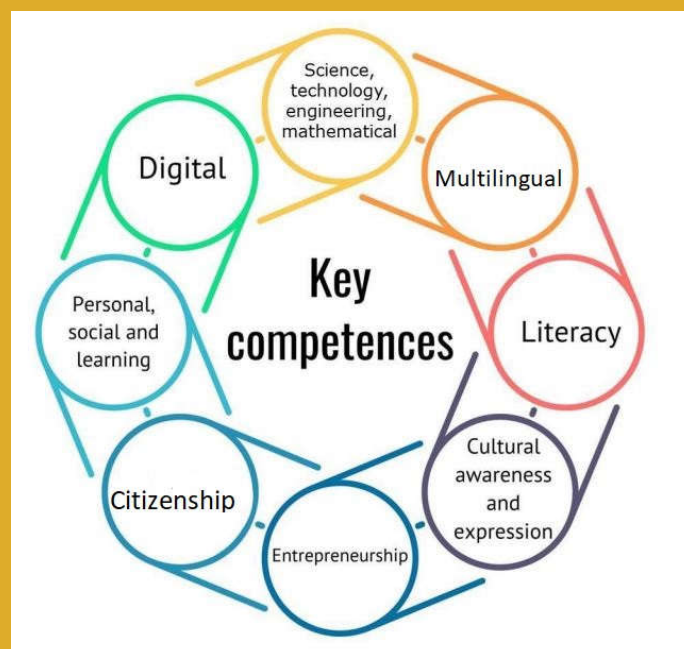


BEST PRACTICE REPORT

Turning ideas into action

Implementing the revised European key competences for lifelong learning from the perspective of Intellectual Property Education



- Adapted from the image of 'Commission Staff Working Document accompanying the document proposal for a Council Recommendation on Key Competences for Lifelong Learning', January 2018, page 40. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52018SC0014>

BEST PRACTICE REPORT

TURNING IDEAS INTO ACTION

IMPLEMENTING THE REVISED EUROPEAN KEY COMPETENCES FOR LIFELONG LEARNING FROM THE PERSPECTIVE OF INTELLECTUAL PROPERTY EDUCATION

April 2019

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EXECUTIVE SUMMARY

BEST PRACTICE REPORT — TURNING IDEAS INTO ACTION

The Council of the European Union adopted a revised Recommendation on Key Competences for Lifelong Learning in May 2018. This recommendation will have a major influence on curriculum development in the 28 EU Member States in coming years.

IP-related issues are included in the new key competences for lifelong learning, especially in the digital, entrepreneurial, civic and cultural awareness, and expression competences. The definitions of these competences underline the importance of creativity, innovation and entrepreneurship skills and attitudes.

The challenge faced by educators across Europe is finding the most efficient way to promote and implement all these competences, skills and attitudes in practice.

The aim of this report is to provide basic information on recently revised IP-related key competences and to collect and share the IP-related curricula and syllabus practices and ideas presented to the Intellectual Property in Education Network.

The Intellectual Property in Education Network has explored ways to encourage and enhance creativity, innovation and entrepreneurship in young Europeans over the last two years. In the network meetings several EU Member States have shared their way of introducing IP-related competences into their own national curricula.

This report presents IP education best practice case studies from Bulgaria, Finland, Malta, Romania and Sweden as well as the European Digital Competence Framework DigComp 2.0 and the Entrepreneurship Competence Framework Entrecomp, which have been developed by the Joint Research Centre (JRC) of the European Commission.

IMPLEMENTING THE REVISED EUROPEAN KEY COMPETENCES FOR LIFELONG LEARNING FROM THE PERSPECTIVE OF INTELLECTUAL PROPERTY EDUCATION

BEST PRACTICE REPORT — TURNING IDEAS INTO ACTION

1. ENHANCING CREATIVITY, INNOVATION AND ENTREPRENEURSHIP IN YOUNG EUROPEANS

The Intellectual Property in Education network is a project seeking ways to encourage and enhance creativity, innovation and entrepreneurship in young Europeans.

In the globalised and digitalised 21st century, creativity, innovation and entrepreneurship, more than ever, are at the heart of European economic, cultural and social wealth. Protecting your own work and respecting the work of others plays an increasingly important role in the professional and private lives of all citizens. Therefore, knowledge of basic principles, built around respect for one's own and others' ideas, combined with awareness of their value and existing tools allowing young citizens to reap the financial, societal and cultural benefits of such intellectual potential should be deeply rooted in the education of young 21st century Europeans.

To meet the needs of the digital era, the European Union Intellectual Property Office has taken the lead in bridging the gap between education and Intellectual Property (IP) authorities by creating a specialised IP in Education network, managed by the Office. The mission of the network is to encourage and enhance creativity, innovation and entrepreneurship in young Europeans.

The network is a pedagogical body comprising Ministries of Education from all EU Member States, supported by their respective IP Offices, and other relevant stakeholders like teachers and their associations.

The IP in Education network has so far

- created a useful social network between civil servants working on the same issues in 28 Member States;
- produced relevant IP facts and figures to facilitate decision-making;
- examined the relevant national curricula of countries which already include IP notions in their curricula (ongoing process);
- successfully taken part in the European Commission consultation on key competences by proposing a common answer covering a set of competences with IP-related content; and
- collected and shared examples of good practice between network members (such as positive and effective projects, materials and campaigns).

Considering the revised Recommendation on Key Competences for Lifelong Learning, the network should now concentrate on supporting the EU Member States in introducing new IP elements in the national curricula and continue developing and testing modern, up-to-date resources for pupils and teachers that could serve as best practice examples.

The aim of this booklet is to provide basic information on recently revised IP-related key competences and to collect and share in one document all the IP-related curricula and syllabus practices and ideas presented to the network during the last two years.

1.1 EVERYONE HAS THE RIGHT TO QUALITY AND INCLUSIVE EDUCATION IN EUROPE

In support of the Incheon Declaration¹, adopted at the World Education Forum in Korea in May 2015, world leaders committed to the Education 2030 Agenda. The fourth sustainable development goal of this highly ambitious agenda is to 'ensure inclusive and equitable quality education and promote lifelong learning opportunities for all' — globally.

In 2017, the EU agreed on the European Pillar of Social Rights², which introduced concrete principles and rights, to be implemented at an EU and national level. It puts citizens first, and sets out a shared way forward for equal opportunities. It builds upon 20 key principles structured around three categories:

1. equal opportunities and access to the labour market;
2. fair working conditions;
3. social protection and inclusion.

The first principle provides a base for equal opportunities and access to education, training and lifelong learning:

Everyone has the right to quality and inclusive education, training and lifelong learning in order to maintain and acquire skills that enable them to participate fully in society and manage successfully transitions in the labour market.

The fourth principle states that:

...young people have the right to continued education, apprenticeship, traineeship or a job offer of good standing within 4 months of becoming unemployed or leaving education.

2. REVISED KEY COMPETENCES FOR LIFELONG LEARNING

On 22 May 2018, the Council of the European Union adopted a revised Recommendation on Key Competences for Lifelong Learning³. This recommendation will have a major influence on curriculum development in the 28 EU Member States in coming years.

Key competences are a dynamic combination of the knowledge, skills and attitudes a learner needs to develop throughout life, starting from early age onwards. High quality and inclusive education, training and lifelong learning provide opportunities for all to develop key competences, so competence-oriented approaches can be used in all education, training and learning settings throughout life.

¹ - Education 2030: Incheon Declaration and Framework for Action, UNESCO, 2015.

<http://unesdoc.unesco.org/images/0024/002456/245656E.pdf>

² - The European Pillar on Social Rights in 20 principles: https://ec.europa.eu/commission/priorities/deeper-and-fairer-economic-and-monetary-union/european-pillar-social-rights/european-pillar-social-rights-20-principles_en

³ - Proposal for a Council Recommendation on Key Competences for Lifelong Learning, Permanent Representatives Committee, Brussels, May 2018, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52018DC0024>

2.1 KEY COMPETENCES — SHORT HISTORY

The European Parliament and the Council of the European Union first adopted the Recommendation on Key Competences for Lifelong Learning⁴ in 2006.

The European Commission launched a consultation to revise the old key competences in 2017. The Education Committee discussed the proposed recommendations during the Bulgarian Presidency in Spring 2018 and the Education Council revised the Recommendation on Key Competences for Lifelong Learning⁵ on 22 May 2018.

Special attention was given to improving basic skills, investing in language learning, improving digital and entrepreneurial competences, the relevance of common values in the functioning of our societies, and motivating more young people to engage in science-related careers.

