



Project result 4.4

Indicators for the Follow-Up Competence Development of Academic and Life Skills Report





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1. About the report

This report addresses the issue of designing indicators for the follow-up competence development of academic skills, namely digital and life skills, for students with a low socioeconomic status, which are intended to help university staff to assess and monitor these skills throughout the educational process as an integral part of university education and to promote students' future employability, as well as possibilities for credentialing these skills. It is the last report of Dig-2-Inc's work package on the Digital Credentialing of Academic Skills and builds in particular on the earlier reports on Competence Descriptors and Criteria (deliverable 4.1), on Life Skills in a Digital Context (4.2) and on Design Fit-for-Purpose Assessment Methods for Learning in Digital Contexts (4.3). In the following we will briefly summarise the results of these reports and then discuss if and how they might be used to construct the desired indicators.

The use of indicators in higher education is common. To be useful, indicators need to have a clear and relevant purpose. Examples are goal-setting, resource allocation or the definition of long-term priorities for strategic planning, demonstrating performance to stakeholders (accountability) and quality assurance and improvement, by tracking, for instance, teaching effectiveness or student satisfaction. For these reasons, indicators have to be *valid* and *reliable*, that is they have to *accurately measure* what they claim and *produce consistent results* over time and across contexts. Validity constitutes a particular challenge when constructing indicators for competences, especially when these belong the category of soft skills which are by definition difficult to measure. This methodological obstacle is usually overcome by breaking down competences into specific skills (i.e. particular concrete tasks to be accomplished), knowledge, attitudes and behaviour, which are deemed representative of a competence and are then assessed with the help of specific tools methods. Moreover, indicators are context-sensitive and must account for institutional differences (e.g. student demographics). In this respect, the present report has to rely on the earlier results published in deliverables 4.1 to 4.3.

Indicators work particularly well for large numbers. The aim is therefore to create competence grids and indicators for the whole student body that can serve as a baseline against which to compare the performance of the target group, i.e. students with a low socioeconomic status, over time. Indicators are also more useful as part of a set (or dashboard) rather than in isolation. Finally, indicators should be transparent and understandable to users to ensure collaboration from students, faculty members and administrative staff. The project team at the University of Burgundy has therefore suggested early on that competence grids and indicators should be made available in particular to students, including for self-assessment.

When defining academic competences relevant for students in higher education, the first report of work package 4 adopts a top-down approach by taking as its starting point four general competence frameworks that the European Commission has published over the last decade with the intention to create a shared reference system that supports learning, assessment,





mobility and employability across the European Union, leaving aside the earlier Common European Framework of Reference for languages (CEFR), which can be considered a sort of blueprint for these later frameworks. These are, in chronological order of publication, EntreComp – The Entrepreneur Competence Framework (2016), DigComp 2.2 – The Digital Competence Framework for Citizens (2022; first published in 2016), LifeComp – The European Framework for Personal, Social and Learning to Learn Competences (2020), and GreenComp – The European Sustainability Framework (2022). The top-level competence descriptions (DigComp 2.2) or labels (the other three frameworks) were then ranked according to their perceived importance for students' academic life and beyond. Moreover, the report looks into two ways in which these competences could be credentialed by giving an overview of the state of implementation of micro-credentials in higher education in the six partner countries Bulgaria, Finland, France, Germany, Italy and Romania, and by presenting an example of the use of Open Badges, created by the Mozilla Foundation, at the partner organisation Campus des Métiers et des Qualifications d'Excellence–University of Burgundy.

The second report, on Life Skills in a Digital Context, similarly assesses the perceived relevance of the six top competence labels of the LifeComp framework but differentiates in addition between the results obtained at each of the five partner universities and with regard to students' learning in a digital context and their employability, i.e. their ability to secure a job after graduation. The results of the polls conducted at each partner university on which life skills should be preferably credentialed show indeed significant differences in their rankings of life skills in general and in respect to the two additional criteria. Finally, the report identifies three major challenges that students are currently facing in academic digital environments, namely the use of artificial intelligence, the issue of plagiarism, or authorship authenticity, and access to Open Educational Resources, the latter particularly in Romania.

The third report, on assessment tools, offers a general overview of them by presenting an assessment framework that distinguishes four different types of assessments: diagnostic, to identify and evaluate existing knowledge, skills and learning gaps at entry level; formative, as an ongoing process to monitor students' academic progress and to provide them with feedback; summative, to sanction students' learning achievements at the end of a unit, a semester or a course; and lifelong learning, to acknowledge and validate learning outcomes that result from activities outside the formal learning environment, such as work experience, voluntary activities or self-directed learning, which generally lead to a validation in the form of micro-credentials and certifications. The second part then describes how assessments take place at four of the partner universities (Burgas Free University, Technical University of Iași, Guglielmo Marconi University and University of Turku) and what novel approaches have been adopted in recent years.

In the next and main part of this report, we take a closer look at several of the European Commission's competence frameworks introduced in deliverable 4.1 and explore how they can possible be used to create indicators for the follow-up competence development of students





with a low socioeconomic status and make some recommendations for competence grids and indicators.





2. What do the competences in EntreComp, DigComp, LifeComp and Green Comp stand for?

The selection and ranking of the competences described in the four frameworks immediately raise a number of questions. First, the frameworks have been designed for all citizens and not in particular for students in higher education. Second, the competences described refer to particular policy goals, such as entrepreneurship or sustainability, that the European Commission wants to promote as part of its European Skills Agenda, Lifelong Learning and other funding programmes and initiatives. While they are by definition considered relevant for all citizens and therefore also for university students, not all of them are equally important in the context of students' academic life. On the other hand, they obviously do not constitute an exhaustive list of all competences students need to successfully navigate higher education and beyond, i.e. in lifelong learning and their later professional career (employability). Figure 1 offers a schematic representation of the relationship between competences defined in the four frameworks and academic competences in general.



Figure 1. Schematic representation of the relation between competences defined by the four frameworks and academic competences in general

Third, the juxtaposition and then ranking of the framework competences operated in the first and second report suggests that these are discrete, mutually exclusive entities. This is, however,





clearly not the case. The most obvious example is the competence label 'critical thinking', which appears in both LifeComp and GreenComp but in distinct contexts despite an apparent similarity in their explanatory definition (see Table 1 below).

Table 1. 'Critical thinking' as a competence in LifeComp and GreenComp

personal, social and ral backgrounds ence thinking and lusions.
of area L2 'Embracing lexity in sustainability', her with 'systems thinking roblem framing'. reas include: Awareness of potential s in the data and one's onal limitations, while cting valid and reliable nation and ideas from se and reputable sources; Comparing, analysing, sing, and synthesising data, nation, ideas, and media ages in order to draw logical usions; Developing creative ideas, esising and combining

¹ Bianchi, G., Pisiotis, U., Cabrera Giraldez, M. GreenComp – The European sustainability competence framework. Bacigalupo, M., Punie, Y. (editors), EUR 30955 EN, Publications Office of the European Union, Luxembourg, 2022; ISBN 978-92-76-46485-3, doi:10.2760/13286, JRC128040. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC128040.

² Sala, A., Punie, Y., Garkov, V. and Cabrera Giraldez, M., LifeComp: The European Framework for Personal, Social and Learning to Learn Key Competence, EUR 30246 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-19418-7, doi:10.2760/302967, JRC120911. Available at: https://publications.jrc.ec.europa.eu/repository/bitstream/JRC120911/lcreport_290620-online.pdf.





lacking some of the knowledge required to fully understand scientific claims.' different sources in view of solving problems.'

'Critical thinking' is also explicitly present in Level 3 of EntreComp³, which 'focuses on *critical thinking* and on experimenting with creating value, for instance on turning ideas into action in "real life" and on taking responsibility for this. through practical entrepreneurial experiences' (author's emphasis). Moreover, it is embedded in several other competences that require analytical and evaluative skills, such as 'Spotting opportunities', 'Taking the initiative' and 'Planning and management', which all require individuals to assess situations, make informed decisions and reflect on outcomes, that is by applying critical thinking skills. Similarly, critical thinking underpins several of the competences described in DigComp 2.2, such as 'Evaluating Data, Information and Digital Content'. As the Foreword to EntreComp notes, critical thinking, like problem solving, is a 'transversal skill' that permeates all kinds of competences described in the four frameworks. For this reason, the competences described in the four frameworks must never be treated as standalone competences but need to be understood in relation to all other competences of the same framework and to its domain of application (i.e. entrepreneurship, sustainability, etc.).⁴

Fourth and last, the four frameworks are quite different in nature. Some of their characteristics are summarised in Table 2.

