



CitizenComp

The Competence Framework of Future Citizens

A set of competencies for the
European citizens of the future



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General principles and methodology

In recent years, there has been an increased focus on different competence models to define and assess the skills and abilities needed in various domains. These models aim to provide a comprehensive framework for understanding and evaluating the competencies required for success in specific fields or contexts. Some of them match /correspond well with the definition for the Future Citizen and are dedicated to solving the same general questions – how do describe the human being, who we expect to rise, who will be successful in the future and can handle the challenges that world and environment will give. The aim is to capture the multifaceted nature of Future Citizen (FC) in a rapidly changing world.

Therefore, we build up a process to work out the future citizen competence model:

1. Definition of the key terms (competence, future citizen/smart citizen, (smart) citizen competence, competence model, challenge, smart city etc) (e.g. application, p.26)
2. Mapping of the parts of the future citizen core competence – sub-competences (based on other competence models (EntreComp, GreenComp etc. and scientific evidence) which help the citizen to answer/cope with aforementioned challenges and match with the core definition of future citizen.
3. By providing a detailed account of each sub-competence and highlighting the specific outcomes derived from various activities, we can ascertain the individual's acquired knowledge and their exhibited behaviour, which demonstrates the attitudes and skills acquired through achieving competence.
4. Validating the initial framework with the specialists and young people to match their expectations and challenges they face with the expected/described outcomes in the model.

The framework was built up based on a comprehensive data collection and analysis, including the following:

1. Analysis of the four existing and matching competence models (EntreComp, DigiComp, GreenComp and LifeComp) to understand each model and its components and selecting the matching sub-competences/topics/keywords with the aim and definition of the FCC.
2. Search and analysis of the scientific papers to define key terms and give the evidence-based foundation for the whole model/framework.

All the data collected through the activities described above was analysed by the research team, using the study objectives and the framework of understanding as guidance.

Main principles of the competency model development:

- The model focuses on achievement of the clear and holistic understanding and definition of future citizen competence. Competence is a holistic concept (Vitello et al, 2021)
- Future Citizen Competence (FCC) is the set of the (sub)competences necessary to describe the whole set of different skills, knowledge, and attitude which FC needs. Competence cannot be observed outside of a context (Hager & Gonczi, 1996)
- The model does not prioritise or put sub-competencies to the hierarchy but brings out the general construct of the FCC.
- The model focuses on the final stage of the FC development and describes the situation when the FCC is achieved at a minimum level. The model is not a progression model.

- The model is descriptive, uses a learning-outcome based approach and therefore enables it to use it as the bases of study programmes and other educational goals.
- Different stakeholders (young future citizens, policy makers, education institutions, society etc) must be involved into the final development of the competence model. Electronic survey, individual interviews, focus group interviews and discussions are the involvement methods, as well as digital tools will be also used in order to connect the different teams of participants (Savastano et al., 2023)
- The competence model focuses on constructive alignment (Biggs, 1996) which can be achieved only when the aim and definitions are transparent and aligned.
- The described sub-competences follow the context (future community) and are essential to be active in future community/city and achieve the set goals. The critical aspect of knowledge and skills in competence is that it is applied, integrated, and adapted to meet the needs of the context (Oates, 2003).

Based on the aforementioned principles, expert group described initial competence model with 14 competences in three categories (vision-oriented, action – oriented and values-oriented). As a next stage, the young people (aged 16-30) assessed the described competences in 5-point scale and matched competences with the possible real work scenarios, where those competences would be needed. Competences were divided between 5 workgroups, each group worked with the 3 sub-competences.

During the workshop each group worked 7-10 minutes to one “competence” with the list of skills needed, and they write down real life scenarios where this competence would be needed. It can be scenarios that fail because the competence is not activated, or it could be scenarios that work well because it is activated and used properly. The groups switch and work on the next competence, until all the competences were discussed. An important limitation is that each group worked with just three sub-competence and didn’t have comprehensive overview of the whole model. According to their estimations and feedback, the described competences were analysed and improved if necessary and final list of Future Citizen competences was confirmed.

Definitions of the key terms

Starting with the definition of term “competence”, it is worth of mentioning that there are many different approaches and schools which slightly distinguish, but however, the competences generally, have been treated in many approaches as relying on three pillars: knowledge, skills, and attitudes (Spencer and Spencer, 1994; Stoof, 2005; Lackeus, 2013; Delamare Le Deist & Winterton, 2005). Importantly, the definitions emphasise also on “other abilities” and abilities to apply skills, attitudes, and knowledge in various contexts for performing various tasks (e.g. Campion et al 2011; Martinelli et al 2010). In the light of focusing on the competence model to have an educational purpose, the understanding that competences, defined in an above-mentioned way, are changeable, learnable, and attainable through experience, training, or coaching (Man et al., 2002). Competency is a general capability based on knowledge, experience, values, dispositions which a person has developed through involvement with educational practices (Hutmacher a set of skills, knowledge, and attitudes to be successful in specific situations (Wesselink & Wals, 2011; 1997). As a summary, to give meaningful content for the term, it can be elaborated as it is done in the work of Vitello et al (2021) - competence is the ability to integrate and apply contextually appropriate knowledge, skills, and psychosocial factors (e.g., beliefs, attitudes, values and motivations) to consistently perform successfully within a specified domain.

Due to the previous discussion, the competence model describes a combination of specific knowledge, skills and other personal qualities required to effectively perform. The competence model should give a clear definition of each (sub)competence (Staskevica, 2019), including measurable or observable indicators (incl. learning outcomes). Holistic competence model is a contextual description of activities and skills, which are the prerequisites of competent action (Wesselink and Wals, 2011; Mulder, 2015).

Future Citizen Competence (FCC) - competences they feel will be relevant and needed by future citizens of European cities and communities.

Challenge - key action 'sharing the challenges from local to European level and opening the access to solutions ideated in other territorial contexts promoting the idea that even if communities are different challenges might be similar and solutions can be transferred. This will happen inside the national labs called "Citizenthons" for product/service ideation and design. Example from GreenComp - the green competences, and the topic of environment and environmental sustainability will be a key thread of the project as young people are very sensitive and active on this topic and so it is very likely that one of the common challenges to work on will be the environmental one, coming from different angles but still a key challenge for young people in Europe.

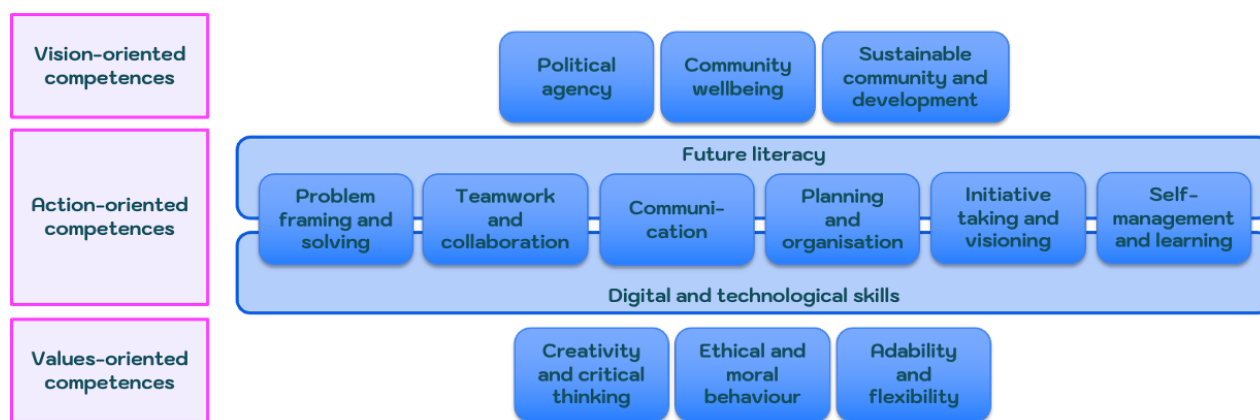
According to the European Commission definition, a Smart City is “a place where traditional networks and services are made more efficient with the use of digital solutions for the benefit of its inhabitants and business. A smart city goes beyond the use of digital technologies for better resource use and less emissions. It means smarter urban transport networks, upgraded water supply and waste disposal facilities and more efficient ways to light and heat buildings. It also means a more interactive and responsive city administration, safer public spaces and meeting the needs of an ageing population”.