The Digital Competence Framework⁶ and Entrepreneurship Competence Framework⁷ have both proved valuable in supporting competence development.

2.2 DEFINITIONS

Competences are defined as a combination of knowledge, skills and attitudes, where:

Knowledge	Comprises facts and figures, concepts, ideas and theories which are already established and support the understanding of a certain area or subject.
Skills	Are defined as the ability and capacity to carry out processes and use existing knowledge to achieve results.
Attitudes	Describe mindsets and the disposition to act or react to ideas, persons or situations.

2.3 KEY COMPETENCES ARE EQUALLY IMPORTANT

Key competences are developed in a lifelong learning perspective, starting in early childhood and continuing throughout adult life, through formal, non-formal and informal learning in all contexts, including those of the family, school, the workplace, neighbourhoods and other communities.

They are all considered equally important, because each of them contributes to a successful life.

⁴ - Recommendation of the European Parliament and of the Council of 18 December 2006 on Key Competences for Lifelong Learning <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32006H0962>

⁵ - Proposal for a Council Recommendation on Key Competences for Lifelong Learning, Permanent Representatives Committee, Brussels, May 2018, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52018DC0024>

⁶ - DigComp 2.0, The Digital Competence Framework 2.0, JRC, <https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework>

⁷ - EntreComp: The Entrepreneurship Competence Framework, JRC, 2016, <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/entrecomp-entrepreneurship-competence-framework>

2.4 NATIONAL COMPETENCE FRAMEWORKS

Many EU Member States have introduced their own national competence frameworks⁸ inspired by the European Framework of Key Competences. The variation in definitions between them reflects the need to adapt competence definitions to national circumstances. The Commission focused⁹ its study on the following competence frameworks when preparing the final version of the revised key competences.

- Estonia — National Curriculum for basic skills, amended in 2014;
- Finland — National Core Curriculum for Basic Education 2014;
- Belgium (Flanders) — Cross-curricular final objectives in mainstream secondary education;
- France — Décret no. 2015-372 du 31 mars 2015 relatif au cycle commun de connaissance, de compétence et de culture;
- Ireland — Key Skills of Junior Cycle and Senior Cycle Key Skills Framework;
- Italy — National Operational Programme 2014-2020 ‘For the school’, competences for learning;
- Netherlands — Ons Onderwijs 2032 (January 2016);
- Portugal — Perfil dos alunos à saída da escolaridade obrigatória.

The new revised key competences for lifelong learning are expected to be localised to adapt them to national circumstances across Europe in coming years.

⁸ - See, for example: Support of the stakeholder Consultation in the context of the Key Competences Review, Report 1: Comparative Analysis of national and international competence frameworks, European Commission, 2017.

⁹ - Commission Staff Working Document accompanying the document proposal for a Council Recommendation on Key Competences for Lifelong Learning, January 2018. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52018SC0014>

3. THE REFERENCE FRAMEWORK SETS OUT EIGHT KEY COMPETENCES

KEY COMPETENCES 2006	KEY COMPETENCES 2018
Communication in the mother tongue	Literacy competence
Communication in foreign languages	Multilingual competence
Mathematical competence and basic competences in science and technology	Mathematical competence and competence in science, technology and engineering
Digital competence	Digital competence
Learning to learn	Personal, social and learning to learn competence
Social and civic competences	Citizenship competence
Sense of initiative and entrepreneurship	Entrepreneurship competence
Cultural awareness and expression	Cultural awareness and expression competence

3.1 LITERACY COMPETENCE

Literacy is the ability to identify, understand, express, create and interpret concepts, feelings, facts and opinions in both oral and written forms, using visual, sound/audio and digital materials across disciplines and contexts. It implies the ability to communicate and connect effectively with others, in an appropriate and creative way.

Development of literacy forms the basis for further learning and further linguistic interaction. Depending on the context, literacy competence can be developed in the mother tongue, the language of schooling and/or the official language in a country or region.

3.1.1 ESSENTIAL KNOWLEDGE, SKILLS AND ATTITUDES RELATED TO THIS COMPETENCE

This competence involves the knowledge of reading and writing and a sound understanding of written information and thus requires an individual to have knowledge of vocabulary, functional grammar and the functions of language. It includes an awareness of the main types of verbal interaction, a range of literary and non-literary texts, and the main features of different styles and registers of language.

Individuals should have the skills to communicate both orally and in writing in a variety of situations and to monitor and adapt their own communication to the requirements of the situation. This competence also includes the abilities to distinguish and to use different types of sources, to search for, collect and process information, to use aids, and to formulate and express one's oral and written arguments in a convincing way appropriate to the context. It encompasses critical thinking and ability to assess and work with information.

A positive attitude towards literacy involves a disposition to critical and constructive dialogue, an appreciation of aesthetic qualities and an interest in interaction with others. This implies an awareness of the impact of language on others and a need to understand and use language in a positive and socially responsible manner.

3.2 MULTILINGUAL COMPETENCE

This competence defines the ability to use different languages appropriately and effectively for communication. It broadly shares the main skill dimensions of literacy: it is based on the ability to understand, express and interpret concepts, thoughts, feelings, facts and opinions in both oral and written form (listening, speaking, reading and writing) in an appropriate range of societal and cultural contexts according to one's wants or needs. Languages competences integrate a historical dimension and intercultural competences. It relies on the ability to mediate between different languages and media, as outlined in the Common European Framework of Reference. As appropriate, it can include maintaining and further developing mother tongue competences, as well as the acquisition of a country's official language(s).

3.2.1 ESSENTIAL KNOWLEDGE, SKILLS AND ATTITUDES RELATED TO THIS COMPETENCE

This competence requires knowledge of vocabulary and functional grammar of different languages and an awareness of the main types of verbal interaction and registers of languages. Knowledge of societal conventions, and the cultural aspect and variability of languages is important.

Essential skills for this competence consist of the ability to understand spoken messages, to initiate, sustain and conclude conversations and to read, understand and draft texts, with different levels of proficiency in different languages, according to the individual's needs. Individuals should be able to use tools appropriately and learn languages formally, non-formally and informally throughout life.

A positive attitude involves the appreciation of cultural diversity, an interest and curiosity about different languages and intercultural communication. It also involves respect for each person's individual linguistic profile, including both respect for the mother tongue of persons belonging to minorities and/or with a migrant background and appreciation for a country's official language(s) as a common framework for interaction.

3.3 MATHEMATICAL COMPETENCE AND COMPETENCE IN SCIENCE, TECHNOLOGY, ENGINEERING

- A. Mathematical competence is the ability to develop and apply mathematical thinking and insight to solving a range of problems in everyday situations. Building on a sound mastery of numeracy, the emphasis is on process and activity, as well as knowledge. Mathematical competence involves, to different degrees, the ability and willingness to use mathematical modes of thought and presentation (formulas, models, constructs, graphs, charts).
- B. Competence in science refers to the ability and willingness to explain the natural world by making use of the body of knowledge and methodology employed, including observation and experimentation, in order to identify questions and to draw evidence-based conclusions. Competences in technology and engineering are applications of that knowledge and methodology in response to perceived human wants or needs. Competence in science, technology and

engineering involves an understanding of the changes caused by human activity and responsibility as an individual citizen.

3.3.1 ESSENTIAL KNOWLEDGE, SKILLS AND ATTITUDES RELATED TO THIS COMPETENCE

- A. Necessary knowledge in mathematics includes a sound knowledge of numbers, measures and structures, basic operations and basic mathematical presentations, an understanding of mathematical terms and concepts, and an awareness of the questions to which mathematics can offer answers.

An individual should have the skills to apply basic mathematical principles and processes in everyday contexts at home and work (e.g. financial skills), and to follow and assess chains of arguments. An individual should be able to reason mathematically, understand mathematical proof and communicate in mathematical language, and to use appropriate aids including statistical data and graphs and to understand the mathematical aspects of digitalisation.

A positive attitude in mathematics is based on the respect for truth and a willingness to look for reasons and to assess their validity.

- B. For science, technology and engineering, essential knowledge comprises the basic principles of the natural world, fundamental scientific concepts, theories, principles and methods, technology and technological products and processes, as well as an understanding of the impact of science, technology, engineering and human activity in general on the natural world. These competences should enable individuals to better understand the advantages, limitations and risks of scientific theories, applications and technology in societies at large (in relation to decision-making, values, moral questions and culture).

Skills include the understanding of science as a process for the investigation through specific methodologies, including observations and controlled experiments, the ability to use logical and rational thought to verify a hypothesis and the readiness to discard one's own convictions when they contradict new experimental findings. It includes the ability to use and handle technological tools and machines as well as scientific data to achieve a goal or to reach an evidence-based decision or conclusion. Individuals should also be able to recognise the essential features of scientific inquiry and be able to communicate the conclusions and reasoning which led to these results.

