.9%.

Table 2: An EFA of expertise

Variable	Academic expertise	Digital expertise
Knowledge acquisition and analysis skills	.766	
Critical thinking 2	.763	
Managing entities	.701	
Media literacy, evaluation of information	.690	
Problem-solving skills	.545	
Knowledge of the principles of sustainable development	.507	
Digital tools		.964
Taking advantage of digitalization for problem solving		.638
<i>Eigenvalue</i>	3.937	1.092
Exp. of total variance %	49.2	13.7

Respondents' opinions for 13 items (Table 3), $\alpha=.87$, were used to measure students' working life skills. The items were followed by these alternatives: Strongly disagree=1, Disagree=2, Neither agree nor disagree=3, Agree=4 and Strongly agree=5. The KMO was .87, indicating that the data were suitable for performing a PCA with varimax as the rotation method. The explanation of total variance was 58.2%.

Table 3: A PCA of working life skills

Variables	Personal skills	Service skills	International skills
Basic skills in the field	.757		
Human-centred service development competence	.720		
Act creatively and with foresight	.661		
Learning skills	.619		
Developing and managing personal competences	.558		
Collaboration skills	.467		
Entrepreneurship competence		.773	
Customer service skills		.701	
Leadership and coaching skills		.641	
Innovation competence		.509	
Career planning skills		.499	
Internationalisation			.880
Intercultural competences			.868
<i>Eigenvalue</i>	5.197	1.273	1.091
Exp. of total variance %	40.0	9.8	8.4

The statements about generic working life skills were statistically analysed by the KW analysis of variance and Mann-Whitney U-test because the skewness of respondents' answers was significant (i.e., the alternatives agree and strongly agree were the most common student opinions). The Kolmogorov-Smirnov normality test indicated that the variables were not normally distributed ($p < .000$). Spearman correlation coefficient rho was calculated to analyse the dependence between generic working life skills variables.

6. Results

This study used 11 statements to measure students' general working life skills from the perspective of agency (Appendix 1). As Figure 1 depicts, students strongly agreed with the statement that agency is important for working life skills. 79.9% of the respondents agreed that respectfulness towards other people is important. At the same time, 45.3% of them asserted that multicultural skills are important working life skills, making their answers somewhat inconsistent. All in all, students believed that many generic working life skills significantly impact working life. For example, many students considered communication skills (66.8%), self-development (65.3%) and empathy (69.2%) as important generic working life skills. They also evaluated multicultural abilities (i.e., understanding the practices and habits of different cultures and the ability to use this knowledge to interact and communicate with different people) as important working life skills. Only 4.2% of respondents answered disagree or strongly disagree to the statement about multicultural skills.