Future Smart Citizen (FSC) is an individual who possesses a set of competencies, skills, and values that enable them to thrive in a rapidly changing world and contribute to the sustainable development of their communities and society. A Future Smart Citizen is knowledgeable, digitally literate, socially responsible, and globally aware. They are able to



critically analyse complex problems, communicate effectively, collaborate with others, and use creativity and innovation to develop sustainable solutions to social, economic, and environmental challenges (Bibri, 2021). Future Smart Citizens are also emotionally intelligent, adaptable, and flexible, and are committed to promoting social justice, equity, and environmental sustainability. A Future Smart Citizen is a forward-thinking and proactive individual who is equipped to navigate the complex and interconnected challenges of the future and contribute to building a better world for all. Whether any FC should be smart to cope with the environment, the word “smart” is unnecessary to emphasise.

Mapped competence model:



Descriptions of competences:

POLITICAL AGENCY

Definition of the competence: **Political Agency competence for FC refers to the set of skills, knowledge, and abilities that individuals possess to actively engage in the political process, contribute to policy making, and drive positive change in society.**

Future Citizen competencies play a critical role in shaping and in visioning of political agency, which refers to an individual's ability to understand and participate in the policymaking process as well as to influence political decisions and policies that affect their lives (Zhu & Alamsyah, 2022; Van Twist et al., 2023). These competencies enable individuals to analyse political decisions and policies, develop innovative political solutions, and promote political agency and social justice. By developing these competencies, individuals can become effective political agents who can envision and work towards a better future for themselves and their communities. In other words, Future Citizen competencies are essential for individuals to participate effectively in policymaking processes and contribute to the development of policies that address the complex challenges of the 21st century.

The four most important learning outcomes to be focused on are as follow:

- Can analyse and synthesize information to make informed decisions.
- Able to evaluate policy proposals and contribute to evidence-based policymaking.
- Can effectively communicate and collaborate with others to achieve policy goals.
- Can understand cultural diversity and engaging in global policy dialogues.

FC has this competence when she/he (mainly based on GreenComp; Beaumont, 2010; Smith, 2013; David & Buchanan, 2020; Zhu & Alamsyah, 2022; Van Twist et al., 2023):

- is able to evaluate policy proposals, identify potential risks and benefits, and contribute to evidence-based policymaking and policy innovation (Beaumont, 2010; Smith, 2013) (*very important*);

- can generate new ideas and propose alternative policy solutions (Zhu & Alamsyah, 2022) (*very important*);
- able to advocate for environmental policies and contribute to a green economy (*very important*);
- can use digital platforms and new technologies to access information, participate in online consultations, and provide feedback to policymakers. (Beaumont, 2010) (*important*);
- can effectively communicate their views and work collaboratively with others to achieve policy goals. (Van Twist et al, 2023) (*important*);
- can understand and appreciate cultural diversity (*important*);
- can analyse, evaluate, and synthesise information to make informed decisions (*less important*).

The ten young people who participated in the validation rated all the mentioned skills as either very important or important (see rating in italics). However, "can analyse, evaluate, and synthesise information to make informed decisions" turned out to be the least important, and it was recommended to add "Find a way to act on your ideas". Based on the comments received, the expert group decided to improve the wording (for example by removing the word can), supplement the learning outcome "can generate new ideas and propose alternative policy solutions" accordingly and to abandon the less important learning outcome.

The final list of the outcomes. FC has this competence when she/he:

- evaluates policy proposals,
- identifies potential risks and benefits of policy proposals
- contributes to evidence-based policymaking and policy innovation
- generates new ideas to propose alternative policy solutions and find a way to act on his/her ideas
- advocates for environmental policies and to a green economy
- uses digital platforms and new technologies to access information,
- participates in online consultations to provide feedback to policymakers
- effectively communicates his/her views to collaborate with others to achieve policy goals
- understands and appreciates cultural diversity

COMMUNITY WELLBEING

Definition: Community wellbeing for FC refers to the knowledge, skills, and attitudes that individuals possess to actively promote individuals and community safety, health, and well-being, which refers to the quality of life, and contribute to the overall welfare and development of their communities.

Future Citizen competencies are essential for promoting individuals and community safety, health, and well-being, which refers to the quality of life and overall health of a community. Future citizens with safety, health, and well-being competencies are aware of factors that influence health and well-being, such as individual behaviour, personal characteristics, and social and environmental factors. They are sensitive toward nature and sustainability issues (Butot et al., 2020). They know that our well-being, health, and security depend on damage to human health and all life forms (precautionary principle). They promote and create

nature-based solutions. Future Citizen competencies are critical for promoting community well-being, and creating healthy, resilient, and sustainable communities.

The most important learning outcomes to be focused on are as follow:

- Knows how to promote and ensure safety, health, and overall well-being of individuals and communities with respect to wellbeing of nature.
- Knows about potential health-risks and individual behaviour, personal characteristics and social and environmental factors influence health and wellbeing.
- Knows and understands the needs and challenges of the community.
- Be able to foster social cohesion and inclusivity.
- Be able to develop evidence-based solutions to ensure community health and wellbeing.

FC has this competence when she/he (based on GreenComp; LifeComp; DigiComp; de Waal & Dignum, 2017; Butot et al., 2020):

- knows how to avoid health-risks and threats to physical and psychological well-being while using digital technologies (*very important*);
- have access to digital tools and platforms for community engagement, information sharing, and promoting community health (*very important*);
- builds trust and relationships with community members, healthcare providers, and policymakers (*very important*);
- promotes diversity, health equity, and social justice (*very important*);
- advocates for healthy environments and sustainable development (*very important*);
- protects oneself and others from possible dangers in digital environments (e.g., cyberbullying) (*important*);
- can use digital technologies for social well-being and inclusion (*important*);
- knows how to develop innovative interventions and programs to address community health challenges (*important*);
- understands and responds to the emotional needs of community members (*important*);
- acts with integrity, promotes ethical practices, and advocates for equitable health policies (*important*).
- develops innovative health interventions and contributes to community sustainability. (Giachino et al, 2021) (*less important*);
- able to analyse community issues, identifies root causes, and develops evidence-based solutions (*less important*).

The ratings of the 13 young people who validated the skills are included in the list in italics. In addition, it was considered important to add the following skills:

1. can provide support and understand different possibilities/tools;
2. can contribute to fostering community well-being and preserving cultural richness by actively engaging in activities;
3. can understand and appreciate cultural diversities that shape our community.