Competence includes an attitude of critical appreciation and curiosity, a concern for ethical issues and support for both safety and environmental sustainability, especially in relation to the scientific and technological progress in relation to oneself, family, community and global issues.

3.4 DIGITAL COMPETENCE

Digital competence involves the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), safety (including digital well-being and competences related to cyber security), **IP-related questions** and problem-solving.

3.4.1 ESSENTIAL KNOWLEDGE, SKILLS AND ATTITUDES RELATED TO THIS COMPETENCE

- Individuals should understand how digital technologies can support communication, creativity and innovation, and be aware of their opportunities, limitations, effects and risks.
- They should understand the general principles, mechanisms and logic underlying evolving digital technologies and know the basic function and use of different devices, software and networks.
- Individuals should take a critical approach to the validity, reliability and impact of information and data made available by digital means and be aware of the legal and ethical principles involved in engaging with digital technologies.
- Individuals should be able to use digital technologies to support their active citizenship and social inclusion, collaboration with others and creativity towards personal, social or commercial goals.
- Skills include the ability to use, access, filter, evaluate, create, program and share digital content.
- Individuals should be able to manage and protect information, content, data and digital identities, as well as recognise and effectively engage with software, devices, artificial intelligence or robots.
- Engagement with digital technologies and content requires a reflective and critical, yet curious, open-minded and forward-looking attitude to their evolution. It also requires an ethical, safe and responsible approach to the use of these tools.

3.5 PERSONAL, SOCIAL AND LEARNING TO LEARN COMPETENCE

Personal, social and learning to learn competence is 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 lead a health-conscious, future-oriented life, empathise and manage conflict in an inclusive and supportive context.

3.5.1 ESSENTIAL KNOWLEDGE, SKILLS AND ATTITUDES RELATED TO THIS COMPETENCE

For successful interpersonal relations and social participation it is essential to understand the codes of conduct and rules of communication generally accepted in different societies and environments. Personal, social and learning to learn competence requires also knowledge of the components of a healthy mind, body and lifestyle. It involves knowing one's preferred learning strategies, knowing one's competence development needs and various ways to develop competences and search for the education, training and career opportunities and guidance or support available.

Skills include the ability to identify one's capacities, focus, deal with complexity, critically reflect and make decisions. This includes the ability to learn and work both collaboratively and autonomously and to organise and persevere with one's learning, evaluate and share it, seek support when appropriate and effectively manage one's career and social interactions. Individuals should be resilient and able to cope with uncertainty and stress. They should be able to communicate constructively in different environments, collaborate in teams and negotiate. This includes showing tolerance, expressing and understanding different viewpoints, as well as the ability to create confidence and feel empathy.

The competence is based on a positive attitude towards one's personal, social and physical well-being and learning throughout one's life. It is based on an attitude of collaboration, assertiveness and integrity. This includes respecting diversity of others and their needs and being prepared both to overcome prejudices and to compromise. Individuals should be able to identify and set goals, motivate themselves and develop resilience and confidence to pursue and succeed at learning throughout their lives. A problem-solving attitude supports both the learning process and the individual's ability to handle obstacles and change. It includes the desire to apply prior learning and life experiences and the curiosity to look for opportunities to learn and develop in a variety of life contexts.

3.6 CITIZENSHIP COMPETENCE

Citizenship competence is the ability to act as responsible citizens and to fully participate in civic and social life, based on understanding of social, economic, legal and political concepts and structures, as well as global developments and sustainability.

3.6.1 ESSENTIAL KNOWLEDGE, SKILLS AND ATTITUDES RELATED TO THIS COMPETENCE

Citizenship competence is based on knowledge of basic concepts and phenomena relating to individuals, groups, working environment, organisations, society, economy and culture. This involves an understanding of the European common values, as expressed in Article 2 of the Treaty on the European Union and the Charter of Fundamental Rights of the European Union. It includes knowledge of contemporary events, as well as a critical understanding of the main developments in national, European and world history. In addition, it includes an awareness of the aims, values and policies of social and political movements, and of sustainable systems, particularly climate change and demographic change at the global level and their underlying causes. Knowledge of European integration as well as an awareness of diversity and cultural identities in Europe and the world is essential. This includes an understanding of the multicultural and socioeconomic dimensions of European societies, and how national cultural identity contributes to the European identity.

Skills for citizenship competence relate to the ability to engage effectively with others in common or public interest, including the sustainable development of society. This involves critical thinking and collaborative problem-solving skills, skills to develop arguments and constructive participation in community activities, as well as in decision-making at all levels, from local and national to the European and international level. This also involves the ability to access, have a critical understanding of, and interact with both traditional and new forms of media and understand the role and functions of media in democratic societies.

Respect for human rights as a basis for democracy lays the foundations for a responsible and constructive attitude. Constructive participation involves willingness to participate in democratic decision-making at all levels and civic activities. It includes support for social and cultural diversity, gender equality and social cohesion, sustainable lifestyles, promotion of culture of peace and non-violence, willingness to respect the privacy of others, and to take responsibility of the environment. Interest in political and socioeconomic developments, humanities and intercultural communication is needed to be prepared both to overcome prejudices where necessary and to ensure social justice and fairness.

3.7 ENTREPRENEURSHIP COMPETENCE

Entrepreneurship competence refers to the capacity to act upon opportunities and ideas, and to transform them into values for others.

It is founded upon creativity, critical thinking and problem-solving, taking initiative and perseverance and the ability to work collaboratively in order to plan and manage projects that are of cultural, social or commercial value.

3.7.1 ESSENTIAL KNOWLEDGE, SKILLS AND ATTITUDES RELATED TO THIS COMPETENCE

- Entrepreneurship competence requires distinguishing different contexts and opportunities for turning ideas into action in personal, social and professional activities, and an understanding of how these arise.
- Individuals should know and understand approaches to planning and management of projects, which include both processes and resources.
- They should have an understanding of economics and the social and economic opportunities and challenges facing an employer, organisation or society.
- They should also be aware of ethical principles and challenges of sustainable development and have self-awareness of their own strengths and weaknesses.
- Entrepreneurial skills are founded on creativity which includes imagination, strategic thinking and problem-solving, and critical and constructive reflection within evolving creative processes and innovation.
- They include the ability to work both as an individual and in a group, to mobilise resources (people and things) and to sustain activity. This includes the ability to make financial decisions on cost and value. The ability to effectively communicate and negotiate with others, and to cope with uncertainty, ambiguity and risk as part of making informed decisions is essential.
- An entrepreneurial attitude is characterised by a sense of initiative and agency, pro-activity, being forward-looking, courageous and perseverant in achieving objectives. It includes a desire to motivate others and value their ideas, empathy and taking care of people and the world, and accepting responsibility of one's own actions by taking ethical approaches throughout the process.

3.8 CULTURAL AWARENESS AND EXPRESSION COMPETENCE

- Competence in cultural awareness and expression involves understanding and respecting how ideas and meaning are creatively expressed and communicated in different cultures and through a range of arts and other cultural forms. It involves being engaged in understanding, developing and expressing one's own ideas and sense of place or role in society in a variety of ways and contexts.

3.8.1 ESSENTIAL KNOWLEDGE, SKILLS AND ATTITUDES RELATED TO THIS COMPETENCE

- This competence requires knowledge of local, national, European and global cultures and expressions, including their languages, heritage and traditions, and cultural products, and an understanding of how these expressions can influence each other as well as the ideas of the individual.
- It includes understanding the different ways of communicating ideas between creator, participant and audience within written, printed and digital texts, theatre, film, dance, games, art and design, music, rituals and architecture, as well as hybrid forms.
- It requires an understanding of one's own developing identity within a world of cultural diversity and how arts and other cultural forms can be a way to both view and shape the world.
- Skills include the ability to express and interpret figurative and abstract ideas, experiences and emotions with empathy, and the ability to do so in a range of arts and other cultural forms.
- Skills also include the ability to identify and realise opportunities for personal, social or commercial value through the arts and other cultural forms and the ability to engage in creative processes, both as an individual and collectively.
- It is important to have an open attitude towards, and respect for, diversity of cultural expression together with an ethical and responsible approach to intellectual and cultural ownership. A positive attitude also includes a curiosity about the world, an openness to imagine new possibilities, and a willingness to participate in cultural experiences.

4. IP IN EDUCATION — BEST PRACTICE

IP-related issues are included in the new key competences for lifelong learning, especially in the digital, entrepreneurial, civic, and cultural awareness and expression competences.