 ³ Bacigalupo, M., Kampylis, P., Punie, Y., Van den Brande, G. (2016). EntreComp: The Entrepreneurship Competence Framework. Luxembourg: Publication Office of the European Union; EUR 27939 EN; doi:10.2791/593884. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC101581.
 ⁴ For the relation between LifeComp, DigComp and EntreComp, see also Table 8 on Links between JRC Key Competence Frameworks (LifEcomp, DigComp, EntreComp) in Francesca Caena (2019) Developing a European Framework for the Personal, Social & Learning to Learn Key Competence (LifeComp): Literature Review and Analysis of Frameworks, JRC Technical Reports, p. 55. Available at https://op.europa.eu/en/publication-detail/-/publication/99e3b8f2-e8ea-11e9-9c4e-01aa75ed71a1.





Table 2. Competence frameworks and their characteristics (DigComp 2.2, EntreComp, GreenComp and LifeComp)

	DigComp 2.2	EntreComp	GreenComp	LifeComp
Number of competences	12 in 5 areas	15 in 3 areas	12 in 4 areas	9 in 3 domains or dimensions
Characteristics	8 proficiency levels	8-level progression model; non-prescriptive	Conceptual, non- prescriptive, no defined levels	Conceptual, non- prescriptive, no defined levels
Some practical applications	Education and training (curricula, learning outcomes); Employment (skills requirements and job profiles); Certification (assessment tools and certification)	Curriculum development and assessment	Education in Sustainable Development (ESD); upskilling initiatives in green jobs and sustainable practices	Curriculum development and reform; teaching strategies, self- assessment
EU-wide certification	Yes	No	No	No

As can be seen, no EU-wide certification or proficiency levels are available for three of the four frameworks. EntreComp, GreenComp and LifeComp are all conceptual and non-prescriptive frameworks. EntreComp, for instance, has eight progression levels but, as the key JRC report on it notes, the framework 'is not prescriptive and it does not suggest that all learners should acquire the highest level of proficiency in the competences'. It only offers 'a tool that can be adapted to different needs':

'For example, we could imagine designing an entrepreneurial learning experience targeted at the employees of the shoe-making district of our region. In our programme we could, for instance, aim at an advanced level of proficiency in competences like "spotting opportunities" "vision", "mobilizing resources", "mobilising others" and "planning and organising". At the same time, we could aim to achieve an intermediate level of proficiency in "financial and economic literacy". We could deem it important to provide our learners with the skills to understand the financial viability of their ideas, but not important to have them develop double-entry bookkeeping skills, which would require and advanced level of proficiency.⁵

European universities have been providing entrepreneurship education to non-business students since at least the 1990s, long before the publication of EntreComp. A 1999 Survey of

⁵ Bacigalupo, M., Kampylis, P., Punie, Y., Van den Brande, G. (2016), op. cit., p. 14–15.





Entrepreneurship education in England, for instance, came to the conclusion that only a third of UK universities appeared to have no provisions in this field.⁶ The report also notes the great diversity in entrepreneurship teaching, ranging from undergraduate and postgraduate degree programmes to diplomas, certifications, various kinds of courses to occasional seminars. A quarter of a century later, a large number of, if not most, European universities are offering some form of entrepreneurship teaching to non-business students, although it may not be attended by a majority of students. Together with work placements and cooperations with private business, entrepreneurship appears thus to be well covered in higher education, even if there remains room for improvement, as suggested by scholarly literature on the topic.⁷ These universities should have basic data on students' participation and completion rates and on students' assessment results for teaching programmes, courses, etc. related to entrepreneurial competences, which might serve as indicators for monitoring the acquisition of these competences. For a more granular monitoring, universities will have to create their own indicators based on available teaching, as there exists no general implementation of EntreComp for students in higher education. However, a somewhat cursory desktop research has not been able to identify any publications dedicated specifically to students with a low socioeconomic status in this field. Nor did earlier research carried out during the Dig-2-Inc project mention an entrepreneurial skills gap as a factor of exclusion in digital education.⁸

The twelve competences in GreenComp are described as being all equally important but learners 'do not need to acquire the highest level of proficiency in all 12, nor have the same proficiency across all of them'.⁹ Similar to DigComp 2.2, GreenComp competences are linked to four areas and then broken down into a small number of knowledge, skills and attitudes (KSA) statements, as illustrated in Table 1 above.¹⁰ It also refers explicitly to Education in Sustainable Development (ESD), Target 4.7 of the United Nations' Sustainable Development Goals, which most signatory EU member states generally claim to have successfully mainstreamed in national educational policies, curricula, teacher education and student assessment by now. According to data published by the German Federal Statistics Office in early 2022 as part of a self-reporting obligation, for example, the respective indicators for implementing ESD in Germany are 1.0, 0.904, 0.95 and 0.917 for these four areas. By contrast, independent

¹⁰ See also Appendix 2 for a list of the KSA statements in Sala, A., Punie, Y., Garkov, V. and Cabrera Giraldez, M., op. cit., p. 40ff.



⁶ Jonathan Levie (1999) Entrepreneurship Education in Higher Education in England: A Survey. Available at file:///Users/rh/Downloads/Entrepreneurship_Education_in_Higher_Education_in_.pdf.

⁷ For Austria, Germany and Switzerland, see, for example, Heinz Klandt (2004) 'Entrepreneurship Education and Research in German-Speaking Europe', *Academy of Management Learning and Education*, 3(3): 293–301; for the Netherlands, .Brand, M., Wakkee, I., van der Veen, M. (2006) 'Teaching Entrepreneurship to Non-Business Students: Insights from Two Dutch Universities', Chapter submitted for A. Fayolle, *Teaching Entrepreneurship in Europe*. Available at

https://www.rug.nl/staff/m.j.brand/handbook%20fayol%202007%20brand%20et%20al.pdf.

⁸ See the deliverables on Mapping Experiences of Exclusion of Students with a Low Socio-Economic Status and on Collaboratively Developing Recommendations for the Inclusion of Students with a Low Socio-Economic Status through Edu Jams, available on the project website.

⁹ Bianchi, G., Pisiotis, U., Cabrera Giraldez, M. (2022), op. cit., p. 15.



evaluations, such as Holst et al (2023) based on a document analysis in combination with expert evaluation, paint a bleaker picture, said to be in line with results for other countries: Overall, ESD has been introduced mostly as an 'add-on', that is of 'predominantly medium to low quality. often as supplement to otherwise frequently content а unchanged requirements/objectives/explanations', with modest progress made between 2017 and early 2022.¹¹ Implementation is said to be weakest in higher education; the present situation is characterised by isolated mentioning of sustainable development in curricula and teacher training and a complete lack of student assessment. As with EntreComp, there exists no general implementation of the framework for students in higher education, although particular universities may have put into place assessment tools, which could be used to design indicators for sustainability competences. Generally, sustainable development is, however, considered, and practised, as a cross-curricular topic embedded in various forms of teaching. Similarly, there seems to exist no scholarly literature targeted at students with a low socio-economic status in this field or any empirical evidence that these students are facing digital exclusion because they lack the appropriate skills or that their status leads to lower skill levels.

2.1. Implementing DigCom 2.2 for students in higher education

The situation is somewhat different for DigComp 2.2, a framework with distinct proficiency levels that allows for the assessment of digital skills, knowledge and attitudes thought to be crucial in navigating contemporary life. Broadly speaking it covers three areas of application: professional life, life as a citizen (e.g. online administrative procedures) and as a consumer (e.g. online commercial transactions). Its best-known practical application is probably the online test that registered citizens can undertake to assess their digital skills, which generates a digital summary for use in a curriculum vitae as part of the European Commission's EuroPass.¹²

More particularly, DigComp has resulted in another framework, DigCompEdu, designed for educators at all levels of education (but not at learners!), which contains KSA statements that explicitly refer to the use of digital technologies for the assessment and monitoring of learners' progress (though not specifically of their digital competences) in its area 'Assessment'.¹³ The framework has six proficiency levels (A1 to C2: Newcomer, Explorer, Integrator, Expert, Leader, Pioneer), which are expressed in corresponding 'proficiency statements', reproduced in Table 3 below.