Analysing the feedback received, the expert group understood that the first recommendation is already covered by the learning outcomes presented above and does not need additional addition. The remaining two proposals are reflected in the competence

“Adaptability and Flexibility”. In addition, it was decided to abandon less important learning outcomes.

The final list of the outcomes. FC has this competence when she/he:

- knows how to avoid health-risks and threats to physical and psychological well-being while using digital technologies
- have access to digital tools and platforms for community engagement, information sharing, and promoting community health
- builds trust and relationships with community members, healthcare providers, and policymakers
- promotes diversity, health equity, and social justice
- advocates for healthy environments and sustainable development
- protects oneself and others from possible dangers in digital environments (e.g., cyberbullying)
- uses digital technologies for social well-being and inclusion
- knows how to develop innovative interventions and programs to address community health challenges
- understands and responds to the emotional needs of community members
- acts with integrity, promotes ethical practices, and advocates for equitable health policies.

SUSTAINABLE COMMUNITY AND DEVELOPMENT

Definition: Sustainable community and development competence for a Smart Future Citizen refers to the skills, knowledge, and abilities that enable active contributions to environmentally, socially, and economically sustainable communities. It involves understanding complex issues, promoting responsible practices, and generating innovative solutions to foster sustainability.

Future Citizen competencies play a critical role in promoting responsible, sustainable community and development, which refers to the vision and long-term development of communities that balances economic, social, and environmental considerations (particularly regarding green issues) (Bibri, 2021). Responsibility refers to an individual's obligation to act in ways that contribute to the greater good and wellbeing of society, while sustainability is the practice of meeting the needs of the present without compromising the ability of future generations to meet their own needs. These competencies enable individuals to develop innovative solutions to environmental challenges, promote sustainable practices, and contribute to the creation of healthy and resilient communities. In addition, the current competencies are essential for creating healthy, resilient, and sustainable communities that benefit both current and future generations.

The most important learning outcomes to be focused on are as follow:

- Uses digital platforms to raise awareness of green issues and advocates for sustainable practices.
- Knows how to work collaboratively with others to promote responsibility and sustainability, engaging diverse stakeholders.

- Is able to analyse complex issues of sustainable community development and evaluate different policy and practice options.
- Knows how to generate new ideas and approaches to promote sustainable community development, including innovative solutions.
- Knows how to promote sustainable development practices that balance economic, social, and environmental considerations.

FC has this competence when she/he (based on EntreComp; GreenComp; Digicomp; LifeComp: Kramers et al., 2014; Chen & Liu, 2020; Bibri, 2021)

- promotes ethical and responsible sustainable development practices (*very important*);
- uses digital platforms to raise awareness of green issues and advocates for sustainable practice (*very important*);
- works collaboratively with diverse stakeholders to promote sustainable practices and community development (*very important*);
- generates innovative solutions to address green issues and promote sustainability. (Kramers et al., 2014) (*very important*);
- analyses and evaluates complex issues of sustainable community development to determine the most sustainable solutions (*very important*);
- knows how to promote sustainable development practices that benefit both the local and global community (*very important*);
- aware about challenges related to sustainable community development (*very important*);
- understands and responds to the emotional needs of community members affected by sustainable development initiatives (*important*);
- knows how to develop sustainable businesses and social enterprises to promote responsible and sustainable community development (*important*);
- knows how to develop new ideas and approaches for sustainable community development (*less important*).

Again, the validators' ratings of the proposed skills were high, but additional suggestions were still made (see the following). Each proposal is accompanied by comments from the expert group

- I (can / know how to / know that I have to) circular economy
- I (can / know how to / know that I have to) analyse needs – it is covered by competence
- I (can / know how to / know that I have to) develop empathy
- I (can / know how to / know that I have to) create a system relation
- I (can / know how to / know that I have to) become more sensitive
- I (can / know how to / know that I have to) transfer research
- I (can / know how to / know that I have to) create less waste
- I (can / know how to / know that I have to) create sharing and social cohesion
- I (can / know how to / know that I have to) develop resilience
- I (can / know how to / know that I have to) make conscious choices (energetic, waste, alimentation, transport, shopping, workstation, etc)
- I (can / know how to / know that I have to) reduce disinformation

- I (can / know how to / know that I have to) know alternative lifestyle
- I (can / know how to / know that I have to) create new imaginaries
- I (can / know how to / know that I have to) raise awareness and inform
- I (can / know how to / know that I have to) be socially responsible
- I (can / know how to / know that I have to) upcycle

Analysing the proposals received, it must be noted that the topics raised have already been covered, either by this same or another sub-competency. For example, I (can / know how to / know that I have to) circular economy, create less waste, make conscious choices (energetic, waste, alimentation, transport, shopping, workstation, etc), be socially responsible and upcycle is presented as generalized already here in the same competence. Similarly, I (can / know how to / know that I have to) develop empathy, create a system relation, become more sensitive is reflected in sub-competence “Communication” or I (can / know how to / know that I have to) transfer research and know alternative lifestyle in sub-competence “Initiative Taking and Visioning”.

In summary, it can be said that there were no additions to this or other competencies within the framework of these proposals.

Based on the given assessments and discarding less important learning outcomes, the final list is below. FC has this competence when she/he:

- promotes ethical and responsible sustainable development practices
- uses digital platforms to raise awareness of green issues and advocates for sustainable practice
- works collaboratively with diverse stakeholders to promote sustainable practices and community development
- generates innovative solutions to address green issues and promote sustainability.
- analyses and evaluates complex issues of sustainable community development to determine the most sustainable solutions
- knows how to promote sustainable development practices that benefit both the local and global community
- Is aware about challenges related to sustainable community development
- understands and responds to the emotional needs of community members affected by sustainable development initiatives
- knows how to develop sustainable businesses and social enterprises to promote responsible and sustainable community development.

FUTURE LITERACY

Definition: Future literacy competence for FC refers to the knowledge and skills of imagining diverse and multiple futures, and using futures as lenses through which we look at the present anew.

Future literacy is not only the ability to read and write, but the term covers both competencies and knowledge in specific contexts such as financial literacy, digital literacy, economic literacy, and law literacy. The main context of future literacy is the capacity to know how to imagine the future, and why it is necessary in all these fields (finance, economy, digital, law, sustainability), as the future can only be imagined (Giachino et al,

2021). Future literacy improves the ability to harness the power of images of the future, enabling more fully appreciate the diversity of both the world around and the choices people make.

The most important learning outcomes to be focused on are as follow:

- access information efficiently (time) and effectively (sources).
- select research methodology(ies) based on need, circumstance or by type of inquiry.
- search, analyse, verify sources, and manage quality information.
- evaluate information critically and competently.
- analyse information from multiple sources and a variety of perspectives and draw reasonable conclusions based on analysis and interpretation.
- estimate the cost of activities.

FC has this competence when she/he (based on GreenComp; LifeComp; EntreComp; DigComp; Gazi, 2016; Lewis-Spector, 2016; de Waal & Dignum, 2017; Picatoste et al., 2018; Giachino et al, 2021):

- browses, searches and filters data, information, and content (very important);
- analyses, compares, interprets, and critically evaluates data, information, and content (very important);
- organizes, stores, and retrieves data, information, and content (very important);
- articulates information needs, searches for data, information, and content in different environments (important);
- tests the robustness of arguments and thoughts to identify possible biases (important);
- plans, puts in place, and evaluates financial decisions over time (important);
- understands and develops financial and economic know-how (less important);
- estimates the cost of his/her activities (less important);
- organizes and processes data, information, and content in a structured environment (less important).