The definitions of these competences underline the importance of creativity, innovation and entrepreneurship skills and attitudes. It is important to have an open and respectful attitude towards diversity of cultural expression, together with an ethical and responsible approach to intellectual and cultural ownership. Additional requirements are a desire to motivate others and value their ideas, empathy and taking care of people and the world, and accepting responsible and ethical approaches throughout the process.

These competences also include the ability to identify and leverage opportunities for personal, social or commercial value through the arts and other cultural forms, and the ability to engage in creative processes, both as an individual and collectively — turning ideas into action in personal, social and professional activities.

The challenge faced by educators across Europe is finding the most efficient way to promote and implement all these competences, skills and attitudes in practice.

4.1 SUPPORTING THE DEVELOPMENT OF KEY COMPETENCES¹⁰

Key competences are a dynamic combination of the knowledge, skills and attitudes a learner needs to develop throughout life, starting from early age onwards. High quality and inclusive education, training and lifelong learning provides opportunities for all to develop key competences, therefore competence-oriented approaches can be used in all education, training and learning settings throughout life.

Three main challenges have been identified in the implementation phase of key competences: the use of a variety of learning approaches and contexts; support for teachers and other educational staff; and assessment and validation of competence development.

In order to address those challenges, certain examples of good practices have been identified:

Variety of learning approaches:

- **Cross-discipline learning** allows for strengthening the connectivity between the different subjects in the curriculum, as well as establishing a firm link between what is being taught and societal change and relevance.
- Strengthening **personal, social and learning competences** from early age can provide a foundation for development of basic skills.
- Learning methodologies such as **inquiry-based, project-based, and blended, arts- and games-based learning** can increase learning motivation and engagement.
- Learners, educational staff and learning providers could be encouraged to use **digital technologies** to improve learning and to support the development of digital competences.

¹⁰ - Proposal for a Council Recommendation on Key Competences for Lifelong Learning, Permanent Representatives Committee, Brussels, May 2018, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52018DC0024>

Support for educational staff:

- Embedding competence-oriented approaches to education, training and learning in initial education and continuing professional development can help educational staff in changing teaching and learning in their settings and being competent in implementing the approach.
- Educational staff could be supported in developing competence-oriented approaches in their specific contexts by staff exchanges and peer learning, allowing for flexibility and autonomy in organising learning, through networks, collaboration and communities of practice.
- Educational staff could be provided with assistance in creating innovative practices, taking part in research and make appropriate use of new technologies for competence-oriented approaches in teaching and learning.
- Guidance could be provided for educational staff. Access to expert advice and appropriate tools and materials can enhance teaching and learning methods and practice.

Assessment and validation of competence development:

- Key competence descriptions could translate into frameworks of learning outcomes that could be complemented with suitable tools for diagnostic, formative and summative assessment and validation at appropriate levels¹¹.
- Digital technologies, in particular, could contribute to capturing the multiple dimensions of learner progression, including entrepreneurial learning.
- Different approaches to assessment of key competences in formal and informal learning settings could be developed, including related activities of employers, guidance practitioners and social partners. These should be available to everyone, and especially to low skilled individuals to support their progression to further learning.
- Validation of learning outcomes acquired through formal and informal learning could expand and become more robust, in line with the Council Recommendation on the Validation of prior non-formal and informal learning, including different validation processes and the use of tools such as Europass and Youthpass to support them.

¹¹ - For example, the Common European Framework of References for Languages, the Digital Competence Framework, the Entrepreneurship Competence Framework and PISA competence descriptions all provide supporting material to assess competences.

4.2 CASE STUDY — ROMANIA

One of the main conclusions of the Intellectual Property and Education in Europe-study¹² (2015) was that, with one exception, there is no stand-alone IP-specific comprehensive education subject in any of the countries analysed, with IP instead being integrated into other subjects such as civics or economics. The exception is that in 2015 Romania published a syllabus¹³ for the optional secondary school subject **Intellectual property education**, which is designed to run for 1 hour per week for one academic year.

The subject can be taught in any secondary school year if the teaching approach is adapted to the age level of the pupils.

This syllabus is justified on the grounds of:

- ensuring that, based on knowledge, secondary school pupils relate to IP rights issues;
- involving young people in the development and promotion of projects relating to copyright or other IP rights;
- preparing secondary school pupils to adopt, based on knowledge, appropriate behaviour to ensure sustainable development.

4.3 VALUES AND ATTITUDES

The general and specific competences that should be developed via the teaching-learning of the subject **Intellectual property education** are based on and promote the following values and attitudes:

- respect for IP rights;
- solidarity; civic spirit; social responsibility; respect for the law;
- moral behaviour; positive networking with others; availability, interest and initiative for carrying out projects; belonging to the educational community, as well as the local/national/international community.

¹² - Intellectual Property and Education in Europe — study on IP Education in school curricula in the EU Member States with additional comparisons, 2015, OHIM, <https://euiipo.europa.eu/ohimportal/documents/11370/80606/IP+and+Education+final+report+September+2015>

¹³ - Syllabus for the optional subject Intellectual property education [school-based curriculum for secondary schools], Annex No 4 to Order No 3542/27.03.2015 of the Ministry of Education and Scientific Research of Romania.

4.4 SPECIFIC COMPETENCES AND CONTENTS FOR SCHOOL-BASED CURRICULUM FOR SECONDARY SCHOOLS — ROMANIA

SPECIFIC COMPETENCES	CONTENTS
1.1 Correct use of the terms specific to the field of IP and IP rights 1.2 Identifying the main categories of IP rights 3.1 Analysing, within work teams, the way in which IP and its protection is reflected in everyday living	I. IP and IP rights <ul style="list-style-type: none"> • What is IP? • IP in everyday life • What are IP rights? • Copyright, related rights and industrial property rights
1.3 Characterising the main categories of IP rights 2.1 Analysing the positive consequences of respecting IP rights and the risks of using counterfeit products or pirated products 3.2 Cooperating, within work teams, in order to present the main responsibilities that international, EU and national institutions have to protect IP rights 4.1 Displaying a proactive attitude towards promoting and respecting IP rights	II. IP rights and the institutions that ensure their protection <p>A. IP rights</p> <ul style="list-style-type: none"> • Copyright and related rights • Patents • Factory or trade marks • Geographical indications • Drawings and designs • Topographies of semiconductor products <p>B. International, European and National institutions for the protection of IP rights</p> <ul style="list-style-type: none"> • World Intellectual Property Organization (WIPO) • European Commission — Directorate-General for Internal Market and Services • European Patent Office (EPO) and the European Union Intellectual Property Office (EUIPO) • World Trade Organization (WTO) • Romanian Copyright Office (ORDA) • State Office for Inventions and Trademarks (OSIM)
1.4 Identifying own informational needs 2.2 Analysing the concept of information culture 4.2 Responsibly supporting the idea of ethical and legal use of information	III. Copyright and information culture <ul style="list-style-type: none"> • What is information culture? • Total or partial reproduction without the consent of the rights holders — an infringement of copyright • Ethical and legal use of information

3.3 Developing, within a team, an educational project for promoting and respecting copyrights

5.1 Implementing, in the given contexts, the rules for responsible use of information

5.2 Taking part, by carrying out a project, in activities intended to raise awareness within the school community, the community to which they belong, or in the general public

IV. Educational project for promoting and respecting copyrights

- Components and stages of an educational project for promoting and respecting copyrights (design, implementation, monitoring and assessment, follow-up elements);
- developing and running an educational project for promoting and respecting copyrights:
 - drawing up the project worksheet;
 - running the proposed project / simulated running of the proposed project;
 - assessment of the proposed project.

4.5 METHODOLOGICAL SUGGESTIONS

The syllabus is a working instrument designed to enable teachers:

- to guide their own activity towards developing field-specific competencies in pupils;
- to exercise their creativity and adapt their teaching approaches to the particularities of the pupils with whom they are working.

Methodological suggestions target possible and desirable ways of organising teaching activities to enable pupils to develop the competences formulated in the syllabus.