 $centre.ec.europa.eu/digcompedu/digcompedu-framework/digcompedu-proficiency-levels_en.$



¹¹ Holst, J., Singer-Brodowski, M., Brock, A. & de Haan, G. (2023) 'Monitoring SDG 4.7: Assessing Education for Sustainable Development in policies, curricula, training of educators and student assessment (input/indicator)', Sustainable Development, 1-16. <u>https://doi.org/10.1002/sd.2865</u>). The quality and depth of the implementation has been measured on a scale from 1 to 6 (1 no mentioning, 2 isolated mentioning, 3 add-on, 4 partial integration, 5 substantial integration and 6 redesign).

¹² See 'Test your digital skills' at <u>https://europass.europa.eu/en/europass-tools/test-your-digital-skills</u>. The test requires users to register but there is no identity control.

¹³ See, for instance, the webpage 'DigCompEdu proficiency levels' published by the European Commission's Joint Research Centre on the EU Science Hub. Available at https://joint-research-



Table 3. Proficiency levels and proficiency statements related to the use of digital technologies for the assessment of learners in DigCompEdu (Area 4: Assessment)

Progression

Proficiency statements

4.1 Assessment strategies

Newcomer (A1)	Making little use of digital technologies for assessment	I do not or only very rarely use digital assessment formats.
Explorer (A2)	Integrating digital technologies into traditional assessment strategies	I use digital technologies to create assessment tasks which are then administered in paper-format.
		I plan for students' use of digital technologies in assessment tasks, e.g. in support of assignments.
Integrator (B1)	Employing and modifying existing digital assessment tools and formats	I use some existing digital technologies for formative or summative assessment, e.g. digital quizzes, e-portfolios, games.
		I adapt digital assessment tools to support my specific assessment goal, e.g. create a test using a digital test system.
Expert (B2)	Strategically using a range of digital assessment formats	I use a range of e-assessment software, tools and approaches, for formative assessment, both in the classroom and for learners to use after school.
		I select between different assessment formats the one that most adequately captures the nature of the learning outcome to be assessed.
		I design digital assessments which are valid and reliable.
Leader (C1)	Comprehensively and critically selecting, creating and adapting	I use a variety of digital and non-digital assessment formats, aligned with content and technology standards, and am aware of their benefits and drawbacks.
	digital assessment formats	I critically reflect on my use of digital technologies for assessment and adapt my strategies accordingly.

Table 3 (continued)





Pioneer (C2)Developing **innovative**
assessment formats, using
digital technologiesI develop new digital formats for assessment, which
reflect innovative pedagogic approaches and allow for
the assessment of transversal skills.

4.2 Analysing evidence

Newcomer (A1)	Making little use of digital data for monitoring progress	I do not or only very rarely refer to digitally recorded data to understand where my students stand.
Explorer (A2)	Evaluating basic data on learner activity and performance	I evaluate administrative data (e.g. attendance) and data on student performance (e.g. grades) for individual feedback and targeted interventions.
		I am aware that digital assessment tools (e.g. quizzes, voting systems) can be used within the teaching process to provide me with timely feedback on learners' progress.
Integrator (B1)	Evaluating a range of digital data to inform	I evaluate the data resulting from digital assessments to inform learning and teaching.
teaching		I am aware that the data on my learners' activity, as it is recorded in the digital environments which I use with them, can help me monitor their progress and provide them with timely feedback and assistance.
Expert (B2)	Strategically employing digital tool for data generation	I use digital technologies (e.g. quizzes, voting systems, games) within the teaching process to provide me with timely feedback on learners' progress.
		I use the data analysis tools provided by the digital environments I use to monitor and visualise activity.
		I interpret the data and evidence available in order to better understand individual learners' needs for support.

Table 3 (continued)

Leader (C1)Using digital data to
reflect on learningI continuously monitor digital activity and regularly
reflect on digitally recorded learner data to timely





	patterns and teaching strategies	identify and react upon critical behaviour and individual problems.
		I evaluate and synthesize the data generated by the various digital technologies I use to reflect on the effectiveness and suitability of different teaching strategies and learning activities, in general and for certain learner groups.
Pioneer (C2)	Innovating data generation and evaluation	I implement advanced data generation and visualisation methods into the digital activities I employ, e.g. based on learning analytics.
		I critically assess and discuss the value and validity of different data sources as well as the appropriateness of established methods for data analysis.
4.3 Feedback a	and Planning	
Newcomer (A1)	Making little use of digital data for feedback and planning	I am not aware how digital technologies can help me in providing feedback to learners or adapting my teaching strategies.
Explorer (A2)	Using digital technologies to inform feedback	I use digital technologies to compile an overview on learners' progress, which I use as a basis for offering feedback and advice.
Integrator (B1)	Using digital technologies to provide feedback	I use digital technology to grade and give feedback on electronically submitted assignments.
		I help students and/or parents to access information on learners' performance, using digital technologies.
Expert (B2)	Using digital data to enhance the effectiveness	I adapt my teaching and assessment practices, based on the data generated by the digital technologies I use.
	of feedback and support	I provide personal feedback and offer differentiated support to learners, based on the data generated by the digital technologies used.
		I use digital technologies to enable learners and parents to remain updated on progress and make informed choices on future learning priorities, optional subjects or future studies.

Table 3 (continued)





Leader (C1)	Using digital technologies to personalise feedback and support	I assist learners in identifying areas for improvement and jointly develop learning plans to address these areas based on the evidence available.		
		I use the data generated by digital technologies to reflect on which teaching strategies work well for which kind of learners and adapt my teaching strategies accordingly.		
Pioneer (C2)	Using digital data to evaluate and improve teaching	I reflect on, discuss, re-design and innovate teaching strategies in response to the digital evidence I find, as concerns learners' preferences and needs as well as the effectiveness of different teaching interventions and learning formats.		

Although DigCompEdu is a framework designed for educators and not students and is not particularly concerned with digital competences of the latter, the table illustrates how the creators of the framework intends educators to assess and monitor the academic performance of students with the help of digital technologies, offering guidelines for education in online and blended settings of teaching. As the other frameworks, DigCompEdu needs to be implemented for particular learning contexts and target groups to be of any practical use. In higher education institutions, the framework has mostly been adapted and implemented for teacher training rather than for university educators in general. This suggests that it is most useful for primary and secondary education levels.

Quite a number of universities have implemented DigComp 2.2 for higher education institutions, mostly by targeting all members of a university (i.e. students, PhD students, faculty members, administrative and technical staff). A typical example for such a framework is the competence framework elaborated at the University of Geneva.¹⁴ The framework has four proficiency levels (A to D) in five areas (Information and Media Literacy, Content Creation, Communication and Collaboration, Data Management, and Digital Identity – Protection and Security) but also distinguishes requirements by category of users, as outlined above. It does not include digital competences that are specific to certain academic disciplines only, such as the use of statistics software, particular coding skills or proficiency in publishing software (e.g. LaTeX). Table 4 below is a translated version of the competence descriptions for the first area (author's translation) to illustrate the principles of the adaptation.

https://www.unige.ch/digitalskills/application/files/8616/5599/2318/A4_brochure_referentiel_de_compet ences_Juin2022.pdf



¹⁴ Université de Genève (2022) Référentiel des compétences numériques. Available at



Table 4. University of Geneva digital competence framework (extract)

В

Α

D

Searching for information / digital content

I am able to look up information online with the help of a search engine.

I am able to carry out a simple research in the catalogue of the university library and other resources available to students.

I am able to use different search engines to find information: Google, Google Scholar, etc.

I am able to efficiently look up scholarly articles by using, for instance, data banks on certain topics. I am able to do an

advanced research in the catalogue of the university library and other resources available to students.

I am able to use complex strategies (for instance, with the help of Boolean operators) to identify trustworthy information on the internet.