The participants in the validation of the mentioned skills were from very different age groups and divided the skills into three categories: very important, important and less important (see rating in *italics*). In addition, the following list of skills was proposed:

- I (can / know how to / know that I have to) plan the resources
- I (can / know how to / know that I have to) be more aware about what we buy
- I (can / know how to / know that I have to) manage finances and resources
- I (can / know how to / know that I have to) use examples and historical references
- I (can / know how to / know that I have to) avoid past mistakes
- I (can / know how to / know that I have to) be aware of extended time – unfortunately the idea behind is incomprehensible
- I (can / know how to / know that I have to) be aware of new jobs
- I (can / know how to / know that I have to) be aware of new technologies
- I (can / know how to / know that I have to) be able to use digital and educate themselves on digital
- I (can / know how to / know that I have to) be able to use drones
- I (can / know how to / know that I have to) be adaptive and flexible
- I (can / know how to / know that I have to) search possible future narrations

- I (can / know how to / know that I have to) socialize
- I (can / know how to / know that I have to) face emotions
- I (can / know how to / know that I have to) imagine the future
- I (can / know how to / know that I have to) imagine differently
- I (can / know how to / know that I have to) be active citizens – it is too general competence

The expert group discussed suggestions and decided to make some changes. At first, “plan the resources” is already mentioned in learning outcome “plans, puts in place, and evaluates financial decisions over time”, which is connected to financial resources, but we included it also in the learning outcome “browses, searches and filters data, information, and content” to emphasize information effectiveness and idea that you need to plan at first to know what kind of information or source you need. This sentence was rephrased to make it more compact. Because the learning output “articulates information needs, searches for data, information, and content in different environments” contained similar information, we decided to remove it.

The second suggestion “I have to be more aware about what we buy” is connected to learning outcome “promotes ethical and responsible sustainable development practices” from Sustainable community and development competence. So, it is not mentioned and measured here. Suggestion “manage finances and resources” is explained in more detail in two learning outcomes: “plans, puts in place, and evaluates financial decisions over time” and “understands and develops financial and economic know-how”.

The third suggestion “use examples and historical references” was added in the following wording “gives examples and relates the referenced information to his/her context”. Next suggestion “avoid past mistakes” was already mentioned in learning outcome “reflects and learns from success and failure (own and other people’s)” in the competence Self-management and learning and therefore no longer included here.

The suggestion “be aware of new jobs” means that he/she understands economic environment and job trends. Learning outcome “understands and develops financial and economic know-how” has marked less important. However, according to experts, this skill is necessary to understand what is happening and to navigate the labor market as well as manage your finances, so the learning outcome was left on the list, and the wording was clarified to “understands the labor market and develops financial and economic know-how.”

Suggestions “be aware of new technologies”, “be able to use digital and educate themselves on digital” and “be able to use drones” are covered in competence Digital and Technological Skills two learning outcomes: “seeks opportunities for self-development and to keep up to date with the digital evolution” and “understands one’s own technical and/or digital competence needs to be improved or updated”.

Suggestion “be adaptive and flexible” is already covered by competence “Adaptability and Flexibility”, the next one “search possible future narrations” is not understandable to experts. Is it connected to creativity and analytical skills?

Suggestions “socialize” and “face emotions” are covered by competence Communication learning outcome “listens and is open to communication”. Next ones “imagine the future”

and “imagine differently” are covered by competence Initiative Taking and Visioning. The last one, “active citizens,” was too general, as all outcomes require active action.

The learning outcome “Evaluates critically and analyses data, information, and content” was rephrased as analysis contains comparing. Also learning outcome “organizes, stores, and retrieves data, information, and content” was worded again to “Manages data, information and content” as managing means he/she stores, organizes collected items.“ The learning outcome “organizes and processes data, information, and content in a structured environment.” was removed from the list, because it was less important and already describe in “Manages data, information, and content”.

The final list. FC has this competence when she/he:

- Plans the search strategy and information need to find necessary and relevant data, information, and content in different environments;
- Analyses data, information, and content and evaluates it critically for interpretation;
- Manages data, information, and content;
- Tests the robustness of arguments and thoughts to identify possible biases and avoid past mistakes
- Gives examples and relates the referenced information to his/her context.
- Plans, puts in place, and evaluates financial decisions over time
- Understands the labor market and develops financial and economic know-how
- Estimates the cost of his/her activities

DIGITAL AND TECHNOLOGICAL SKILLS

Definition of the competence: **Digital and technological competences for FC refers to knowledge and skills to use technological and digital solutions, communication applications, and networks to access and manage information and interact with the digital world.**

Looking at the development of society, we can no longer imagine normal communication and daily transactions without technological or digital solutions.

The most important learning outcomes to be focused on are as follow:

- analyse information from multiple sources and a variety of perspectives and draw reasonable conclusions based on analysis and interpretation.
- know how digital systems, software, and processes work.
- facilitate learning with technology to support others.
- understand the risks associated with technological and digital solutions.
- manage use of technology and work objectives in digital platforms and virtual environments

FC has this competence when she/he (based on GreenComp; DigiComp; LifeComp; Ahvenniemi et al., 2017; de Waal & Dignum, 2017):

- understands importance of technical and digital competencies (Ahvenniemi et al., 2017) (*very important*);

- analyses, compares, interprets, and critically evaluates data, information, and digital content, inc. the credibility and reliability of sources of data, information, and content (*very important*);
- seeks opportunities for self-development and to keep up to date with the digital evolution (*very important*);
- organises, stores, and retrieves data, information, and digital content (*important*);
- organises and processes data, information, and content in a structured environment (*important*);
- understands one's own technical and/or digital competence needs to be improved or updated (*important*);
- supports others with their digital competence development (*important*).

All ten young people (aged 18–29) who participated in the validation rated the mentioned skills on a scale from unimportant to very important (see the rating in italics) and rated the list as final. Therefore, FC has this competence when she/he:

- understands importance of technical and digital competencies;
- analyses, compares, interprets, and critically evaluates data, information, and digital content, inc. the credibility and reliability of sources of data, information, and content;
- seeks opportunities for self-development and to keep up to date with the digital evolution;
- organises, stores, and retrieves data, information, and digital content;
- organises and processes data, information, and content in a structured environment;
- understands one's own technical and/or digital competence needs to be improved or updated;
- supports others with their digital competence development.

PROBLEM FRAMING AND SOLVING

Definition: Problem framing and solving competence for FC refers to the knowledge, skills, and attitudes that enable individuals to solve cross-disciplinary and real-world problems by applying cognitive skills in identifying problems, brainstorming, and analysing alternatives, and implementing the best solutions.

Future citizens have a good understanding of what happens around him/her either in society and in the community and what are the trends and processes which impact our rights and well-being. He/she can see his/her role and is willing to take it in finding the solution for the problems and challenges which affect the society.

The most important learning outcomes to be focused on are as follow:

- defines issues, problems, and opportunities.
- generates different courses of action in analysing situations and applying critical thinking.
- selects the viable option to address the problems and/or opportunities identified.
- implements the solutions developed in order to overcome problems and constraints.