Developing key competences, considering pupils as the subject of the training-educational activity and guiding this activity towards the development of specific competences, as well as accentuating the practical and applied nature of the subject, imply compliance with certain sustainable learning requirements, which include:

- using didactic strategies that focus on:
 - the progressive build-up of knowledge, practising and reinforcing abilities, developing pupils' creativity;
 - cultivating pupils' ability to self-assess, reflect and be self-demanding;
 - flexible approaches and differentiated didactic pathways;
 - inter-, pluri- and trans-disciplinary approaches;

- using active methods (for example: simulation, problem-based learning, learning by cooperation, case studies, learning by discovery, empathy-based role play, text analysis, critical thinking methods, preparing portfolios, working on a computer, on the internet or within virtual working groups), which can contribute to:
 - creating an educational framework that encourages positive social interaction;
 - understanding the way in which the concepts specific to IP education can be applied in everyday life;
 - practising team work, fulfilling specific roles within working groups, cooperating with different people to carry out a task;
 - facilitating the understanding of current controversial issues (reflected in the mass-media) at a local, national and international level;
 - making connections with skills acquired by pupils by studying other school subjects;
- using didactic strategies that enable alternation of activity types (individual, in pairs and in small groups);
- learning through action (experiential), carrying out activities based on real tasks;
- using a computer as a modern training tool and learning environment, to provide interactive and attractive lessons through the use of information and communication technology.

4.6 PROPOSED WORK STRATEGIES

The syllabus provides teachers with real support in focusing their teaching process on learning situations, depending on the specific competences that they need to develop, by presenting, for examples:

- exercises that clarify the meaning of field-specific terms (for example, creating a ‘dictionary of IP rights’);
- debating the meaning of specific concepts (for example, ‘intellectual property’, ‘intellectual property rights’, ‘information culture’);
- creating portfolios on themes that are specific to IP education (for example, ‘what is intellectual property?’, ‘intellectual property rights’, ‘copyrights — arguments in favour and against?’);
- critical reflection (*think, pair, share*) in order to identify the students’ own information needs;
- discussions about cases covered in mass-media, which place pupils in learning contexts in which they gain awareness of IP rights issues and the need to respect the ethical rules of using information;
- developing pupils’ ability to critically analyse a situation relating to IP rights issues (for example, starting from the experience of a consumer who finds that they have bought a pirated product);
- organising a contest relating to IP rights issues (for example, on a topic such as ‘how do we promote, how do we protect intellectual property?’);

- exercises that involve taking individual and collective responsibility in different contexts (for example, when producing a school magazine);
- case studies to enable analysis of the impact of breaching IP rights (for example, for the author of a work, for the user of pirated or counterfeit products);
- debating / making collages on the topic of IP rights (to highlight, for example, ‘by whom?, why?, how?’ and ‘what does respecting intellectual property rights involve?’);
- creating multimedia posters on IP rights issues;
- roleplaying involving IP rights issues (for example, on the topic of intellectual property issues faced by a successful entrepreneur);
- carrying out activities in partnership, to involve pupils in activities that promote IP rights (for example, between schools or between the school and the local community);
- organising activities for *World Book and Copyright Day*, which is celebrated every year on 23 April, on the initiative of UNESCO.

Proposed work strategies must take into account the pupils’ age level and help them make the most of this experience.

5. LITERACY COMPETENCE

Literacy is the ability to identify, understand, express, create and interpret concepts, feelings, facts and opinions in both oral and written forms, using visual, sound/audio and digital materials across disciplines and contexts. It implies the ability to communicate and connect effectively with others, in an appropriate and creative way.

5.1 CASE STUDY — FINLAND

IP issues are present throughout the Finnish national core curriculum for basic education¹⁴. Examples include, for instance, their inclusion in the mother tongue (literacy) curriculum, in which they are covered in objectives, content and assessment. These courses are expected to be used as support for all learning.

MOTHER TONGUE	PRIMARY (CLASSES 1-6)
Objectives	To encourage the pupil to develop text production processes and skills in assessing his or her own texts, to offer opportunities for producing texts together and giving and receiving constructive feedback, as well as to guide the pupil to take the recipient of the text into account and to act ethically in online environments, respecting privacy and copyrights.
Content	Pupils improve their skills in producing texts needed in their studies, including notes and summaries. They also practice using and citing sources and learn the importance of acting ethically in online environments and respecting privacy and copyrights.
Assessment	Constructing texts and ethical communication: The pupil knows and is able to describe the basic stages of producing texts, is able to assess his or her own texts, produces texts in stages independently and together with others and gives and receives feedback. The pupil is able to cite the sources at the end of the text, to understand that they must not pass off a quotation as their own text, and is familiar with the ethical principles of acting online.
Language use as support for all learning	Digital tools are used in teaching and learning to guide pupils to search for information within the field of knowledge and assess their learning in relation to the objectives of instruction. Pupils are guided to act ethically, respecting copyrights and integrity.

¹⁴ - National Core Curriculum for Basic Education 2014, Finnish National Board of Education Publications 2016:5, Helsinki 2016.

MOTHER TONGUE	LOWER SECONDARY (CLASSES 7-9)
Objectives	<p>To develop the pupil's competence in improving his or her skills in managing and using information, diversifying the use of sources, and the command of citation techniques in his or her texts, and to instruct the pupil to act ethically online, respecting privacy and copyrights.</p> <p>Pupils improve their skills in producing texts needed in their studies, including summaries, notes and citations. They familiarise themselves with copyrights and comply with them when producing their own texts.</p>
Content	Freedom of speech, censorship, source criticism, media criticism, copyright laws and plagiarism.
Assessment	<p>Knowledge and skills for grade 8 (scale from 4 to 10):</p> <p>The pupil is able to use information acquired from different sources in his or her texts. The pupil knows how to make notes, summarise the information he or she has acquired, and use sources in his or her own texts.</p> <p>The pupil complies with copyright laws and knows how to cite their sources.</p>
MOTHER TONGUE	UPPER SECONDARY — (CLASSES 11-13)
Objectives	<p>The pupil:</p> <ul style="list-style-type: none"> • is able to critically evaluate different sources of information, the reliability, usefulness and intentions of information, and search for and select a source that is appropriate for the situation; • understands and complies with copyright laws and correctly cites his or her sources; • is able to utilise information and communication technology in diverse ways in all areas of the syllabus and understands the effects of digitalisation on language, texts and interaction; • enjoys language and culture and values their diversity as well as understanding the significance of their historical origins and visibility in modern culture.

Content

Mother tongue course:

- Freedom of speech, censorship, source criticism, media criticism, copyright laws and plagiarism.

Texts and involvement course:

- The communicator's responsibility; media choices and online ethics, freedom of speech, censorship, protection of privacy, netiquette.

5.2 MULTILITERACY

In the Finnish curriculum the concept 'multiliteracy' refers to the skills of interpreting, producing and assessing texts in different forms and contexts. Media literacy is part of multiliteracy.

The objectives are that the student:

- enhances and develops their multiliteracy, particularly the interpretation, production and assessment of diverse texts;
- develops skills in seeking, selecting, using and sharing diverse text materials in information acquisition and studies;
- enhances their interaction and involvement skills by developing their shared media production competence together with others in different communication environments using various tools;
- develops critical media literacy skills by familiarisation with the societal, economic and cultural factors influencing the media;
- **is familiar with key norms related to copyrights and freedom of speech, and is capable of analysing ethical and aesthetic questions related to media;**
- can use multiliteracy and the media in self-expression and interaction, and acts responsible in producing, using and sharing contents.

6. DIGITAL COMPETENCE

Digital competence involves the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), safety (including digital well-being and competences related to cybersecurity), IP-related questions and problem-solving.

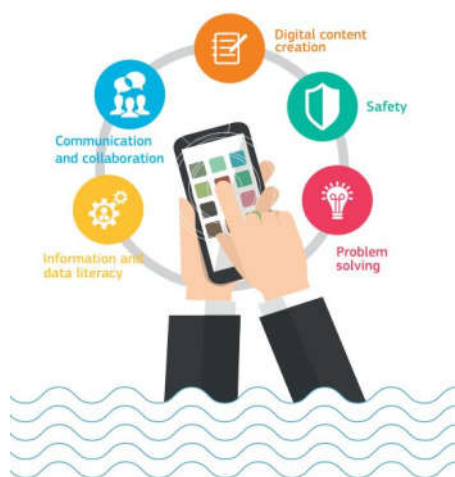
6.1 EUROPEAN DIGITAL COMPETENCE FRAMEWORK

The revised digital competence is closely linked to the European Digital Competence Framework. DigComp 2.0¹⁵ was developed by the Joint Research Centre (JRC) of the European Commission as a scientific project, initially on behalf of the Directorate-General for Education, Youth, Sport and Culture (former Directorate-General for Education and Culture - DG EAC) and on behalf of the Directorate-General for Employment, Social Affairs and Inclusion (DG EMPL). In order to produce the framework, an extensive literature review, case study research and stakeholder consultation process were carried out. More than 200 experts and a variety of stakeholders from EU Member States have been involved in developing DigComp 2.0.