С

I am able to use web feeds, such as RSS, to remain up-to-date on topics I am interested in.

I keep myself informed on technological progress in the fields of search, storage and access to information.

I am able to use an information-seeking strategy specifically geared towards sharing and passing on information.

I can define a structured and transferable information-seeking strategy for my specific field.

Filtering and evaluating information / digital content

finding.

I know that information I am using filters during I am able to filter digital I know how to evaluate available online is not always trustworthy.

my search (for instance, information by source images, videos or maps only). I am comparing different sources to assess the trustworthiness of information I am

und critically assess its credibility, as well as its validity and relevance.

digital resources and their content to select the most appropriates ones to transmit knowledge in an effective and relevant way.





Information management, storage and re-use / digital content

I am able to save and store files or content (text, image, music, videos, webpages, etc.)

II file information methodically using files and folders, so that in different formats and I can find it again easily. I make back-up copies of the information or files, I have saved. I can restore information/files. I know how to use the basic functions of bibliographic tools (e.g. Mendeley, Zotero, Endnote). I know how to use my shared space on the university server (space H:\).

I can save digital content reuse them. I can use the advanced features of bibliographic tools (e.g. Mendeley, Zotero, Endnote). I know how to use storage solutions. I know how to use the storage solutions made available by the university (SwitchDrive).

I can save digital content and make it accessible to others in a structured way and evaluate it.

Interestingly, the document also has a sort of mini-framework on computational thinking, that is a brief description of a 'set of problem-solving methods that involve expressing problems and their solutions in ways that a computer could also execute'.¹⁵

¹⁵ Article 'Computational Thinking' in the English version of Wikipedia.





Table 5. Computational Thinking, University of Geneva digital competence framework (extract)

Decomposition

I am able to break down a complex problem or system into smaller, more manageable parts. I am able to structure and organise these elements.

Pattern Recognition

I am able to identify similarities between problems or within a given problem. I am able to recognise underlying patterns.

Abstraction

I am able to recognise and focus on the important parts of a problem. I take care to simply the initial problem effectively.

Algorithms

I am able to find a solution using a rule made up of a series of steps. I use my creativity to find innovative solutions and alternatives to situations.

This particular implementation of DigComp 2.2 at the University of Geneva thus judiciously combines digital competences required to use the university's digital infrastructure with others that relate to the general use of digital technologies (e.g. searching and identifying relevant information, sharing it, creating digital content, communicating by digital means), leaving aside those competences of DigComp that are not relevant for students, such as digital skills that refer to civic participation or their life as consumers. Moreover, it is easy to imagine additional sections on other dimensions of digital life in academia. The Dig-2-Inc mapping study on factors of exclusion has, for example, shown that some low-SES students struggle with technical problems. A section could therefore describe competences of coping with them along the following lines:





Table 6. Example for competence descriptions related to digital technical support

Α	В	C	D
Problem-solving of tech	nical problems with the	e digital infrastructure	
I know whom to contact if I encounter a technical problem.	I am able to pertinently describe a technical problem to a support service.	I am able to identify and consult relevant documentation linked to a technical problem and solve the problem on my own (as far as possible).	I am able to design and implement preventive measures that reduce the probability of a technical problem occurring or mitigate its consequences (e.g. through timely backups of my data).

Similarly, new sections could be created for emerging digital technologies, such as the proper use of artificial intelligence software based on large language models (e.g. ChatGPT) or of digital content found online for students' own written productions (e.g. plagiarisation), in a way analogous to the use of search engines outlined in the extract above. Both AI-generated content and plagiarisation by students have been identified in deliverable 4.2 as two major preoccupations of faculty members. This raises, however, the question whether competence descriptions in this respect should focus on technical skills, such as the ability to transform AIgenerated or other digital content with the help of 'humanising' or 'rephrasing' software to make its origin practically undetectable or rather on ethical attitudes.¹⁶ Low-SES students, who often labour under financial constraints (see the Mapping Study), may face particular hurdles in using such software, as better-performing versions now generally require a paid subscription.

Data on the competence levels of students could be collected through surveys or tests, similar to the ones in use for DigComp 2.2 but would need to include specific questions designed to identify low-SES students in particular, whose digital competence levels could then be compared with those of the rest of the student body.¹⁷ The results could then be used to construct qualitative indicators in line with the defined proficiency levels or, in combination

¹⁷ This appears by no means an easy task as low-SES students generally seem reluctant to self-identify as such.



¹⁶ A recent article in the British Newspaper The Guardian suggests that AI-generated content has become increasingly undistinguishable, though proven cases of UK students' misconduct, held by experts to represent only the tip of the iceberg, have remained stable during the last years. Available at: https://www.theguardian.com/education/2025/jun/15/thousands-of-uk-university-students-caughtcheating-using-ai-artificial-intelligence-survey.



with a points system, simple or composite numerical ones. With a practical use in mind, a bottom-up approach, although possibly guided by a more general competence framework, thus appears more promising.

Overall, however, this framework seems to be more of a diagnostic tool to identify competence lacunae in order to introduce measures that will foster missing or weak competences rather than an instrument to monitor competence development in this field throughout the educational process, because it is not granular enough. While it remains in principle possible to define finer proficiency levels, it is difficult to see how this would be possible or beneficial as the defined competences are relatively simple.

2.2. Implementing LifeComp for students in higher education

LifeComp is the European Commission's life competence framework created in response to a perceived shift in competence demands in all spheres of contemporary life. In its 2018 Recommendation on Key Competences for LifeLong Learning, the European Council defined this 'personal, social and learning to learn competence' as

'the ability to reflect upon oneself, effectively manage time and information, work with others in a constructive way, remain resilient and manage one's own learning and career. It includes the ability to cope with uncertainty and complexity, learn to learn, support one's physical and emotional well-being, to maintain physical and mental health, and to be able to (...) empathise and manage conflict in an inclusive and supportive context'.¹⁸

As with the other European frameworks, there exists no general implementation of LifeComp for students in higher education, although universities have started to offer life competencerelated teaching and support programmes in recent years and many claim, at least in their promotional literature, to help future students acquire necessary life skills.¹⁹ Given the abundant literature on LifeComp, a more detailed discussion of this competence framework would go far beyond the scope of this report. As a starting point, interested readers may want to consult the already quoted Commission's JTC Technical Report by Francesca Caena, which retraces the genesis of the framework and its relations with similar ones published by various

¹⁹ At the same time, universities, as well as schools, with a good reputation are increasingly using selective recruitment practices that take into account candidates' life skills by asking them to provide extensive evidence of extra-curricular activities or by assessing these skills in interviews, often in the name of 'public choice', while also proclaiming an inclusive ethos running counter to these practices, which are likely to be detrimental for students with a low socioeconomic status.



¹⁸ European Council (2018) Council Recommendation of 22 May 2018 on Key Competences for LifeLong Learning. 2018/C 189/01-13. Brussels: European Council. Available at <u>https://eur-</u>

lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:394:0010:0018:en:PDF



international organisations (e.g. UNESCO, OECD) or European national authorities.²⁰ Here we want to keep a much narrower focus by briefly discussing the possible role of LifeComp in relation to two earlier project results, that is the mapping study on factors of digital exclusion and the results of the edu jams, on the one hand, and the report on Life Skills in a Digital Context (deliverable 4.2), on the other, before returning to the question of indicators for the follow-up competence development of low-SES students.

The wide range of factors of exclusion identified in the Mapping Study appear to be closely connected to life competences and their goals described in LifeComp, that is of ensuring people's (here, low-SES students') wellbeing, whether this pertains, for example, to a difficult transition to university life for entry-level students or particular life situations characterised by financial constraints, health issues or conflicting family and work obligations typical mostly of older students. Developing low-SES students' life competences, such as time and stress management, financial skills or skills to foster a healthy life style may indeed help them to better cope with the problems they are facing during their academic life. However, it seems doubtful whether competence development in these fields alone will allow them to overcome the hurdles they encounter. One of the distinct weaknesses of LifeComp and similar general competence frameworks, which have been designed for whole populations in general, is that their definitions are context-free, that is they take into account neither individual characteristics (age, gender, social class, geographical origin, etc.) or particular life situations (e.g. family obligations such as the care for children or close relatives, concomitant work constraints, etc.) nor underlying social and economic conditions, such as students' low disposable income through insufficient student grants or loans and high student fees, high housing and travelling costs and lack of affordable care solutions for dependent relatives. While universities might therefore be able to support low-SES students in ways suggested during the edu jams, they can do little or nothing about some of the major factors of exclusion identified, as has been pointed out in particular by the project team at Burgas Free University. And whereas it would in principle be possible to construct a life competence grid for low-SES students in these specific areas, it seems therefore unlikely to be of great practical value in providing significant support to the target group.