FC has this competence when she/he (based on EntreComp; LifeComp; GreenComp; Digicom; Ellerton & Kelly, 2021; Svihla et al., 2022; Jonassen, 2011; OECD, 2004):

- defines the problem and its stakeholders (*very important*);
- unpacks a complex problem into well-defined challenges (*very important*);
- sees different alternatives to solve the problem (*very important*);
- identifies and uses appropriate technology to research, solve, and present solutions to problems (*very important*);
- selects and applies appropriate concepts/strategy and methods to solve problems effectively and creatively (*very important*);
- understands the roles of collaboration, risk-taking, multi-disciplinary awareness, and the creativity in achieving creative responses to problems (*less important*);
- decides and takes actions based on the chosen solution (*less important*).

Despite the high ratings (see letter in italics) given to the skills already mentioned during the validation, proposals were made to add the following skills. Most of them were very general I (can / know how to / know that I have to) acknowledge and inform myself, dialogue and share (opinions, information, etc.), look for a solution together, keep calm and use nonviolent communication, prioritise, decide and act, but also can reflect, analyse and become aware.

Since in the framework of each workshop, only three competence-less reviews of other competences were analysed, and after a detailed analysis, the expert group understood that all the above-mentioned offers are reflected in other competences. Therefore, it is not necessary to add additional learning outcomes to the competence “Problem Framing and Solving.”

Therefore, the final list is following. FC has this competence when she/he:

- defines the problem and its stakeholders
- unpacks a complex problem into well-defined challenges
- sees different alternatives to solve the problem
- identifies and uses appropriate technology to research, solve, and present solutions to problems
- selects and applies appropriate concepts/strategy and methods to solve problems effectively and creatively.

COLLABORATION AND TEAMWORK

Definition: Collaboration and teamwork competence for FC refers to the knowledge, skills, and attitudes that enable build and maintain collaborative relationships to work effectively together as a team through shared responsibility, respect, and empathy to complete a shared goal for a common good.

Future citizens work together with others to achieve common goals. Teamwork is essential in every step in their activity and should be the basis for all the processes - ideation and initiation, planning, implementation, analysis and improvement. Working together and collaborating with others to develop ideas and turn them into action. FC works with diverse stakeholders to develop inclusive and participatory decision-making processes that promote collective action. Future citizens take a leading position if needed and are able to inspire and motivate the others to follow the goal/vision. (Suto, 2013; Salas et al, 2008)

The most important learning outcomes to be focused on are as follow:

- understands the teamwork principles.
- motivates/inspires himself and others to collaborate and work in a team.
- fulfils necessary teamwork roles in moving toward common goal.
- leads collaboration processes.

FC has this competence when she/he (based on EntreComp; LifeComp; GreenComp; Digicomp; Salas et al, 2008; Suto, 2013; Nguyen et al., 2020):

- values effective teamwork and collaboration (*very important*);
- understands how to practise effective teamwork (*very important*);
- understands own strengths and weaknesses and how they can impact a team (*very important*);
- motivates/inspires himself and others to collaborate and work in a team (*very important*);
- experiences different roles and perspectives on the team (*important*);
- develops effective teamwork and communication in that (including interpersonal and cross-cultural awareness) skills (*important*);
- creates and establishes effective ground rules for the team (*less important*);
- sets up systems that enhance the team process (*less important*);
- fosters individual accountability to the team (*less important*).

The validators evaluated the proposed skills quite differently (see evaluation in italics above) and considered it necessary to add only one:

- able to identify and use of emotions in a team.

Based on the expert group discussion, the learning outcome about emotions management is already described in community wellbeing sub-competence, as “understands and responds to the emotional needs of community members” and is not necessary to reflect here. Two learning outcomes, which were assessed by the validators as less important were also analysed again and experts decided to remove learning outcome “fosters individual accountability to the team”. The explanation is that the “responsibility taking” skill and attitude are considered under the other sub-competences in important aspects and to not need to be echoed. Whether the learning outcome “sets up systems that enhance the team process” describes an important aspect (highly emphasised in other research) in team management - ability to understand and implement team processes and is not reflected in any other sub-competence, then experts decided to not exclude it and link with the third less “important” outcome about the setting the ground rules.

The final list of learning outcomes, which describe the skills and knowledge of collaboration and teamwork competence is following. FC has this competence when she/he:

- values effective teamwork and collaboration
- understands how to practise effective teamwork
- understands own strengths and weaknesses and how they can impact a team
- motivates/inspires himself and others to collaborate and work in a team
- experiences different roles and perspectives on the team
- develops effective teamwork and communication in that (including interpersonal and cross-cultural awareness) skills

- sets up effective ground rules and systems that enhance the team processes.

COMMUNICATION

Definition: **The communication skills of FC refer to using the relevant communication strategies, codes, and tools to express oneself and understand communication partners, achieve social goals, and cope in various social situations.**

The most important learning outcomes to be focused on are as follows:

- Processes social information.
- Listens and is open to communication.
- Processes negotiation and presentation skills, allowing effectively communicate and advocate for their ideas.
- Interacts through digital technologies, incl. sharing data, information, and digital content with others through appropriate digital technologies.
- Extracts important information from the information, assesses the quality of information, and knows how to generalize and make summaries.

Future citizens with communication skills use critical thinking the relevant communication strategies, codes, and tools depending on the context. Communication skills are expressed in an individual's ability to cope in various social situations to achieve social goals, requiring mutual interaction where one expresses oneself and simultaneously tries to understand one's communication partners. It combines communication skills with self-awareness, self-management, social awareness, responsibility, and ethical decision-making.

FC has this competence, when she/he (based on LifeComp; GreenComp; Digicomp; Chen & Wang, 2021; Zhu & Alamsyah, 2022):

- processes social information (*very important*);
- is tolerant, empathetic (able to take on another's perspective, to understand, feel and possibly share and respond to their experience), and ethical (including being open to disagreements, compromises, constructive conflict resolution) (*very important*);
- listens and is open to communication (Chen & Wang, 2021) (*very important*);
- interacts through digital technologies, incl. sharing data, information, and digital content with others through appropriate digital technologies. (Zhu & Alamsyah, 2022) (*very important*);
- extracts important information from the information, the ability to make summaries, that is, good generalisation ability (*important*);
- is good at negotiation and idea presentation (*less important*);
- scrutinises information sources and communication channels to ensure sustainability and assesses the quality of information (*less important*);
- modulates the messages and considers the audience, the context, and the purpose of the communication (*less important*);
- notices and responds appropriately to the reactions of your audience (*less important*);

- uses correct referencing and attribution practices (*not important*).
- can create a communicative space that values both the giving and receiving of assistance, help and advice.