The Digital Competence Framework can help policymakers monitor citizens' digital skills and support curricula development.

The DigComp 2.0 report presented an updated list of 21 competences.

For policymakers it can be beneficial to know where citizens stand for digital competence at the national level. The EU-wide Digital Economy and Society Index (DESI)¹⁶ offers an indicator for digital skills¹⁷ which uses the DigComp framework.



¹⁵ - The Digital Competence Framework 2.0, JRC, <https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework>

¹⁶ - <https://ec.europa.eu/digital-single-market/desi>

¹⁷ - [https://digital-agenda-data.eu/charts/analyse-one-indicator-and-compare-countries#chart={"indicator-group":"ecommerce","indicator":"i_bgood","breakdown":"IND_TOTAL","unit-measure":"pc_ind_ilt12","ref-area":\["BE","BG","CZ","DK","DE","EE","IE","EL","ES","FR","IT","CY","LV","LT","LU","HU","MT","NL","AT","PL","PT","RO","SI","SK","FI","SE","UK","EU27","EU","EU28","HR","IS","NO"\]}](https://digital-agenda-data.eu/charts/analyse-one-indicator-and-compare-countries#chart={)

6.2 DIGCOMP 2.0 COMPETENCES AND EDUCATION

The DigComp framework can be used at all levels in education and training.

Digital competence should start being developed at schools as it contributes to educational achievements and the well-being of children and youngsters, and later becomes valuable for employability reasons.

Policy makers for education and training have launched experiences to develop digital competence in the formal education and training sector, which typically include three main action lines¹⁸:

1. training and support for **teachers** to develop their own digital competence;
2. developing learning initiatives for **students**, some of them long-term, such as introducing digital competence in the curriculum;
3. the training of school managers, administrative and other staff, which are essential to facilitate and support the other processes and to exploit the many opportunities offered by digital technology to innovate in terms of organisation, communication, etc.

The IP-related competences are presented especially in the ‘Digital Content Creation’ part.

Developing digital content	To create and edit digital content in different formats, to express oneself through digital means.
Integrating and re-elaborating digital content	To modify, refine, improve and integrate information and content into an existing body of knowledge to create new, original and relevant content and knowledge.
Copyright and licences	To understand how copyright and licences apply to data, information and digital content.
Programming	To plan and develop a sequence of understandable instructions for a computing system to solve a given problem or perform a specific task.

¹⁸ - DigComp — Get inspired make it happen: a user guide to the European Digital Competence Framework, Publications Office of the European Union, 2018
http://publications.jrc.ec.europa.eu/repository/bitstream/JRC110624/dc_guide_may18.pdf

6.3 CASE STUDY — SWEDEN

In 2015, the Swedish National Agency for Education (Skolverket) was given a government mission to suggest enhancements in the curricula regarding digital competence.

The mission focused on specifying goals by revising the curriculum and course syllabuses, and on improving the quality of teaching and support teachers in the classroom.

This revision of the curricula also gave the Skolverket an opportunity to enhance the area of intellectual property.

The curricula states that in all subjects digital competence should help the pupil:

- to be more active;
- to take a critical and responsible approach;
- to see both possibilities and risks;
- to be able to evaluate information; and
- to be able to use digital technology.

In the curricula for compulsory school, digital competence is worded like this:

‘The school should stimulate students’ creativity, curiosity and self-confidence as well as their willingness to try and put their own ideas into action and to solve problems. Students should have the opportunity to take the initiative and responsibility, and develop their ability to work both independently and together with others.

The school will help students develop an understanding of how digitization affects the development of society and us as individuals.

Students should be given the opportunity to develop their ability to use digital technology. They should also be given the opportunity to develop a critical and responsible approach to digital technology, in order to see the possibilities and understand the risks and be able to evaluate information. The school should thus give students opportunities to develop digital skills and an approach that promotes entrepreneurship.’

In the Swedish curriculum digital competence includes:

- understanding of how digitisation affects the development of society and ourselves as individuals;
- ability to use digital technology;
- critical and responsible approach to digital technology, in order to see the possibilities and understand the risks and be able to evaluate information;
- putting one’s own ideas into action and solving problems.

The Skolverket provides support for the teachers’ development of their teaching through National School Development Programmes.

- This is a pedagogical in-service training programme for all teachers in Sweden. The aim is that teachers will improve their teaching skills and finally improve student achievements.
- The national school development programmes are based on research and consist of different types of skills development and support in areas where there is a national developmental need. The efforts should be broad, systematic and long-term.

At present, issues relating to IP are especially connected with two courses in the digital competence programme:

- Digital Storytelling;
- Critical Use of the Network.

Support material is available to teachers on the Skolverket website.

In general, IP-related issues are linked to following areas in Swedish curriculum:

- skills to research information, communicate, interact and produce using digital methods (arts, science studies);
- skills relating to the use of digital tools and services (arts, mathematics, science, technology);
- understanding the transformation that digitisation means for society, its opportunities and risks (civics, technology, arts);
- motivation to participate in digital development (all subjects).

The primary responsibility for distributing resources and organising activities so that pupils attain the national goals lies with the management of individual schools.

It is not possible to include pedagogical guidelines in the syllabus/curriculum.

Teaching is considered to be the domain of the teacher. Guidelines and principles are considered an intrusion on the teacher's professionalism.

6.4 CASE STUDY — MALTA¹⁹



Education for
Entrepreneurship,
Creativity and
Innovation



Education for
Sustainable
Development



Digital Literacy



Literacy



Learning to Learn
& Cooperative Learning



Education
for Diversity

Cross-curricular themes

The Maltese Ministry of Education and Employment shared their experience in the IP in Education network meeting in October 2016.

In 2012, Malta began revising the curricula, and created a framework in which the subjects will be classified into eight learning areas based on the Commission's key competences, in addition to six transversal skills. One of the transversal skills/themes to be addressed in the curriculum is entrepreneurship, innovation and creativity.

¹⁹ - Presentation by representative of Ministry for Education and Employment: 'The Malta IPR Educational Experience' 25 October 2016, Alicante.

The results showed that Maltese schools have faced pressure from authors, publishers and public bodies concerning respecting copyright, limitations on scanning, downloading and photocopying books, and issues facing other digital material. It was stressed that exceptions on copyright limitations must be provided to schools.

In the Maltese curriculum, IP-related objectives can be found, for example, in the use of digital material and use of internet areas.

Use of digital material

- *I understand the ethical / legal issues surrounding the access and use of digital media, including copyright, ownership, licensing and use of proprietary content or software.*
- Digital literacy also involves competence in using digital tools in various media and in different modes of learning (autonomous, collaborative, exploratory, designing). Digitally-literate learners will learn to be responsible and competent in managing the internet, keeping themselves safe and secure online, making informed choices over privacy, taking responsibility for their actions, respecting IP, abiding by the terms and conditions of systems they use and respecting the rights and feelings of others.
- In teaching digital literacy, teachers should look for authentic, meaningful and socially-inclusive learning opportunities which allow learners to apply and develop their skills, knowledge and understanding across the curriculum.

Use of internet

- *I am able to consider the social, cultural, religious and ethical implications of digital technology and can confidently communicate, share information, access and distribute content without infringing upon other people's intellectual property.*

7. CITIZENSHIP COMPETENCE

Citizenship competence is the ability to act as responsible citizens and to fully participate in civic and social life, based on an understanding of social, economic, legal and political concepts and structures, as well as global developments and sustainability.

7.1 SWEDISH EXAMPLE²⁰

An example of the Swedish lower secondary civics syllabus:

SYLLABUSES	CIVICS
Core content Year 7-9 Age 13-15 (extract)	<p>Assessing news and how this can affect people's views of the surrounding world. How individuals and groups are portrayed, e.g. on the basis of gender and ethnicity, and how information in the digital media can be controlled by underlying programming.</p> <p>The importance of digitisation for development of society in various areas, such as its impact on the labour market and infrastructure, as well as changing attitudes and values.</p>

7.2 FINNISH UPPER SECONDARY LAW COURSE²¹

There is a facultative course on citizens and law in the Finnish upper secondary. The objectives are as follows:

The students familiarise themselves with the basic concepts of the legal order and exercise of legal authority in Finland. They learn about the most important legal contracts and sources of information as well as how to deal with common legal matters.