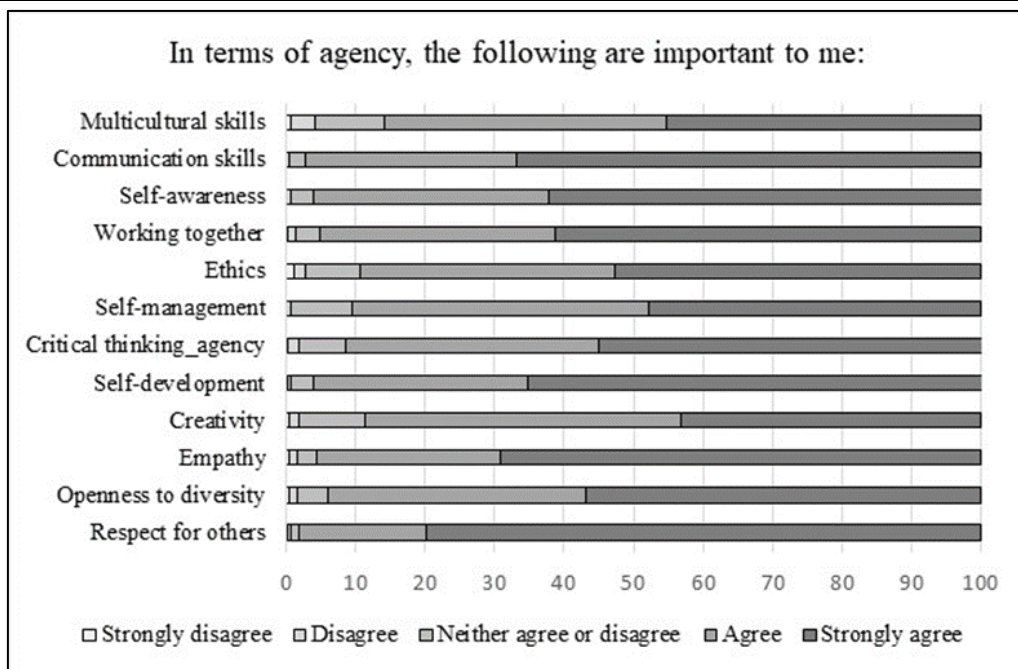


Figure 1: Students' answers for the importance of agency as generic working life skills (n=380)

In total, the present study used eight statements to measure expertise as a generic working life skill (Appendix 1). Students seemed to agree with most of the statements regarding expertise and their importance as generic working life skills. However, there were some exceptions, such as taking advantage of digitalization for problem solving. For example, participants had comparatively lower evaluations of digital tools as generic working life skills (i.e., the ability to utilize and manage various digital tools and platforms) (20.8% strongly agree). Similarly, the ability to recognize and solve conceptual problems individually and communally did not receive as high of concurrence as other variables (16.3% strongly agree). Despite the fact that sustainability issues appear on the media every day, students did not rate knowledge of sustainability as significant as would have been expected. However, the result was still quite high (45.3% strongly agree).

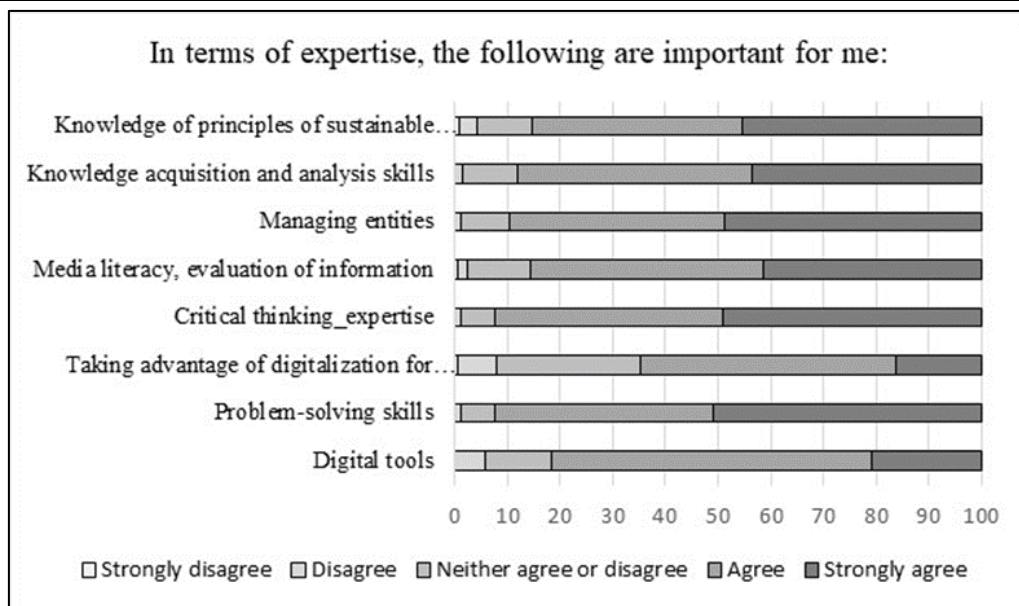


Figure 2: Students' answers for the importance of expertise as generic working life skills (n=380)