All these skills were validated by 13 young people aged 19 to 29 from different nationalities (their ratings of importance are listed in italics). Based on the feedback received, it was decided to abandon “uses right referencing and attribution practices”, as in the opinion of the young people who participated in the workshop, it was an unimportant skill. As part of the active discussion, it was found that the above list should be supplemented with the following (The expert group’s opinion and actions regarding additions are included in parentheses):

- can enhance communication competences by embracing a non-judgmental and accepting approach
- can improve effective communication by using non-judgment and acceptance in interactions; (second point has been supplemented)
- can make more friends and to be engaged in various events; (It is covered with collaboration and teamwork skills and point six develops effective teamwork and communication in that (including interpersonal and cross-cultural awareness) skills)
- can support others, and offer assistance
- can create a collaborative and supportive communication environment
- can create a communicative space that values both the giving and receiving of assistance, help and advice (added as point no 11)
- can empower person to share his/her knowledge, seek and give support and assistance (It is covered with collaboration and teamwork skills, point no. four)

Based on the expert group decision the learning outcome “can improve effective communication by using non-judgment and acceptance in interactions” was supplemented. Based on the expert group discussion, the learning outcome “can support others and offer assistance” is covered with learning outcome “can create a communicative space that values both the giving and receiving of assistance, help and advice” and is not necessary to reflect here separately.

The learning outcome “can create a collaborative and supportive communication environment” and “can make more friends and to be engaged in various events” are covered with collaboration and teamwork skills. The learning outcome “uses correct referencing and attribution practices”, which was assessed by the validators as not important, was decided to remove.

The final list of learning outcomes is:

- processes social information
- is tolerant, empathetic, able to take on another’s perspective, to understand, feel and possibly share and respond to their experience
- is ethical and opened to disagreements, compromises, constructive conflict resolution

- can improve effective communication by using non-judgment and acceptance in interactions
- listens and is open to communication
- interacts through digital technologies, incl. sharing data, information, and digital content with others through appropriate digital technologies
- extracts important information from the information, the ability to make summaries, that is, good generalisation ability
- is good at negotiation and idea presentation
- scrutinises information sources and communication channels to ensure sustainability and assesses the quality of information
- modulates the messages and considers the audience, the context, and the purpose of the communication
- notices and responds appropriately to the reactions of your audience
- can create a communicative space that values both the giving and receiving of assistance, help and advice

PLANNING AND ORGANIZATION

Definition: **Planning and organisation competence for FC refers to the knowledge, skills, and attitudes that enable individuals to determine goals and priorities, assess the actions, time and resources needed to achieve those goals.**

Planning means that FC is thinking through activities and organising them to achieve a desired goal. Planning includes selecting, articulating, and evaluating the sequence of thoughts and actions that will lead to an expected goal. The prerequisite for successful planning is the ability to monitor and direct this process yourself, being aware of the goal, the steps leading to it in an appropriate order, and the ability to analyse after each step whether it brought you closer to the final goal or not.

Each stage of planning includes process monitoring and feedback on whether the sub-goal was reached. At the same time, the overall goal of the planned activity must be kept in mind, ensuring that the sub-stages of the activity lead in the desired direction. Therefore, a certain flexibility to change goals and/or means when the situation changes is part of good planning skills. Organisation means the implementation of planned activities, based on plans, but with the ability to change those according to the changes in environment or circumstances. Planning and organising are all about getting, and keeping, everything on track.

The most important learning outcomes to be focused on are as follow:

- Is able to select, articulate and evaluate the sequence of thoughts and actions that will lead to an expected goal.
- Directs the planning process, being aware of the goal.
- Analyses the activities to make necessary changes in the process.
- Implements planned activities in structured manner.

FC has this competence when she/he (based on EntreComp; LifeComp; GreenComp; Pennetta et al., 2023):

- sets short- and long-term goals, and priorities (*very important*);
- forms action plan based on the set goals and available resources (incl. team, money etc) (*very important*);
- manages resources needed to turn ideas into action (*very important*);
- analyses/monitors the processes and environment to get feedback and make necessary changes in the plans (*very important*);
- turns plans into activities and results being able to change those according to the changes in environment or circumstances (*very important*);
- uses time management (*very important*);
- works in a structured manner in achieving the goals alone and with the team (*very important*).

As part of the validation, all the mentioned skills were rated as very important in the “Planning and organization” category. In addition, it was proposed to add the following:

- find a way to act on your ideas
- be curious, proactive and open minded
- have empathy
- participate in the local life/cultural events
- be a good team leader and hear everyone’s ideas.

Most of the proposed additions refer the expected attitude and are already written in the other sub-competences and outcomes. Need for empathy is reflected in collaboration and teamwork and community wellbeing sub-competence, as “understands and responds to the emotional needs of community members” as well as in community wellbeing competence as “understands and responds to the emotional needs of community members”, proactivity and open-minded are covered in initiative taking and visioning sub-competence. Team leading skills are emphasised in Collaboration and teamwork competence as “motivates/inspires himself and others to collaborate and work in a team”. Proposed activity “participates in the local life” is one of the most important outcomes in Community wellbeing and Sustainable community competences.

The experts decided to add aspect of proposed outcome “find a way to act on your ideas” to the first learning outcome about the goal setting.

According to the work and expert group analysis the final list is as follows. FC has this competence when she/he:

- sets short- and long-term goals, and priorities to turn his/her ideas into action
- forms action plan based on the set goals and available resources
- manages resources needed to turn ideas into action
- analyses/monitors the processes and environment to get feedback and make necessary changes in the plans
- turns plans into activities and results being able to change those according to the changes in environment or circumstances
- uses time management
- works in a structured manner in achieving the goals alone and with the team.

INITIATIVE TAKING AND VISIONING

Definition: **Initiative taking and envisioning competences for FC refers to the attitudes and ability to see something that needs to be done, spot opportunities to make a difference with the courage to act without being prompted by others.**

For the further development of society, it is important to look and see the future, find, and spot new opportunities and use them fearlessly and creatively.

The most important learning outcomes to be focused on are as follow:

- identify and analyse social, cultural, and economic changes.
- mitigate the risks.
- combine knowledge and resources to achieve goals.
- create innovative solutions based on new knowledge.
- create learning opportunities that challenge and encourage thinking innovatively and problem solving.

FC has this competence when she/he (based on GreenComp; EntreComp; Wang et al., 2020; Barachi et al., 2022):

- analyses facts, uses evidence and research to better understand, explain, predict and manage uncertainty of changes and transitions and form a judgement (*very important*);
- improves and integrates information and content into an existing body of knowledge (*very important*);
- understands and adapts to changes (*important*);
- identifies and proactively understands the needs and problems of the social, cultural and economic landscape by exploring and linking different disciplines and to resolve conceptual problems and problem situations using creativity and experimentation (*important*);
- analyses and mitigates the risks to avoid the failure (*important, but needs better wording*);
- explores, develops, assesses and analyses potential creative and purposeful ideas and experiments with innovative approaches (*partly important*);
- uses digital tools and technologies to create knowledge and to innovate processes and products (*not important as core competence*);
- develops innovative solutions (Barachi et al., 2022) (*not important as core competence*);

Several important discussions took place in the framework of the validation of the skills associated with this competence. Namely, most of the mentioned skills were considered important (except "Identifies and proactively understands the needs and problems of the social, cultural and economic landscape by exploring and linking different disciplines and to resolve conceptual problems and problem situations using creativity and experimentation", which was considered too complex), but recommendations were also made for a better wording of skills than before. So, the following skills were suggested:

- can achieve personal goals that you set out to accomplish
- can make informed choices and act on them

- can take lead in various situations
- can manage projects with multiple stakeholders
- can make sure that stuff happens around me and initialize action
- can analyse problems in society
- can engage myself in political issues and initiate actions
- can activate my network
- can formulate and communicate ideas to others.