The objective of the course is that the student:

- masters the basic facts of the legal order in Finland and its key principles;
- is familiar with Finland's court system and the courts of law relevant to the citizen;
- **is capable of assessing their rights, benefits and responsibilities as a citizen, employee and consumer, and is capable of handling the most common legal matters independently;**

²⁰ - Swedish presentation in the 'IP in Education Conference', Sofia 20 February 2018

²¹ - National Core Curriculum for General Upper Secondary School 2015, Finnish National Board of Education Publications 2016:8, Helsinki 2016

- is capable of searching for and using key sources of legal information;
- is capable of acting correctly and legally as well as applying the knowledge and skills acquired from law.

Core content: **basic concepts and acquisition of legal information.**

THE MOST COMMON LEGAL TRANSACTIONS OF CITIZENS ARE:

Labour law	Debts, collateral and insolvency	Appeals against decisions of the authorities
Consumer protection	Housing and Environmental law	Copyright law

8. ENTREPRENEURSHIP COMPETENCE

Entrepreneurship competence refers to the capacity to act upon opportunities and ideas, and to transform them into value for others.

It is based upon creativity, critical thinking and problem-solving, taking initiative, perseverance and the ability to work collaboratively in order to plan and manage projects that are of cultural, social or commercial value.

It is strongly encouraged to use several entrepreneurial approaches in the implementation phase of the entrepreneurship competence, such as:

- creating specific opportunities for entrepreneurial experiences, such as **mini companies, traineeships in companies or entrepreneurs visiting education and training institutions**, as these could be particularly beneficial not only for young people, but also for adults and teachers;
- young people could be given the opportunity to have **at least one entrepreneurial experience during their school education**;
- **school and business partnerships** and platforms should be created at a local level, especially in rural areas, and can be key in spreading entrepreneurial education;
- **appropriate training and support for teachers and principals is crucial** to create sustained progress and leadership.

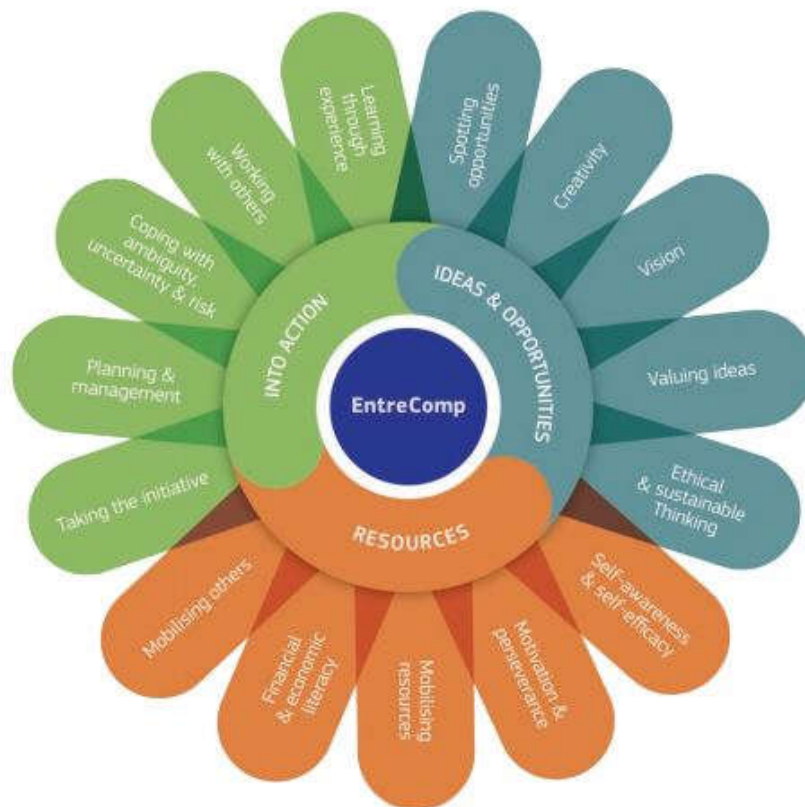
8.1 ENTRECOMP

EntreComp is a comprehensive, flexible and multi-purpose reference framework designed to help you understand what entrepreneurship means as a key competence for lifelong learning and how to use this in your work. It is intended to support and inspire actions to improve the entrepreneurial capacity of European citizens and organisations and was launched in 2016 as part of the New Skills Agenda for Europe.

EntreComp creates a shared understanding of the knowledge, skills and attitudes that make up what it means to be entrepreneurial — discovering and acting upon opportunities and ideas, and transforming them into social, cultural or financial value for others.

The EntreComp framework proposes a shared definition of entrepreneurship as a competence, with the aim of raising consensus among all stakeholders and bridging the worlds of education and work.

Developed through a mixed-method approach, the EntreComp framework is set to become a de facto reference for any initiative aiming to foster entrepreneurial capacity in European citizens.



The EntreComp wheel: 3 competence areas and 15 competences

The EntreComp conceptual model is has two main dimensions: the three competence areas that directly mirror the definition of entrepreneurship as the ability to turn ideas into action that generate value for someone other than oneself; and the 15 competences that, together, make up the building blocks of the entrepreneurship as a competence for all citizens.

²² - EntreComp into Action — Get inspired, make it happen: A user guide to the European Entrepreneurship Competence Framework, Publications Office of the European Union, 2018
<https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/entrecomp-action-get-inspired-make-it-happen-user-guide-european-entrepreneurship-competence>

The three interrelated and interconnected competence areas are:

1. ideas and opportunities;
2. resources;
3. into action.

Each of the areas is made up of five competences, which together constitute the building blocks of entrepreneurship as a competence.

The framework develops the 15 competences along an eight-level progression model and proposes a comprehensive list of 442 learning outcomes.

The framework can be used as a basis for the development of curricula and learning activities fostering entrepreneurship as a competence. It can also be used to define parameters to assess learners' and citizens' entrepreneurial competences.

The EntreComp²³ study was launched to establish a common reference framework for entrepreneurship as a competence to help citizens to develop their ability to actively participate in society, to manage their own lives and careers and to start value-generating initiatives. The conceptualisation of entrepreneurship as a competence was therefore the stepping stone for the development of a reference framework. In the context of the EntreComp study, entrepreneurship is understood as a transversal key competence applicable by individuals and groups, including existing organisations, across all spheres of life. It is defined as follows: 'Entrepreneurship is when you act upon opportunities and ideas and transform them into value for others. The value that is created can be financial, cultural, or social' (FFE-YE, 2012).

The comprehensiveness of EntreComp is one of its main assets. However, the reader should bear in mind that not all citizens, learners, or users will be interested in developing all the competences described here to the highest level of proficiency. It is expected that institutions, intermediaries and initiative developers who are willing to adopt EntreComp as a reference framework will adapt it to their own purposes and to the needs of the user group they intend to target. In other words, the EntreComp framework could be considered as a starting point. It must be tailored and localised to the context of use in order to be implemented.

Here is an IP-related competence, Valuing ideas:

COMPETENCE: VALUING IDEAS

Hint:	Make the most of ideas and opportunities.
Descriptor:	Judge what value is in social, cultural and economic terms. Recognise the potential an idea has for creating value and identify suitable ways of making the most out of it.
Thread:	Recognise the value of ideas. Share and protect ideas.
Level 1 Foundation — Relying on support from others — Under direct supervision — Discover	

I can find examples of ideas that have value for myself and others. I can clarify that other people's ideas can be used and acted on, while respecting their rights.

²³ - EntreComp: The Entrepreneurship Competence Framework, JRC Science for policy report, 2016
<http://publications.jrc.ec.europa.eu/repository/bitstream/JRC101581/Ifna27939enn.pdf>

Level 2 Foundation — Relying on support from others — With reduced support from others, some autonomy and together with many peers — Explore

I can show how different groups, such as firms and institutions, create value in my community and surroundings. I can explain that ideas can be shared and circulated for the benefit of everyone or can be protected by certain rights, for example, copyrights and patents.

Level 3 Intermediate — Building independence — On my own and together with my peers — Experiment

I can tell the difference between social, cultural and economic value. I can tell the difference between types of licences that can be used to share ideas and protect rights.

Level 4 Intermediate — Building independence — Taking and sharing some responsibilities — Dare

I can decide which type of value I want to act on and then choose the most appropriate pathway to do so. I can choose the most appropriate licence for sharing and protecting the value created by my ideas

Level 5 Advanced — Taking responsibility — With some guidance and together with others — Improve

I recognise the many forms of value that could be created through entrepreneurship, such as social, cultural or economic value. I can tell the difference between trademarks, registered design rights, patents, geographical indications, trade secrets, confidentiality agreements and copyright licences, including open, public-domain licences such as creative commons.

Level 6 Intermediate — Taking responsibility — Taking responsibility for making decisions and working with others — Reinforce

I can break down a value chain into its different parts and identify how value is added in each part. When creating ideas with others, I can outline a dissemination and exploitation agreement that benefits all partners involved.