The last part of the questionnaire consisted of eleven questions gathering data regarding students' working life skills (Appendix 1). Students especially valued basic skills in the field (i.e., the ability to apply higher education knowledge in a variety of occupations as a very important working life skill) (65.8% strongly agree). Students also valued collaboration skills (60.3% strongly agree) and developing and managing personal competences (54.7% strongly agree). Students viewed entrepreneurship competence as a less significant working skill, with only 23.9% strongly agreeing with the statement. This finding seems to imply that students place less importance on customer knowledge and knowledge of the business environment for successful business operations as compared to the ability to apply theoretical, practical and professional knowledge creatively in new situations (47.1% strongly agree). Perhaps these higher education students did not consider entrepreneurship a significant career option.

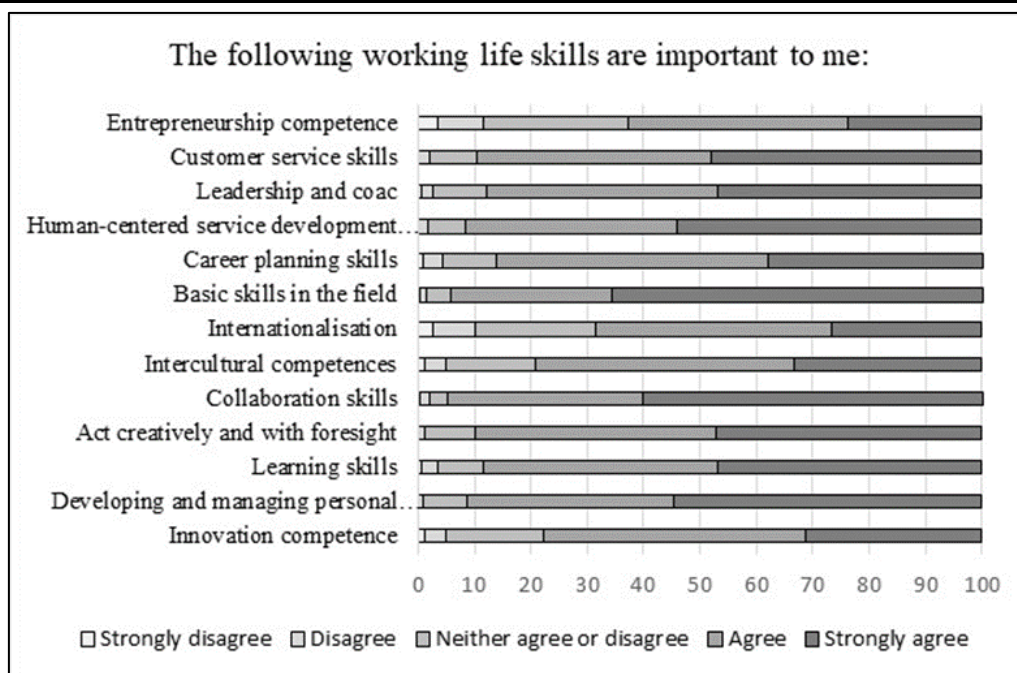


Figure 3: Students' answers regarding the importance of working life skills as generic working life skills (n=380)

Many aspects affected the students' ideas regarding generic working life skills. Therefore, we considered certain background variables in order to have a closer look in the present study. Students' ages did not affect their evaluation of the importance of generic working life skills. Students were relatively young, with 48.7% aged between 21 to 24 years old and only 10.1% of respondents were from 36 to 55 years old.

Neither students' working experience in their own field nor other working experience affected their evaluation of the importance of generic working life skills. Careful interpretation of the results is necessary, as 69.5% of respondents had less than one year of work experience in their field. In addition, 25.3% of the respondents had 1 to 5 years of experience, a relatively low amount of work experience.