Similarly to the report on competence descriptors (deliverable 4.1), the report on Life Skills in a Digital Context (deliverable 4.2) operates a ranking of LifeComp's top-level life competence labels (e.g. critical thinking, problem-solving, flexibility, empathy), a point to which we shall return shortly. But it does not explicitly spell out what these competences concretely signify in a context of digital education. As said earlier, competence frameworks are made up of highly abstract definitions at the top level. However, there is no meaningful way of describing an individual's general problem-solving competence, for instance. Competences can only be assessed in specific narrow contexts, typically in terms of skills, knowledge and attitudes. A student's problem-solving competence can thus be assessed with regard to a written assignment they have submitted. At the same time, the fact that they may be good at solving

²⁰ See Francesca Caena (2019) op. cit.





problems in this context does not necessarily mean that they are similar proficient at solving problems in other areas, as this skill is not simply transferable to other contexts. Practical implementations of (competence) frameworks therefore define skills, for instance, as tasks that a person is more or less able to accomplish well. It is, of course, impossible, to dress an exhaustive list of all tasks whose accomplishment requires a particular competence. Tasks are therefore selected and defined, which are held to be representative of the application of a particular skill and, it is assumed or hoped, can serve as an indicator for a more general proficiency level. For this purpose, tasks are generally associated with specific assessment tools. For illustrative purposes, examples of templates for a basic cross-disciplinary competence grid for feedback are given below for assessing students' Critical Thinking and Analytical Skills (Table 7), Teamwork and Collaboration (Table 8) and Managing Learning (Table 9) with proficiency levels as qualitative indicators and a points system that could serve as a quantitative indicator. A more systematic example of all nine LifeComp competences, with a slightly different approach, contributed by the project team at the Technical University Gheorghe Asachi of Iaşi, can be found in the Annex.





Table 7. Basic Template of a Competence Grid for Assessing Critical Thinking and Analytical Skills

Criteria	Excellent (4 pts)	Good (3 pts)	Satisfactory (2 pts)	Needs improvement (1 pt)
Clarity of argument	Argument is clear, well-structured, and logically developed.	Argument is mostly clear but may have minor inconsistencies.	Argument is present but lacks clarity or logical structure.	Argument is unclear, poorly structured, or missing.
Use of evidence	Uses strong, relevant, and well- integrated evidence to support arguments.	Uses relevant evidence, but some points lack full support.	Uses minimal or weak evidence; some claims are unsupported.	Little to no evidence; arguments are mostly opinion-based.
Analysis and interpretation	Demonstrates deep analysis, insightful interpretation, and synthesis of ideas.	Shows good analysis but may not fully explore complexities.	Basic analysis; may rely more on description than interpretation.	Little or no analysis; mostly descriptive with no depth.
Counterargume nts	Acknowledges and effectively refutes counterarguments with strong reasoning.	Recognizes counterargumen ts but does not fully address them.	Briefly mentions counterargume nts without refutation.	Ignores or does not recognize counterarguments.
Logical Flow & Organization	Ideas are presented in a clear, logical order; smooth transitions.	Mostly logical organization with minor transition issues.	Some disorganization; lacks clear flow between ideas.	Poor organization; difficult to follow.
Academic writing style	Writing is formal, concise, and free of grammatical errors.	Writing is mostly formal with minor errors.	Writing is somewhat informal or contains noticeable errors.	Writing is informal, unclear, and full of errors.

Total Score: ___ / 24

• Comments for Improvement:





Application: The grid could, for example, be applied to written assignments, case study analyses requiring the evaluation of complex scenarios, and problem-solving exercises in coursework or examinations.

Indicators: More particularly, the grid assesses the ability to evaluate arguments and identify biases, problem-solving ability in academic and real-world contexts, the application of knowledge to interdisciplinary areas and evidence-based reasoning and argumentation.





Table 8. Basic Template of a Competence Grid for Assessing Teamwork and Collaboration

Criteria	Excellent (4 pts)	Good (3 pts)	Satisfactory (2 pts)	Needs Improvement (1 pt)
Contribution to team effort	Actively contributes, takes initiative, and consistently completes assigned tasks on time.	Contributes regularly, but occasionally needs reminders to stay on task.	Contributes minimally and sometimes relies on others to complete work.	Rarely contributes; others must compensate for lack of effort.
Communicati on & engagement	Communicates effectively, listens actively, and engages in discussions.	Generally communicates well but may not always listen or contribute equally	Occasionally communicates but lacks engagement or clarity.	Poor communication; disengaged or unresponsive.
Respect & professionali sm	Always respects team members' ideas, values different perspectives, and fosters a positive environment.	Usually respectful and values others' contributions.	Sometimes dismissive or inattentive to others' input.	Often dismissive, disrespectful, or uncooperative.
Table 8 (continu	ied)			
Conflict resolution & problem- solving	Handles conflicts constructively and actively seeks solutions.	Addresses conflicts with some effort but may need guidance.	Struggles to manage conflicts; requires external intervention.	Avoids or escalates conflicts; unwilling to compromise.
Accountabilit y & dependabilit y	Takes full responsibility for tasks, follows through on commitments, and ensures team success.	Mostly reliable but may occasionally miss deadlines or require reminders.	Often needs reminders to complete work or meet deadlines.	Unreliable; does not complete work or meet team expectations.
Collaboratio n & adaptability	Works seamlessly with others, adjusts to new roles, and supports teammates when needed.	Works well with others but struggles with adaptability at times.	Participates but resists changes or new roles.	Resists teamwork; unwilling to adapt or assist others.

Total Score: __ / 24

• Comments for Improvement:





Assessment Tools and Methods: Assessment could, for example, take place in the form of peer evaluations with the help of structured feedback forms, group project reports with self-reflection on collaboration or an evaluation of the group dynamics by faculty staff.

Indicators: More particularly, the grid may describe students' ability to work effectively in group projects, to provide constructive feedback to peers, to self-organise, successfully negotiate a division of labour within the group and to solve conflicts.





Table 9. Basic Template of a Competence Grid for Assessing the Management of Learning

Criteria	Excellent (4 pts)	Good (3 pts)	Satisfactory (2 pts)	Needs Improvement (1 pt)
Problem identificatio n & analysis	Clearly defines the problem, breaks it down logically, and considers multiple perspectives.	Identifies the problem well but may lack depth in analysis.	Some understanding of the problem but lacks clarity in defining key aspects.	Misunderstands or poorly defines the problem.
Idea generation & creativity	Generates innovative, well- reasoned solutions using diverse perspectives and methods.	Proposes solid solutions, but they may lack creativity or depth.	Offers basic solutions but lacks originality or detail.	Struggles to propose viable solutions.
Collaboratio n & team dynamics	Actively engages with teammates, encourages diverse perspectives, and maintains a positive team dynamic.	Works well with the team but may not always facilitate inclusivity.	Participates but does not actively encourage team engagement.	Disengaged or creates tension within the team.
Logical decision- making	Evaluates possible solutions systematically, considering feasibility, impact, and risks.	Makes reasonable decisions but lacks depth in evaluation.	Decisions are based on intuition rather than structured analysis.	Decisions are poorly reasoned or arbitrary.
Implement- ation & execution	Effectively plans and assigns tasks, ensuring smooth execution of the solution.	Completes most tasks effectively but may lack full coordination.	Some tasks are completed, but execution is inconsistent.	Tasks are not well- planned or executed.
Adaptability & resilience	Adapts to new challenges, remains flexible, and adjusts strategies as needed.	Adapts when necessary but may struggle with major shifts.	Shows some resistance to change or struggles under pressure.	Unable to adapt; rigid in approach.