Based on the feedback, the experts analysed the describing outcomes again and reworded or restructured some expected outcomes. Whether some of the proposed outcomes (eg. achieving personal goals and decision making) are in focus in Planning and organisation sub-competence, then those do not need to be duplicated in here and won't be added. Leadership and management skills are reflected in Collaboration and teamwork as well in Planning and organisation sub-competences and do not need to be emphasised under initiative taking sub-competence. Although validators proposed to add initialise action outcome, then experts decided that this is too general – whole initiative taking sub-competence focuses on initialisation. Concerning the validators remark about “identifies and proactively understands the needs and problems of the social, cultural and economic landscape by exploring and linking different disciplines and to resolve conceptual problems and problem situations using creativity and experimentation” being too complicated, but important, experts analysed this together with the proposal “can analyse problems in society” and reworded two new skills: identifies and proactively supports the noticing and dealing with the needs and problems in the social, cultural and economic landscape; resolves conceptual problems and problem situations by exploring and linking different disciplines and using creativity and experimentation.

Experts also decided to remove the “understand and adapts to changes” and “uses digital tools and technologies to create knowledge and to innovate processes and products“ from this sub-competence, because those are already fully covered under Organisation and planning and Digital and technological skills sub-competences. According to the proposed skills (can activate my network and communicate ideas to others) a new skill was formulated and added: Inspires his/her network and others to follow his/her ideas and visions. Skill of developing innovative solutions was also removed from this sub-competence, because validators assessed it as not important, and it is covered under Creativity and Critical thinking sub-competence.

Whether the validators also brought out that the skill about the risk-taking needs revisioning and different aspects of risk-taking were also slightly touched in other sub-competences, the experts chose to cover this skill in this sub-competence and reformulated the outcome.

The final list of skills and knowledge in Initiative taking and visioning competence is following. FC has this competence when she/he:

- analyses facts, uses evidence and research to better understand, explain, predict and manage uncertainty of changes and transitions and form a judgement
- improves and integrates information and content into an existing body of knowledge
- identifies and proactively supports the noticing and dealing with the needs and problems in the social, cultural and economic landscape

- resolves conceptual problems and problem situations by exploring and linking different disciplines and using creativity and experimentation
- takes sensible risks based on the prior analysis and evaluation
- explores, develops, assesses and analyses potential creative and purposeful ideas and experiments with innovative approaches
- Inspires his/her network and others to follow his/her ideas and visions.

SELF-MANAGEMENT AND LEARNING

Definition: **Self-management and learning competence for FC refer to skills of keeping motivation and development, self-belief, and orientation to long-term goals and achieving results.**

The most important learning outcomes to be focused on are as follow:

- Reflects on their needs, aspirations, and wants in the short, medium, and long term
- Uses any initiative for value creation and as a learning opportunity.
- Reflects and learns from success and failure (own and other people's).
- Turns ideas into action and is resilient under pressure, adversity, and temporary failure.

Future citizens with self-management and learning skills are motivated, believe in themselves, and keep developing. They can set long-term goals and achieve the results. They stay focused and don't give up.

FC has this competence when she/he (based on EntreComp; Digicomp; LifeComp; Igalla et al., 2019, Chen & Wang, 2021):

- reflects on their needs, aspirations, and wants in the short, medium, and long term (Chen & Wang, 2021) (*very important*);
- identifies and assess their individual and group strengths and weaknesses (*very important*);
- reflects and learns from success and failure (own and other people's) (*very important*);
- believes in your ability to influence events despite uncertainty, setbacks, and temporary failures (*important*);
- turns ideas into action and be resilient under pressure, adversity, and temporary failure (*important*);
- uses any initiative for value creation and as a learning opportunity. They learn with peers and mentors (*less important*).

The 12 people aged 16-29 who participated in the validation highly rated the proposed skills (see rating in italics) and considered it necessary to add one more:

- able to set SMART goals

The expert group approved the decision of workshop and added additional outcome. The final list. FC has this competence when she/he:

- reflects on their needs, aspirations, and wants in the short, medium, and long term
- identifies and assess their individual and group strengths and weaknesses

- reflects and learns from success and failure (own and other people's)
- believes in your ability to influence events despite uncertainty, setbacks, and temporary failures
- turns ideas into action and be resilient under pressure, adversity, and temporary failure
- uses any initiative for value creation and as a learning opportunity. They learn with peers and mentors
- able to set SMART goals

ADAPTABILITY AND FLEXIBILITY (coping with changes and challenges)

Definition: **Adaptability and flexibility competences for FC refers to the knowledge, skills, and attitudes to integrate new information and draw conclusions from it, to anticipate and plan to allow for contingencies and varying behaviour based on the situation to best suit those around.**

The future labour market is more automated, digital, and dynamic. Considering that the world of the future is changing even faster than the world of today and the future labour market is more automated, digital, and dynamic, the future citizen must be ready to cope with changes and adapt to new situations.

The most important learning outcomes to be focused on are as follow:

- adapt, meet and changes as they arise.
- recognise and understand the need for change.
- understand and negotiate diverse views and beliefs to reach solutions.
- adapt to varied roles and jobs responsibilities, schedules and context.
- define boundaries regarding resources management.
- define and mitigate the risks.

FC has this competence when she/he (based on GreenComp; EntreComp; LifeComp; Galanti et al., 2023):

- understands the importance of changes for further development (*very important*);
- understands and operates in a digital environment (*very important*);
- analyses the risks associated with uncertainty and ambiguity and find ways to mitigate them (*important*);
- manages transitions and challenges in complex situations (*important*);
- continually learns new ways to achieve targets and objectives and adapts to new ways of working and new occupations (*less important*);
- adds value beyond what can be done by automated systems and intelligent machines (*not important*)

The said skills were validated by ten people aged 25 to 33. The importance of all skills (see rating in italics) was assessed within the framework of the joint workshop, and a joint conclusion was reached that the skill "Adds value beyond what can be done by automated systems and intelligent machines" is unimportant in this framework. However, it was found that the list is not sufficient, and the following skills were additionally offered:

- can value life-long learning and continues personal development
- willingness to increase flexibility regarding work force with transport, travel, virtual work

- can strategize for future needs and skills
- values the use of new technology (AI) as a resource
- respecting diverse identities and cultures in society
- understands different cultural aspects and the value of cultural integration in society

The expert committee analyzed the offers and came to the conclusion that the first three proposals are covered by other competences. Accordingly, “Self-management and Learning”, “Sustainable Community and Development” and “Initiative Taking and Envisioning”. At the same time, although during the workshop it was understood that “adds value beyond what can be done by automated systems and intelligent machines” is not important, the expert committee decided to rephrase it as follows: “values the use of new technology (AI) as a resource”. In addition, the last two proposals were combined into a new learning outcome “understands and respects different cultural aspects and the value of cultural integration in society”.

The final list. FC has this competence when she/he:

- understands the importance of changes for further development
- understands and operates in a digital environment
- analyses the risks associated with uncertainty and ambiguity and find ways to mitigate them
- manages transitions and challenges in complex situations
- continually learns new ways to achieve targets and objectives and adapts to new ways of working and new occupations
- adds value beyond what can be done by automated systems and intelligent machines
- understands and respects different cultural aspects and the value of cultural integration in society

ETHICAL AND MORAL BEHAVIOUR

Definition: Ethical and moral behaviour competence for FC is the set of the knowledge and action that defines right and wrong behaviour and compasses his/her behaviour to be in harmony with the ethical principles.