For some variables, gender affected students' evaluation of the importance of generic working life skills. According to the Kruskal-Wallis analysis of variance, females evaluated personal skills ($\chi^2(4)=19.802, p<.001$) and respectfulness ($\chi^2(4)=27.977, p<.001$) as more important aspects of generic skills compared to males.

According to the Mann-Whitney U-test, students in the UAS valued service skills as a generic competence ($U=11882, p <.001$) statistically more than university students. Similarly, university students thought that personal skills ($U=11652, p<.001$), academic expertise ($U=14088, p<.007$) and respectfulness ($U=13607, p<.001$) were the more important aspects of generic competences.

Before the analysis, we considered how the field of education affected students' answers. The new variable of 'other fields of education' also included students both from the 'field of natural sciences' and 'natural resources and the environment'. Moreover, the analysis combined students from the following degree programs: tourism, catering and domestic services, and culture. According to the Kruskal-Wallis analysis of variance, the

field of education affected students' ideas of the importance of generic competence as a personal skill ($\chi^2(5)=41.409, p<.001$). The importance of personal skills was highest among humanities and education students; meanwhile, it was lowest for social sciences, business and administration students. Students' educational background also affected their evaluation of the importance of service skills ($\chi^2(5)=29.872, p<.001$) as generic working skills. The importance of service skills was highest for students studying in 'the other fields of education' and lowest among students of humanities and education. International skills ($\chi^2(5)=21.521, p<.001$) were also the most important for students in 'the other fields of education'. By comparison, students in the humanities and education rated respectfulness ($\chi^2(5)=22.104, p<.001$) as the most important generic working life skill. Finally, teamwork ratings differed in statistically significant ways ($\chi^2(5)=18.161, p<.003$). Students in social services and health and sports evaluated teamwork as an important generic working life skill. Surprisingly, teamwork was rated as the least important skill by students in the social sciences, business and administration fields.

Spearman correlation analysis highlighted connections between generic working life skills (Table 4). The highest correlation emerged between academic and digital expertise ($r_s=.746, p<.001$), with results indicating links between academic and digital skills in students' thinking about generic working skills. A connection existed despite the fact that students did not consider digital skills to be as important as other academic skills. It would be interesting to know if students considered digital skills to be too obvious. Also, students' own agency and academic expertise correlated quite strongly ($r_s=.590, p<.001$). Therefore, the results emphasise a strong link between the students' personal experiences and their emphasis on academic skills. By comparison, the correlation between academic expertise and teamwork was quite weak ($r_s=.201, p<.001$). It is possible that individual learning skills, such as problem-solving skills, are more important generic working skills than collaboratively working skills. The results are not clear, necessitating more research. All in all, academic expertise seems to have a strong correlation with many variables; personal skills, for example, correlated quite strongly with it ($r_s=.558, p<.001$).

Table 4: Spearman correlations between generic working life skills (n=380)

	Personal skills	Service skills	International skills	Academic expertise	Digital expertise	Respectfulness	Own agency	Team work
Personal skills								
Service Skills	-.004							
International skills	.015	.021						
Academic expertise	.558**	.334**	.285**					
Digital expertise	.333**	.347**	.290**	.746**				
Respect	.341**	-.061	.119*	.269**	.100			

fulness								
Own agency	.348**	.359**	.214**	.590**	.480**	-.081		
Team work	.207**	.237**	.085	.201**	.233**	-.080	-.008	

**Correlation is significant at the 0.01 level

*Correlation is significant at the 0.05 level

6.1 Evolving Trends in Generic Competence Requirements in Higher Education

In this study, we considered students' opinions of agency, expertise and working life skills as generic competences related to 34 different statements (Appendix 1) based on previous research (SOSTRA, 2019; Virtanen & Tynjälä, 2013) and Competences and Skills 2035 (Finnish National Agency of Education, 2019). Table 5 illustrates the top 10 competences and skills, ranked in terms of their importance and perceived relevance. It should be noted that the key competences identified in the integrative pedagogy model are listed in the order of importance reported in Virtanen and Tynjälä (2013).