Total Score: __ / 24





• Comments for Improvement:

Assessment Tools and Methods: Assessment could, for example, take place in the form of evaluation by faculty staff on the effectiveness of teams in projects, peer and self-assessment where team members evaluate each other's contributions or project reflection reports in which students justify their decisions and problem-solving approach.

To sum up, competence frameworks because of their abstract nature require a practical implementation for any practical use. This usually takes the form of breaking down competences into skills (tasks or can-do statements), knowledge and attitudes relating to particular narrow contexts with the aim of ensuring the latter's representative character. Assessment should be transparent and associated with specific tools that preferably include the participation of students themselves through peer assessment, the collection of feedback or self-assessment. As faculty members will be aware, life competences are already extensively assessed (see deliverable 4.3), however generally in a synthetic way that does not distinguish analytically between different competences but rather evaluates the overall results of an accomplished task. In this context, competence grids can be a useful tool to monitor students' development of particular life competences throughout the educational process and provide constructive feedback to them. The grids and the corresponding indicators should not be used for grading competences, because their assessment remains tentative by nature, but considered as a baseline against which students and university staff can compare the competence development of individual students, and particularly those with a low socioeconomic status. Some life competences are by the way rarely assessed by faculty staff in practice in terms of proficiency levels, such as empathy, although psychologists have suggested scales for measuring them, but assessment is most often implemented in the form of peer or self-assessment. In this sense, credentialing life competences does not seem a good idea.²¹ Their monitoring should rather be used to pedagogically support students in their personal development.

The last part has once more shown the importance of a bottom-up approach to competences. Another argument in favour of such an approach can be found in the results of deliverable 4.2, which shows that project team members at the partner universities participating in the competence ranking have very different perceptions of which life competences are the most crucial ones for their students (see Figure 2 below and Fig. 2 in deliverable 4.3). In contrast there are few significant differences in the rankings when taking specifically into account the digital context and employability (see Figures 8 and 4 there respectively).

²¹ However, the results of a poll conducted by the Dig-2-Inc project teams at the partner universities published in deliverable 4.2 (Figure 7) indicate that faculty members have expressed a somewhat different preference. More than half ot all respondents would like to see the following LifeComp competences credentialed or recognised at their university: 'Communication' and 'Critical thinking' (79% respectively) and Managed Learning (61%), with less importance attached to the credentialing or recognition of 'Collaboration' (43%), 'Flexibility' (25%), 'Growth mindset' (21%), 'Self-regulation' (18%), 'Well-being' /14%) and 'Empathy' (7%).





Figure 2. Perceived importance of LifeComp competences for students by the project teams at the five partner universities (Source: Deliverable 4.2)

Legend

Personal skills: P1 Self-regulation P2 Flexibility P3 Well-being

Social skills: S1 Empathy S2 Communication S3 Collaboration

Learning skills: L1 Growth mindset L2 Critical thinking L3 Managed learning

University of Burgundy



University of Turku



Free University of Burgas





Co-funded by the European Union



Technical University of lasi Marconi University P1 P1 L3 P2 P2 L3 P3 L2 **P**3 L2 **S**1 L1 **S**1 L1 S2 **S**3 S2 **S**3

This suggests that rather than setting up a monitoring system and creating indicators for all competences of a framework like LifeComp, it would probably be more profitable to concentrate on a limited set of competences that are seen locally as decisive for students' academic performance and later professional career.

Finally, 'employability', together with the better-known 'soft skills' (now more often called life skills, transversal skills or 21th-century skills), has gained a prominent place in the public debate on European labour markets during the 1990s.²² Rising unemployment in Western Europe since the 1970s, which became structural rather than cyclical, deindustrialisation through the relocation of industries to low-wage countries and the growing importance of the services sector where soft skills are considered more important, accompanied by fiscal austerity, led to a development where the policy goal of full employment was replaced by that of full employability. Eastern European countries faced similar problems after the collapse of their socialist economies. At the same time, young people became more highly educated than ever, in part because they remained longer in the educational system, as university graduates

²² See, for instance, McQuaid, Ronald W. And Lindsay, Colin(2005) 'The Concept of Employability*, Urban Studies, 42(2): 197–219; Emily Róisín Reid & Bo Kelestyn (2022): Problem representations of employability in higher education: using design thinking and critical analysis as tools for social justice in careers education, British Journal of Guidance & Counselling, 50(1); and, more recently, Siivonen, Pjäivi, Isopahkala-Bouret, Ulpukka, Tomlinson, Michael, Korhonen, Maija and Haltia, Nina (2023) Rethinking Graduate Employability in Context: Discourse, Policy and Practice, London: Palgrave, and Eimer, Andreas and Bohndick, Carla (2023) 'Employability models for higher education: A systematic literature review and analysis', Social Sciences & Humanities Open, 8.





are considerably less exposed to unemployment or precarious employment but also have faced significant entry barriers in the labour market, especially in southern Europe. In a simplified view, the promotion of competence development was seen as a win-win situation. If members of the (future) workforce were to acquire the right skills, they would be able to secure a job, while employers would benefit from a workforce with the needed skills in the new economic environment. This narrative is somewhat contradicted by economic facts. There appears to exist no evidence showing that university graduates from Greece (a country with the highest share of young graduates) or Italy (where many graduates struggle to find employment) lack soft or life skills compared to their peers in economically better-off countries in northern and northwestern Europe. It may be just that these economies are not creating enough new jobs. In their case, the willingness to undergo internal migration or emigration and other factors might well be more decisive for securing employment. In the wealthier part of Europe which has returned to (near) full employment, employability has increasingly taken second place in face of ongoing demographic change. With the massive retirement of the boomer generation, employers now often experience difficulties to recruit a highly educated workforce, with less attractive positions often being filled by foreign graduates. This has led one scholar to coin the term 'employer-ability' to designate the need for employer competences required to attract the workforce they need.23

Surveys among employers and recruiters show that hiring practices have increasingly taken into account soft skills, often considered even more important than hard skills, and as a means to distinguish between candidates with similar formal professional qualifications. However, a closer look at the skills requirement reveals that the needed competences are rather similar in nature to those necessary for academic life. After all, an academic presentation, for example, is not radically different from a professional presentation. Graduates who enter the labour market just have to adapt their competences to a new social context governed by different rules and characterised by different social relationships – not a major obstacle. In addition, universities have in recent decades responded to this perceived skills gap by supporting students in finding internships and work placements, through cooperation projects with businesses and by adapting their curricula (e.g. real-life simulations, group projects, case study analyses) and thus operating a rapprochement between academia and employment.

²³ See Louise Morley (2001) 'Producing New Workers: Quality, Equality and Employability in Higher Education', *Quality in Higher Education*, (2).





3. Concluding remarks

The initial aim of this report has been to design and recommend indicators for the follow-up competence development of academic skills, namely digital ones, and life skills, for students with a low socioeconomic status, which could be used by university staff to assess and monitor these skills throughout the educational process and in view of students' employability. The indicators' main purpose was therefore to be practical in nature, that is to help university staff to pedagogically better support low-SES students who face digital exclusion in their personal and academic growth. In this vein, the introduction suggested several requirements for such indicators and the competence grids on which they are to be based, namely that indicators have to accurately measure what they claim (validity) and produce consistent results (reliability). This is generally achieved by breaking competences down into specific skills (in the form of tasks), knowledge, attitudes and behaviour that are held to be representative of the underlying competences - by no means an easy task. Indicators should also be transparent and understandable to users to enhance collaboration from all stakeholders during the collection and interpretation of relevant data. As indicators are context-sensitive and thus work better for large numbers, it has been recommended that they should be created for all students, allowing for comparisons between low-SES students and the general student body, and, together with the vet to be constructed competence grids, be accessible to students, too.

Moreover, the present report was to build on earlier results of work package 4 on academic (digital) and life skills and their assessment. In the event, these results turned out to be rather different from those expected. A large first part has therefore been dedicated to discuss the question if and how these results could be used to measure competences and construct qualitative and quantitative indicators.