Ethical behaviour of FC means that he/she refers to rules provided by an external source, e.g., law, codes of conduct in community or principles in religions. Ethical behaviour is about following rules, keeping secrets, remaining loyal, and telling the truth. Moral behaviour reflects an individual's own principles regarding right and wrong. Ethical behaviour is focused on improving how we live. By being moral, FC enriches their lives and the lives of those around them. Being a moral citizen means knowing all sides of the issue, understanding why things are the way they are, and being open-minded to diverse opinions. FC have to understand the system before changing it. Assuming that the behaviour is conscious, then behaviours are chosen that are in line with ethical and moral values. The prerequisite for successful activity is, among other things, the existence and application of ethical values and beliefs and virtues. An ethically thinking FC uses knowledge of societal norms, accepted practices and values as advantages and opportunities to offer/create new value without harming the interests of stakeholders.

The most important learning outcomes to be focused on are as follow:

- Respects and understands the ethical and moral norms (incl. law) of the society.
- Behaves in line with ethical and moral values.
- Uses moral judgement skills in making decisions and finding alternatives.
- Has a willingness to do good.

FC has this competence when she/he (based on GreenComp; EntreComp; DigComp; LifeComp; Dutta et al., 2022; Kulju et al 2016):

- is open minded with respect to differences in society. Never harming others on purpose (*very important*);
- improves constantly on ethical skills - ethical sensitivity, awareness, and judgement (learning to do), to develop ethical behaviour (learning to be) and promote cultural competence (learning to live together) (*very important*);
- follows the law and other norms and common requirements of the society and community - considers the consequences of his/her actions, is a good neighbour, takes every opportunity to make friends, is respectful, obeys the law, knows, and stands up for the rights, knows the rights, stays, and gets involved (*important*);
- demonstrates ethical awareness, the ability to do ethical reflection, and the ability to apply ethical principles in decision-making (*less important*);
- recognises that people with different lifestyles, moral and religious beliefs and practices may be valuable members of society (*less important*).

As part of the validation, 13 young people rated all these skills as either very important or important (see rating in italics), but considered it important to add the following skills:

- can integrate social values, respecting religious diversity
- can align my actions with social values, caring and adoption of honesty
- can appreciate originality and diversity
- can be more caring and honest
- can understand the culture of integrity
- can be law-abiding and disciplined in all aspects of my life
- can be responsible and take ownership of my actions

Based on the suggestions, the expert group made the following changes: the first and third learning outcomes were supplemented to make them more clearly perceptible. In the case of other proposals, the mentioned skills were present under the learning outcomes already described and the expert group adjusted the wording of some learning outcomes. Suggestion “can be more caring and honest” is covered under competence “Communication”.

The final list:

- Respects diversity and the differences in society, not harming others on purpose, being responsible and taking ownership of his/her actions
- Improves constantly on ethical skills (ethical sensitivity, awareness, and judgement) to develop ethical behaviour and promote cultural competence (learning to live together)
- Follows the law, norms and common requirements of the society and community - considers the consequences of his/her actions, is a good neighbour, takes every

opportunity to make friends, is respectful, caring, honest and aligns his/her actions with social values, knows, and stands up for the rights, and gets involved

- Demonstrates ethical awareness and applies ethical principles in decision-making
- Understands that people with different lifestyles, moral and religious beliefs and practices can be valuable members of society.

CREATIVITY AND CRITICAL THINKING

Definition: Creativity is the use of imagination or original ideas to create something. Critical thinking is the ability to analyse facts, form a judgement, and think clearly and rationally when the situation demands it.

The most important learning outcomes to be focused on are as follows:

- Compares, analyses, assesses, and synthesises data, information, ideas, and media messages to draw logical conclusions.
- Is aware of potential biases in the data and knows one's limitations while collecting valid and reliable information and ideas from diverse sources.
- Develops creative ideas, synthesises, and combines concepts and information from various sources.
- Develops a vision to turn ideas into action.
- Explores and experiments with innovative approaches.

Creativity is the use of imagination or original ideas to create something. Critical thinking is the ability to analyse facts, form a judgement, and think clearly and rationally when the situation demands it. It is a form of emotional intelligence that effectively allows problem-framing, problem-solving, and decision-making.

Future citizen has the creativity and critical thinking competence when he/she (based on EntroComp; GreenComp; Digicomp; LifeComp; Dennett, 2013; Craft & Hall, 2014; Ellerton & Kelly, 2021; Barachi et al., 2022; Marangio et al., 2023)

The important learning outcomes to be focused on are:

- develops a vision to turn ideas into action (Ellerton & Kelly, 2021) (*very important*);
- experiments and is not afraid to fail sensible risks (Ellerton & Kelly, 2021) (*very important*);
- develops several purposeful ideas and opportunities to create value, including better solutions to existing and new challenges (*very important*);
- adopts a relational way of thinking by exploring and linking different disciplines, using creativity and experimentation with novel ideas or methods (*very important*);
- develops creative ideas, synthesises, and combines concepts and information from various sources given solving problems (*very important*);
- is aware of potential biases in the data and knows one's limitations while collecting valid and reliable information and ideas from diverse and reputable sources (*very important*);
- compares, analyses, assesses, and synthesises data, information, ideas, and media messages to draw logical conclusions (*very important*);

- uses evidence and research to understand, explain, predict, and manage changes (*very important*);
- proactively looks, identifies, and seizes opportunities, needs, and challenges to create value by exploring the social, cultural, and economic landscape (Craft & Hall, 2014) (*important*);
- explores and experiments with innovative approaches (Barachi et al., 2022) (*important*);
- combines knowledge and resources to achieve valuable effects (*important*);
- questions assumptions and re-evaluates problems considering different variables and takes sensible risks (*important*);
- engages individually and collectively in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments (*important*);
- uses digital tools and technologies to create knowledge and to innovate processes and products (Chen & Wang, 2021) (*less important*);
- is persistent, collaborative, and disciplined (*less important*).

Competence "Creativity and critical thinking" was one of the competences containing the most skills. During the discussion, it was concluded that all the mentioned skills are important to a greater or lesser extent, but it was decided to remove less important learning outcomes and combine all risk-related learning outcomes ("experiments and is not afraid to fail sensible risks" and "questions assumptions and re-evaluates problems considering different variables and takes sensible risks") under the competency "Initiative Taking and Visioning".

The final list. FC has this competence when she/he:

- develops a vision to turn ideas into action
- develops several purposeful ideas and opportunities to create value, including better solutions to existing and new challenges
- adopts a relational way of thinking by exploring and linking different disciplines, using creativity and experimentation with novel ideas or methods
- develops creative ideas, synthesises, and combines concepts and information from various sources given solving problems
- is aware of potential biases in the data and knows one's limitations while collecting valid and reliable information and ideas from diverse and reputable sources
- compares, analyses, assesses, and synthesises data, information, ideas, and media messages to draw logical conclusions
- uses evidence and research to understand, explain, predict, and manage changes
- proactively looks, identifies, and seizes opportunities, needs, and challenges to create value by exploring the social, cultural, and economic landscape
- explores and experiments with innovative approaches
- combines knowledge and resources to achieve valuable effects
- engages individually and collectively in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments.

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