Table 5: Comparison of reported ranking orders of competences and skills

Most Important Generic Competences	Competences and Skills in 2035/Most Important Generic Competences	Competences and Skills in 2035/Most Important Competences	SOSTRA - Soft Skills for Adult Educators	Integrative Pedagogy Model
Respect for others	Knowledge of the principles of sustainable development	Customer-centred service development competence	Respect for others	Working together
Empathy	Interaction and communication skills	Principles of sustainable development	Openness to diversity	Knowledge acquisition and analysis skills
Communication skills	Problem solving skills	Media literacy, evaluation of information	Inclusiveness	Problem solving skills
Self-development	Creativity	Utilization of digital solutions	Self-consciousness/self-awareness	Critical thinking
Self-development	Creativity	Utilization of digital solutions	Self-consciousness/self-awareness	Critical thinking
Self-awareness	Ability to learn	Utilization of digital platforms	Positive attitude	Self-awareness
Basic skills in the field	Multicultural skills	Innovation competence	Motivating to development	Acting creatively and with foresight
Working together	Entity management	Interaction and communication skills	Empathy	Collaboration skills

Team work	Self-determination	Developing and managing personal competences	Observation	Intercultural competencies
Collaboration skills	Ethics	Creative use of digital technology	Integrity	Basic skills in the field
Openness to diversity	Knowledge acquisition and analysis skills	Digital tools: The ability to utilize and manage various digital tools and platforms	Creativity	Career planning skills

The comparison illuminates that our results seem to line up with the anticipated most important generic Competences and Skills 2035 report as well as the soft skills valued by adult educators. It also highlights students' perspectives on the integrative pedagogy model. The development trend is clear, as our results fully align with Beneitone and Bartolomé (2014).

The shifts from generic competences listed in 2002 (Tuning Website February 13, 2021) to our findings in 2020 are evident—though we can still distinguish the varying natures of generic competences. Half of the top-ten Tuning 2002 competences also represent skills emphasizing qualities that are no longer considered generic competences, such as the ability to communicate in one's first language both orally and in written form. These abilities are now recognized as cognitive skills related to key information-processing skills, per the OECD Skills Surveys website (<https://www.oecd.org/skills/piaac/>).

Data collection should be "*adequate in breadth and depth*" (Russell & Gregory, 2003, 38). It is obvious that the quantitative sample was not completely random in terms of how we selected the participating student groups (Russell & Gregory, 2003). Further, despite applying a systematic sampling plan, the sample size was too small to be trusted in obtaining reliable results. A larger dataset would have permitted us to exclude the possibility that our results might be the expression of other latent or unexplored factors related to the phenomenon. We aimed to increase the reliability of the study by including qualitative comparison of the results and findings of former research in our discussion section.

7. Discussion

The present study explored HE students' conceptions of the generic competences required in the world of work. The results point to variations in students' understanding related to the integrative pedagogy model (Virtanen & Tynjälä, 2019) used as a theoretical framework. To summarize, students considered eight of the ten most important concepts (by mean) related to agency. Only two of ten were skills related to working life. None of them represented the idea of expertise. When we view the results, it should be noted that

half of the ten statements that students considered the least important (by mean) were included in the working life skills section, and entrepreneurship competence was experienced as the least important.

The Competences and Skills 2035 report emphasises the essence of customer-centred service development competence. UAS's students valued service skills as a generic competence statistically more than university students. This finding is notable as HE in Finland is based on a dual model of academically-oriented university degrees and professionally-oriented degrees in UASs. Because the majority of service students, study in UASs (Vipunen - Education Statistics Finland, 2019), this result may reflect differences between UAS and university students' attitudes toward working life skills.