Deliverable 4.1 introduced competence labels, or descriptions, from four European competence frameworks (EntreComp, GreenComp, DigComp 2.2 and LifeComp), which were then compiled into a list and rated by members of the project team as to their perceived importance for (low-SES) students. This top-down approach raised a number of issues: 1. The list of competence have been derived from competence frameworks designed for all EU citizens and not students in higher education, or more particularly for low-SES students for that matter; 2. The descriptions, or labels, only partly cover the competences required to successfully complete an academic degree programme and start a professional career; 3. They are treated as discrete, mutually exclusive entities, whereas they are largely overlapping and have to be understood as an integral part of the frameworks to which they belong; 4. the frameworks are quite different in nature (e.g. prescriptive vs conceptual and non-prescriptive). More specifically, the deliverable does not address the questions how these frameworks are to be used in the practical context outlined above (e.g. measuring proficiency levels) nor discusses why it is thought that low-SES students lack these competences or have only weakly developed them compared to their peers. This holds in particular true for EntreComp and GreenComp competences.





In addition to discussing related problems of applying DigComp 2.2 to students in higher education, this report presents an example of a practical implementation at the Swiss University of Geneva and makes suggestions how this implementation could be expanded. At the same time, it notes that DigComp 2.2's conception and this implementation seem better suited as a one-off diagnostic tool than for the continuous monitoring of digital skills, as the latter are described in relatively simple terms.

Deliverable 4.2 focusses on LifeComp competences but adopts a largely similar top-down approach as deliverable 4.1 by producing a ranked list of life competences by their presumed importance in student life at the universities participating in the project. Similarly, to the earlier report, it does not spell out in more detail what life competences, such as 'flexibility', 'communication' and 'growth mindset' mean in regard to specific academic contexts of student life or how these competences are to be defined in terms of skills, knowledge and attitudes nor their particular relevance for low-SES students. Two interesting results show how different universities prioritise different life competences (see Figure 2 above) and perceive partly different key areas as the most pressing issues. This pleads in favour of a local, bottom-up approach.

In this report, we discuss the relevance of the development of life skills for the problems identified in the mapping study (deliverable 2.1) and come to the conclusion that, while appropriate life skills may help low-SES students to better cope with the difficulties they are experiencing, they are unlikely to be able to address the underlying causes, which are often outside the scope of what students or other members of the university can do (inadequate student funding, lack of a performing infrastructure for online learning in remote geographical areas, lack of care institutions for needy family members, etc.). More importantly, the report suggests three competence grids with quantitative and quantitative indicators that illustrate how life skills could be defined and measured but refrains from proposing a more systematic grid because the practical purpose of such a grid is, in our opinion, best served by a bottom-up approach that starts from locally diagnosed problems rather than from an abstract framework. A proposal for LifeComp competences submitted by the project team of Iaşi can, however, be found in the Annex.

In the last part, we briefly discuss the role of life skills – more often designated by the older term 'soft skills', which does not take into account notions of individual wellbeing – for the concept of 'employability'. Employability, together with the notion of a ,skills gap', has become central in the public debate on labour markets during the 1990s, a period characterised by high unemployment rates and structural unemployment across Europe. The report contends that life competences necessary for a successful academic or job performance are not radically different, but require an adaptation to a quite different social setting governed by different rules and requirements. Frameworks for these two social domains that define competences as skills, knowledge and attitudes are therefore likely to look different but these distinct characteristics do not constitute a major obstacle to employment, witness the low unemployment rates of university graduates compared to the general working population. This may also be due to the





efforts undertaken by most universities over the last decades to facilitate the transition to employment after graduation (e.g. help with internships and work placements, cooperative projects with businesses, changes in the curricula).

To sum up, abstract competence frameworks require an implementation that identifies representative and measurable skills, knowledge and attitudes to be of any practical use, including for constructing indicators to monitor students' individual competence development and to mobilise adequate pedagogical support by university staff. In the light of the work package's results, a bottom-up approach anchored in a university's specific local context and students' most pressing needs seems the most promising for addressing potential skills gaps, given limited resources.





Annex



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Proposal for a LifeComp Competence Matrix

In response to an earlier draft version of the present report, the Dig-2-Inc project team at the Technical University Gheorghe Asachi of Iași, coordinated by Claudiu Romila, submitted a proposal for a competence matrix reproduced below in Table 10 as another instance of how LifeComp competences could be applied to students in higher education.

Table 10. Managing learning – The planning, organising, monitoring and reviewing of one's own learning

<u>Planning</u>

Criteria	Excellent (4 pts)	Good (3 pts)	Satisfactory (2 pts)	Needs Improvement (1 pt)
Clear learning objective	Learning goals are well defined, measurable and aligned with curricula or needs. Learners understand what they are expected to learn and why.	Learning goals are generally clear and mostly aligned with needs. Learners have a general understanding of what is expected.	Learning goals are partially defined or vague. Learners are somewhat aware of expectations, but clarity is lacking.	Learning goals are unclear or missing. Learners are confused about what they are learning and why.
Structure planning and organisation	Learning is broken into manageable modules There is a logical progression from simple to complex Schedules and deadlines are realistic and communicated clearly	Learning is somewhat organized, though not always broken down into manageable parts. Some progression is visible. Deadlines are mostly clear.	Learning has a loose structure. Progression is inconsistent. Some schedules and deadlines are unclear or not well followed.	Learning feels disorganized. No clear sequence or deadlines. Learners feel overwhelmed or unsure about how to proceed.
Use of assessment and feedback / monitoring and evaluation	Regular feedback to evaluate owns progress. Ability to assess what needs to be improved.	Occasional feedback is provided. Learners can sometimes gauge progress but may lack clarity on	Feedback is rare or general. Learners struggle to monitor their own progress or identify specific	No meaningful feedback is provided. Learners are unaware of their progress and





		improvement strategies.	areas for improvement.	unsure how to improve.
Effective use of technology and resources	Efficient use of learning tools (Brain map, google classroom, Miro) The use of tools in order to stay organized and engaged.	Learners use available tools but may not always do so effectively. Technology supports learning to a fair extent.	Tools are available but used inconsistently. Learners may not know how to use them effectively or rely on them passively.	Technology and resources are underused or misused. Learners are disorganized or disengaged due to lack of tool integration.
Motivation and engagement	Feels inspired to learn because activities are interesting and relevant. Feels encouraged to participate and express own ideas, keeping a high motivation level in learning.	Learners are mostly interested in the learning activities and participate regularly, though engagement may vary.	Learners show some interest but often lack sustained motivation or involvement in tasks.	Learners appear disengaged. Activities feel irrelevant or unmotivating. Participation is minimal.
Communicatio n and collaboration	Ability to communicate efficiently Ability to initiate and maintain collaborations	Learners communicate and collaborate when prompted. They contribute to group work but may not take initiative.	Learners participate in communication and collaboration sporadically or with hesitation.	Learners avoid communication and rarely engage in collaborative learning activities.
Adaptability and responsivenes s	Ability to ask questions to which answers are given by experts Ability to shift learning plans in order to meet own needs and challenges without stress.	Learners can ask questions and adapt plans with some support. They manage changes reasonably well.	Learners show limited flexibility and need frequent help to adapt to learning challenges.	Learners resist change or struggle to adapt plans. They do not ask for help or adjust learning strategies.





Critical Thinking

Criteria	Excellent (4 pts)	Good (3 pts)	Satisfactory (2 pts)	Needs Improvement (1 pt)
Identifying problems or questions	Clearly identifies key problems or questions with depth and insight. Recognizes underlying issues and implications.	Identifies most key problems or questions accurately, though may miss some nuances.	Identifies surface- level problems or questions but lacks depth or clarity.	Struggles to identify relevant problems or questions. Often off- topic or vague.
Gathering and evaluating information	Effectively gathers a wide range of relevant information. Evaluates sources critically for credibility and relevance.	Gathers mostly relevant information and shows some source evaluation.	Gathers limited or partially relevant information with minimal evaluation of sources.	Gathers insufficient or irrelevant information. No evaluation of source quality.
Analysing and interpreting information	Analyses information thoroughly and draws insightful, well-supported conclusions. Recognizes biases and assumptions.	Analysis is generally sound and conclusions are reasonable but may lack depth or consistency.	Basic analysis present but lacks depth or clarity. Conclusions may be oversimplified or weakly supported.	Fails to analyse information meaningfully. Conclusions are unsupported or illogical.
Developing arguments and explanations	Constructs clear, coherent, and logical arguments with strong evidence and reasoning.	Arguments are mostly logical and supported, though may lack full coherence or depth.	Arguments are simplistic or only partially supported by evidence.	Arguments are unclear, poorly structured, or unsupported by evidence.