Level 7 Expert — Driving transformation, innovation and growth — Taking responsibility for contributing to complex developments in a specific field — Expand

I can develop strategies to effectively make the most of opportunities to create value in my organisation or venture. I can develop a tailored strategy on intellectual property rights that deals with geographic requirements.

Level 8 Expert — Driving transformation, innovation and growth — Contributing substantially to the development of a specific field — Transform

I can state the value of a new idea from different stakeholders' perspectives. I can develop a strategy on intellectual property rights that is tailored to the age of my portfolio.

8.2 ENTRECOMP INTO ACTION — GET INSPIRED, MAKE IT HAPPEN: A USER GUIDE TO THE EUROPEAN ENTREPRENEURSHIP COMPETENCE FRAMEWORK

The European Commission has recently published the EntreComp into action guide²⁴. It is intended to illustrate the breadth and depth of potential for using EntreComp and to inspire individuals and organisations across Europe and beyond to get involved and join a community of participants committed to embedding entrepreneurial competences for life into education, communities, work and enterprise.

8.3 CASE STUDY — BULGARIA²⁵

The Bulgarian ministry of education and science has recently introduced entrepreneurship education in the Bulgarian Secondary Education system. The new curricula of the general school subject of **Technology and entrepreneurship** and the special-profile subject of **Entrepreneurship** will be gradually introduced between 2016 and 2020.

Taking initiative and entrepreneurship will be a key competence through school education in:

- formal education — integrated in all general school subjects, mainly through the technology and entrepreneurship subject;
- special-profile school education — through the mandatory modules of the entrepreneurship special-profile subject;
- vocational education and training — as part of general vocational training and through the framework programmes in the technological, economic and financial fields.

ENTREPRENEURSHIP: THE BASIS FOR DEVELOPMENT OF CREATIVITY, IMAGINATION AND IMPLEMENTATION OF IDEAS

Knowledge	conductive to identifying existing possibilities for personal, professional and/or business activities, including issues of a more general bearing comprising people's living and working environment.
Skills	related to active project management (including, for example, the ability to plan, organise, manage, lead and delegate, analyse and supervise the performance of the tasks assigned) and the ability to work both individually and in a team. The ability to identify one's own strengths and weaknesses, as well as assess and take justified risks, is of key importance.
Attitudes	initiative and entrepreneurship should be based on ethical values to ensure good performance and achievement of goals, whether personal or common.

²⁴ - EntreComp into Action — Get inspired, make it happen: A user guide to the European Entrepreneurship Competence Framework, Publications Office of the European Union, 2018
<https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/entrecomp-action-get-inspired-make-it-happen-user-guide-european-entrepreneurship-competence>

²⁵ - Bulgarian presentation in the 'IP in Education Conference', Sofia 20 February 2018

8.4 GOALS OF ENTREPRENEURSHIP EDUCATION IN IP PROTECTION

- Ensuring that young people have a wider range of competences as laid down in the European reference framework: key, professional, civic and social competences to improve educational achievement and dynamically adapt to the changes in society;
- ensuring knowledge, skills, attitudes and assessment perspectives which enable adaptive behaviour, action or solutions in various situations based on ethical and legal norms;
- raising young people's awareness of the value of IP and the methods of protecting it;
- zero tolerance to the manifestation of attitudes supporting forgery, abuse of others' ideas or illegal downloading;
- encouraging and developing students' personal potential in respecting their own and others' IP rights;
- implementing other EU countries' best practices under Bulgarian curricula during entrepreneurship classes (videos, games, lessons, e-learning portals and other online content).

9. CULTURAL AWARENESS AND EXPRESSION COMPETENCE

Competence in cultural awareness and expression involves an understanding and respect for how ideas and meaning are creatively expressed and communicated in different cultures and through a range of arts and other cultural forms. It involves being engaged in understanding, developing and expressing one's own ideas and sense of place or role in society in a variety of ways and contexts.

9.1 SWEDISH APPROACH²⁶

Below is an example of the Swedish art syllabus, which includes the area of copyright and IP.

SYLLABUSES	ARTS
Core content Year 7-9 Age 13-15 (extract)	Digital processing of photographs and other images. Rights and obligations , ethics and values concerning the use of pictures. Freedom of speech and integrity in media and in other contexts.

²⁶ - Swedish presentation in the 'IP in Education Conference', Sofia 20 February 2018

9.2 FINNISH UPPER SECONDARY VISUAL ARTS OBJECTIVES²⁷

The Finnish upper secondary visual art course curriculum contains certain elements relating to IP.

Visual arts education is based on a culturally diverse reality, which is explored by producing and interpreting images. The student's experiences, imagination, creative thinking and goal-oriented work lay the foundation for multi-sensory learning of visual arts. The key objective of visual arts education is that the student understands the phenomena of visual arts and other forms of visual culture both in his or her own life and in society.

Visual images and cultures course

The objective of the course is that the student:

- explore the contents, phenomena, processes, and practices of the visual arts and other forms of visual culture;
- examine his or her own and other people's visual cultures as well as topical phenomena of visual arts, media and other forms of visual culture;
- explore visual arts and other forms of visual culture from the perspectives of the individual, the community and society independently and as a group member;
- explore different images from the perspectives of the work, the maker, and the recipient using methods of image interpretation;
- understand the meaning of visual arts and other forms of visual culture in his or her own life, society and the global world.

Formed and built environments course

The objective of the course is that the student:

- explore the connections between the visual cultures in the environment and his or her personal images, visual arts and cultural heritage, while advancing his or her skills in visual expression;
- examine built and natural environments from the perspective of cultural diversity and sustainable development;
- use the contents, processes and practices of architecture, design and product development as a starting point for visual production;
- participate in and influence different environments using visual means and other modes of producing information;
- examine the personal, communal, societal, and global meanings of nature, architecture and design;
- understand the significance of visual arts for different environments and their design as well as for topical societal issues.

²⁷ - National Core Curriculum for General Upper Secondary School 2015, Finnish National Board of Education Publications 2016:8, Helsinki 2016

Core contents:

- the role of surrounding visual cultures in the building of identities and renewing cultural heritage;
- nature, built environment, design, product development, services, media, environments and virtual worlds as the basis of visual production;
- concepts and imaginary of environmental planning and design;
- means of interpreting surrounding visual cultures;
- topical phenomena of nature, architecture and design.

10. IP IN EDUCATION STUDY

In 2015, the EUIPO published a study on IP education in school curricula in the EU Member States with additional comparisons²⁸. The goal of the study was to analyse how intellectual property rights — trade marks, designs, patents and copyright — and IP-related issues such as ownership, authorship, originality, licensing, confidentiality, trade secrets and branding are taught in EU Member States and the most innovative countries such as Switzerland, the USA, Singapore and Hong Kong. The study was conducted during the 2012/2013 academic year, covering age groups from 4 to 18 years old.

The study's main information sources were the official and centrally-set educational curricula and guidelines. In addition, a survey was created and sent to the Ministries of Education of each country.

10.1 IP IN EDUCATION SURVEY FOLLOW UP

To update available data on situations and best practices, the following changes to the survey have been proposed.

Proposed question framework:

²⁸ - Intellectual Property and Education in Europe — study on IP Education in school curricula in the EU Member States with additional comparisons, 2015, OHIM, <https://euiipo.europa.eu/ohimportal/documents/11370/80606/IP+and+Education+final+report+September+2015>

Are the following IP-related matters/topics approached in the national curriculum?	Primary school education (age 6-10)	Lower secondary education (age 11-14)	Upper secondary level (age 15-18)	Vocational (age 15-18)
Copyright				
Design				
Trade marks				
Patent				
Plagiarism				
IP connected learning areas mentioned in the curriculum?	Primary school education (age 6-10)	Lower secondary education (age 11-14)	Upper secondary level (age 15-18)	Vocational (age 15-18)
Mathematical competence and competence in science, technology and engineering				
Digital competence				
Personal, social and learning to learn competence				
Citizenship competence				
Entrepreneurship competence				
Cultural awareness and expression competence				

Other IP-related issues/topics:

What IP-related learning objectives are in the curriculum?

Are there any ongoing reforms or debates on IP-related issues?

Can you provide examples of best practices in IP education?

Is IP education addressed in teachers' initial training or professional development?

Do you have any IP education-related needs that the IP in Education network could help with? What kind of support is needed?

11. REFERENCES

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BEST PRACTICE REPORT

Turning ideas into action
Implementing the revised
European key competences for
lifelong learning from the
perspective of Intellectual
Property Education

April 2019