Although higher education students seem to value statements representing expertise quite highly, they do not consider it an essential competence to take advantage of digitalization for problem solving as generic working life skills (see Figure 2). Given the global trends (Davies et al., 2011), digital transformation and technical advancement in the world of work (Rolandsson, 2020) the results suggest a discrepancy between the educational provision and the recognised needs of working life. Future studies could clarify this confrontation problem of working life and student expectations asking why students did not consider digital competences to be essential when they could be thought of as an influencing force on the transformation of society. Do they simply consider digital skills as an obvious and implicit competence? Or do they find digital skills as discipline-specific professional expertise, not generic metacompetence, like Competences and Skills in 2035 forecasters?

The OECD, EU and G20 countries have taken several policy actions in response to the growing diversity of employment and work (OECD, 2019). The effects of the recent pandemic on the future of working life remain speculative. However, we can hope that the monitoring, research and anticipation work done over the years will help us adapt to this future with educational structures that allow flexibility in the construction of curricula. As noted on the Tuning website (<https://www.unideusto.org/tuningeu/>), the *“desired learning outcomes of a process of learning are formulated by the academic staff, preferably involving student representatives in the process, on the basis of input from internal and external stakeholders.”* Tomlinson (2007) points out that employability should always be considered *“relational, emergent and influenced largely by graduates' lived experience of the labour market”* (p. 287). Bandura (1999) defines agency as a capacity for individual choices. Tomlinson (2007) further argues that *“individuals' experiences of work are subjective, and this is likely to influence their actual labour market outcomes and further shape their propensity for employment”*. Employability in this sense may be seen to be value and identity-driven, relating to graduates' own dispositions and biographies. The challenge of future development is to include career management in the curriculum and thus support students' transition and advancement in the labor market (Tomlinson, 2017).

As Dewey (1929/1988) stated a hundred years ago, *“Action is at the Heart of ideas”* (134). We thus propose an emphasis on students' active role learning and professional development. The concept of agency has been linked to creativity, motivation, autonomy

and self-fulfilment (Eteläpelto et al., 2013). This active and positive concept relates to the construction of identities in terms of social participation and collective learning in socio-culturally determined knowledge communities (Lave & Wenger, 1991; Sfard, 1998; Wenger, 1998), even developing existing practices in working life (Eteläpelto et al., 2013). The qualities our research identified as important for students include essential generic competences required in working life. However, we do not know how students construct the idea of working life and their future careers. We thus need to continue developing work-integrated pedagogy while increasing cohesion between research, development and innovation activities and education (Tynjälä, 2018). This development should be done in cooperation with higher education to enhance the expertise and skills required in working life. The need to continue research into a competence-based orientation suitable for HE seems to be apparent as well. Which generic competences might form the overarching structures for HE curriculum? What other elements might be needed? And how do we relate a competence-based framework to the existing research-based curriculum?

Conflict of Interest Statement

The authors declare no conflicts of interests.

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Dr. Sanna Brauer's doctoral dissertation from 2019 was the first in the world to address digital open badges and badge-driven learning. Her current research on motivation, desired competences and competence-based professional development is positioning future theoretical and practical development efforts in relation to the digital transformation in the world of work. The European Union and European Centre for the Development of Vocational Training has appointed her as external expert to provide opinions and advice on specific cases related to digital pedagogy. She's highly networked and open to making new connections. Since 2011, Brauer has been working as a senior lecturer at the Oulu University of Applied Sciences in the School of Professional Teacher Education. The University of Oulu also employs her in the development of digital pedagogy for medical education in Finnish universities. During WORKPEDA project and this study, she was a member of Faculty of Education, Learning & Educational Technology Research Unit. She is involved in various projects as well as national and international networks aiming to develop digital open badges and digital open badge-driven learning.