Reflecting and revising thinking	Demonstrates self- awareness by reflecting on assumptions, considering alternatives, and revising thinking appropriately.	Shows some reflection and willingness to revise thinking, though inconsistently.	Limited reflection. Reluctant or unsure about revising thinking.	No evidence of reflection or adjustment in thinking.
Creative and alternative thinking	Consistently generates original, creative ideas or solutions. Sees multiple perspectives.	Often considers different perspectives or generates new ideas.	Occasionally suggests alternative ideas but lacks originality or depth.	Rarely generates creative ideas. Thinking is rigid or narrow.

Collaboration

Criteria	Excellent (4 pts)	Good (3 pts)	Satisfactory (2 pts)	Needs Improvement (1 pt)
Contribution to group work	Actively contributes ideas and efforts. Takes initiative and fulfils responsibilities reliably.	Contributes regularly and fulfils assigned tasks with some initiative.	Participates when prompted and completes tasks, though with minimal initiative.	Rarely contributes or avoids responsibilities. Others must compensate for lack of input.
Respect and openness	Consistently respects others' ideas and encourages different perspectives. Creates an inclusive atmosphere.	Usually respectful and open to others' input. Occasionally encourages contributions from all.	Shows basic respect but may disregard differing views. Inclusiveness is inconsistent.	Disregards others' input or shows disrespect. Creates tension or exclusion in group settings.
Communicati on within the group	Communicates clearly, actively listens, and ensures understanding among group members.	Communicates effectively but may not always ensure group understanding or clarity.	Basic communication is present but lacks depth or clarity. Listening may be limited.	Communication is poor or disruptive. Rarely listens or engages productively.





Conflict resolution	Addresses conflict constructively and seeks solutions that benefit the group. Maintains a positive tone.	Manages conflict when needed and seeks compromise, though not always diplomatically.	Struggles to address conflict effectively. May avoid or escalate issues unintentionally.	Avoids, ignores, or exacerbates conflicts. Has difficulty working through disagreements.
Responsibilit y and accountabilit y	Takes full responsibility for tasks and outcomes. Holds self and others accountable respectfully.	Generally responsible and reliable. May occasionally need reminders or support.	Completes responsibilities inconsistently. Reluctant to take ownership of outcomes.	Avoids responsibility and does not hold self-accountable for group success.
Support and encourageme nt of peers	Actively supports and encourages peers. Recognizes others' strengths and builds team morale.	Offers help and encouragement when needed. Acknowledges contributions of others.	Provides limited support to peers. Rarely acknowledges or builds group morale.	Offers no support or discourages others. Negatively impacts group dynamics.

Communication

Criteria	Excellent (4 pts)	Good (3 pts)	Satisfactory (2 pts)	Needs Improvement (1 pt.)
Clarity of expression	Clearly communicates ideas in all formats; easy to understand.	Usually expresses ideas well; minor misunderstandings occur.	Sometimes unclear; needs support to clarify.	Often difficult to understand; message is lost or confusing.
Active listening	Listens attentively; responds thoughtfully to others.	Generally listens and responds appropriately.	Inconsistent listening; may miss key information.	Rarely listens; interrupts or appears disinterested.
Non-verbal communication	Uses body language, tone, and expression to reinforce meaning.	Generally uses appropriate non- verbal communication.	Sometimes sends mixed messages with non-verbal cues.	Non-verbal signals distract or confuse.
Appropriatenes s and tone	Adapts language and tone well to	Mostly appropriate language and tone.	Occasional mismatch between	Tone or language often inappropriate or insensitive.





contex	at and	language/tone	
audier	ice.	and context.	

Empathy

Criteria	Excellent (4 pts)	Good (3 pts)	Satisfactory (2 pts)	Needs Improvement (1 pt.)
Understandi ng others	Consistently aware of others' feelings; shows deep perspective-taking.	Recognizes emotions and reacts supportively.	Occasionally aware; response may feel shallow or automatic.	Rarely shows understanding or acknowledgement of others' feelings.
Compassiona te responses	Offers support and kindness regularly; validates peers.	Offers help when asked or when obvious.	Offers limited support; may not notice when peers need help.	Ignores or minimizes others' difficulties or distress.
Respect for differences	Open to diverse views and cultures; encourages inclusivity.	Generally respectful of diversity.	Shows limited awareness or appreciation of differences.	Disregards or is insensitive to differing views or identities.

<u>Wellbeing</u>

Criteria	Excellent (4 pts)	Good (3 pts)	Satisfactory (2 pts)	Needs Improvement (1 pt.)
Awareness of wellbeing	Actively monitors and manages emotional/physical state	Generally aware and responsive to personal wellbeing.	Inconsistent awareness or neglects signs of stress.	Unaware or dismissive of emotional and physical needs.
Seeking help when needed	Proactively reaches out to trusted people/resources when struggling.	Willing to seek help when necessary.	Hesitates to seek help; may delay addressing issues.	Avoids seeking help, even in difficult circumstances.
Healthy coping strategies	Uses constructive methods to manage stress and maintain balance.	Uses some healthy strategies with varied consistency.	Limited or sometimes unhelpful strategies;	Relies on unhealthy or no coping strategies.





	struggles with stress.	

<u>Flexibility</u>

Criteria	Excellent (4 pts)	Good (3 pts)	Satisfactory (2 pts)	Needs Improvement (1 pt.)
Openness to change	Embraces new experiences with a positive attitude.	Accepts change with some hesitation.	Hesitant or slow to adapt.	Resists change or refuses to adjust.
Handling uncertainty	Stays calm and effective in ambiguous situations.	Manages uncertainty with support.	Appears anxious or avoids decision-making when uncertain.	Shuts down or avoids any form of uncertainty.
Adjusting strategies	Regularly reflects and shifts strategies when needed.	Adjusts when prompted or faced with obstacles.	Reluctant to change approach even if not working.	Repeats ineffective strategies without reflection.

Self-regulation

Criteria	Excellent (4 pts)	Good (3 pts)	Satisfactory (2 pts)	Needs Improvement (1 pt.)
Criteria	Remains calm and focused under pressure; models emotional balance.	Generally manages emotions well; some lapses under stress.	Has difficulty managing emotions during challenges.	Easily overwhelmed; reacts impulsively.
Openness to change	Sets clear goals and follows through with consistent effort.	Sets goals and works towards them, with some inconsistency.	Goals are vague; needs reminders or motivation to continue.	Rarely sets goals; often abandons tasks prematurely.
Handling uncertainty	Stays on task and resists distractions with maturity.	Generally focused; minor lapses in attention or impulse control.	Often distracted; needs frequent support to stay focused.	Easily distracted; struggles to manage impulses.





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Project result 4.4

Indicators for the Follow-Up Competence Development of Academic and Life Skills: Report

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Project acronym:	DIG-2-INC
Project number:	2022-1-FI01-KA220-HED-000090147
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Authors	Rupert Hasterok, Comparative Research Network e. V.
	My thanks for contributions and comments on an earlier draft version by Ira Ahokas (University of Turku), Fanny Boutard (CMQE–University of Burgundy), Peppino Franco (ASNOR), Mikko Grönlund (University of Turku), Angélique Paillard (CMQE–University of Burgundy), Claudiu Romilo (Technical University Gheorghe Asachi of Isasi) and Mariya Zheleva (Free University of Burgas).
Contact:	https://sites.utu.fi/dig2inc/



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BY NC SA		The Project result 4.4 –- Indicators for the Follow-Up Competence Development of Academic and Life Skills: Report has been developed under Erasmus+ KA220-HED Project 'Inclusive Digital Learning' (Project no. 2022-1-FI01-KA220- HED-000090147) and is published under a Creative Commons licence. <u>Attribution-NonCommercial-ShareAlike 4.0</u> International License.	