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Appendix 1: Descriptive statistic of students' generic working life skills (n=380)

Variable	Mean	Std. Deviation
Agency ($\alpha=.88$; n=13)		
Respect for others: The ability to treat learners equally taking into consideration their strengths, weaknesses, interests, values and ambitions.	4.77	.501
Openness to diversity: The ability to respond to the differentiated needs of individuals, irrespective of their personal, social, cultural, ethnic and religious circumstances.	4.49	.683
Empathy: The ability to see situations from someone else's place.	4.63	.648
Creativity: The ability to create, innovate and imagine for a purpose.	4.29	.735
Self-development: The ability to achieve learning goals by developing knowledge, competences and talents.	4.61	.596
Critical Thinking1: The ability of actively and skillfully analysing, synthesizing, and evaluating information.	4.44	.711
Self-management: The ability to maintain intentional actions and enthusiasm to achieve goals.	4.38	.676
Ethics: Understanding the context and influencing factors, such as values, in decision making. Ability to make ethical decisions based on an innate sense of morality.	4.38	.786
Working Together: Ability to act as a member of a group	4.55	.642
Team working: The ability to contribute to collective result by optimizing the balance between one' own qualities and interests and those of the group.	4.53	.643
Self-awareness: The ability to know oneself, as well as one's strengths and weaknesses. The ability to be aware of own preconceptions and assumptions.	4.58	.596
Communication skills: Ability to exchange or forward information. ideas. concepts. thoughts and feelings.	4.63	.558
Multicultural Skills: Understanding of practices and habits of different cultures, and ability to use this knowledge to interact with different people.	4.26	.833
Expertise ($\alpha=.85$; n=8)		
Digital Tools: The ability to utilize and manage various digital tools and platforms.	3.97	.752
Problem-Solving Skills: Ability to solve problems that are arising in planning, action or evaluation, as well as the ability to systematically collect, analyze and merge information to evaluate the current state, and based on that to form a new understanding of the situation.	4.42	.663
Taking advantage of digitalization for problem solving: Ability to recognize and solve individually and communally the conceptual problems.	3.72	.844
Critical Thinking2: the ability to recognize and solve conceptual problems individually and collectively.	4.40	.668
Media literacy, evaluation of information: Ability to share information and digital content, and evaluate the reliability and credibility of digital content.	4.24	.780
Managing entities: Ability to master a multi-component entity and to develop a comprehensive understanding of how to implement it in practice.	4.37	.705
Knowledge acquisition and analysis skills: ability to present structured arguments for things.	4.30	.716
Knowledge of the principles of sustainable development: Knowledge of principles, practices, and regulations that promote sustainable development.	4.26	.838
Working-life skills ($\alpha=.87$; n=13)		

Innovation competence: Ability to generate and apply new ideas for development needs.	4.03	.868
Developing and managing personal competences: Ability to generate and apply new ideas for development needs.	4.45	.674
Learning skills: Ability to use a variety of strategies, and methods in approaching and learning to acquire competences.	4.31	.785
Act creatively and with foresight: Ability to apply theoretical, practical and professional knowledge creatively in new situations, taking into account different options/scenarios.	4.36	.688
Collaboration Skills: Ability to work in a cross-disciplinary and multidisciplinary manner.	4.53	.675
Intercultural competences: the skills, values, and behaviors that prepare people to thrive in a more diverse, interconnected world as a global citizen.	4.06	.869
Internationalisation: Readiness to find international partners and networks to operate on a global level.	3.82	.996
Basic skills in the field: Ability to apply higher education knowledge in a variety of occupations.	4.58	.654
Career planning skills: Ability to plan your own career.	4.19	.812
Human-centered service development competence: Ability to place client or student at the center of development work.	4.44	.700
Leadership and Coaching Skills: Ability to manage other employees and competencies in a way that contributes to the development of the goals of the company and the development of competences and well-being at work.	4.31	.775
Customer Service Skills: Ability to manage processes and policies related to customers. service providers and personal services including various stakeholders.	4.35	.724
Entrepreneurship Competence: Customer knowledge and knowledge of business environment for successful business operations.	3.72	1.026

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