



A global framework to describe and analyse transferable skills

Curricular Advisory Board and Project Coordination Group Meeting, InnovEd4TS

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May 2020



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Introduction

Employers increasingly require transferable skills (TS) as an attribute of university graduates.

In combination with deep disciplinary knowledge, TS enable graduates to address future societal challenges, navigate a constantly evolving labor market and ensure Europe's global competitiveness.

The World Economic Forum has identified the ten most important skills needed for the future labor force, with at the top of the list:

- the ability to solve complex problems,
- critical thinking and
- creativity.

These skills are reflected in the basic values of our universities and characterize the education we provide.

Universities are well aware of the need to teach transferable skills in addition to - and in conjunction with - disciplinary knowledge; the transferable skills that are the most often mentioned are the following ones:

- entrepreneurship,
- intercultural skills and cultural understanding,
- creativity,
- digital literacy,
- citizenship,
- interdisciplinarity.

Despite a widespread approval to foster such cross-cutting skills, agreement on how to define them and how to estimate their mastery is somehow limited.

The aim of this report is therefore to focus in 12 "must needed skills" and to propose for each one:

- a definition
- descriptors to qualify the levels of achievement (novice, intermediate, advanced) that may be gained through teaching and learning activities.

The work has been done on the basis of a number of available frameworks and a state-of-the-art review.

It provides criteria to identify at which proficiency level a given skill is developed within a teaching and learning activity, in the form of "rubrics", which are three-level achievement matrix; for each level, the degree of mastery is described in a qualitative way.

Content and structure of the report

After a set of basic definitions, the report proposes for each skill a definition and a rubric, both inspired from a review of existing frameworks, which are synthesized, skill by skill, in the appendix (full version of this report).

A first set of definitions

Knowledge means the outcome of the assimilation of information through learning. Skill means the ability to apply knowledge and use know-how to complete tasks and solve problems (and can be cognitive or practical). Competence means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development.

Source: from **The European Key Competence Framework and the European Qualifications Framework (EQF)**

Skills are the ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the European Qualifications Framework, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).

Source: European Parliament and the Council. [2008]. **Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning.**

Attitudes describe the disposition and mindset to act or react to ideas, persons or situations.

Source: European Commission. [2019]. **Key competences for lifelong learning.**
<https://op.europa.eu/en/publication-detail/-/publication/297a33c8-a1f3-11e9-9d01-01aa75ed71a1/language-en>

Transversal skills are skills typically considered as not specifically related to a particular job, task, academic discipline or area of knowledge and that can be used in a wide variety of situations and work settings (for example, organizational skills).

Source: UNESCO IBE. [2013]. **Glossary of Curriculum Technology.**
https://www.cedefop.europa.eu/files/4106_en.pdf

Transferable skills are skills learned in one context that are useful for another. They can serve as a bridge from study to work and from one career to another, as they enable subject and research-related skills to be applied and developed effectively in different work environments.

Source: OECD. [2012]. **Transferable Skills Training for Researchers: Supporting Career Development and Research.**

The methodological approach

An analytical **rubric** is a two-dimensional grid (matrix) with levels of achievement as columns: levels of performance are listed across the top row, using descriptive labels, the cells describe qualities required to demonstrate mastery gained during teaching and learning activities at a given level.

Three levels of achievement are considered and provide classifying outcomes in terms of their complexity:

- Novice level: teaching and learning activities prepare students to reach a basic level of knowledge; students are able to use and to apply on known (or very similar) situations. Students focus on relevant aspects. It corresponds to *Knowledge* and *Comprehension* levels of the original Bloom's taxonomy¹.
- Intermediate level: teaching and learning activities prepare students to be able to apply the skill and concepts to new (but somehow similar) situations; they are able to analyse and justify the why and how. This level corresponds to *Application* and *Analysis* level of the original Bloom's taxonomy.
- Advanced level: teaching and learning activities train students to demonstrate an intentional and effective application, an ability to put parts together to form a whole, to transfer to new situations as well as to present, to make judgment and to justify choices that are made. This level relates to Evaluation and Creation of the 2001 revisited Bloom's taxonomy².

The outcomes are formulated as learning outcomes, which are statements of what a learner is expected to know, understand, and/or be able to demonstrate at the end of a period of learning.

¹ Woolfolk, A. (2007). Educational psychology (10th ed.). Boston: Pearson/Allyn and Bacon. pp. 530–531, 545.

² Anderson, L. [2001]. A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives. New York: Longman.

Skills

Creativity

Creativity is the ability or attitude that enables individuals to develop ideas and opportunities, to create something new or create something in a new way, utilizing the knowledge she/he has already acquired.

During the teaching and learning activity, students learn to be creative according to one of the following levels. By the end of the teaching activity, students should be able to:

Novice	Intermediate	Advanced
Awareness of Base Level Knowledge Explain	Apply the concept somewhat Analyze	Intentional and Effective Application Transfer to a new situation
Reuse or restate ideas from the sources that are consulted. Feel, empathize, observe, describe relevant experience, knowledge and information. Think and act beyond one’s first idea but few connections are made between ideas or domain.	Combine ideas in ways that are derived from the thinking of others. Explore, seek, brainstorm and generate ideas; examine the chosen idea(s). Generate, stretch and play with one unusual or radical ideas and push it to its limit before making the final choice. Produce, perform, envision, prototype a product, a solution or a performance in a personally novel way.	Combine ideas in original and surprising ways. Examine a variety of ideas, reflect and assess the novelty of the chosen solution, of its relevance and of its possible consequences. Generate several unusual, risky or radical ideas and push some to their limits before making the final choice. Goes beyond knowledge and known rules and show a clear awareness of why the final choices are made and of the areas of novelty and risk that were pursued.

Critical thinking



Critical thinking is the ability

- to question norms, ideas, practices and opinions
- to analyze, to question, to evaluate information, content or arguments before accepting or formulating an opinion or a conclusion
- to question and evaluate solutions

It requires a willingness to engage in reasoning.

During the teaching and learning activity, students learn to practice critical thinking according to one of the following levels. By the end of the teaching activity, students should be able to:

Novice	Intermediate	Advanced
Awareness of Base Level Knowledge Explain	Apply the concept somewhat Analyze	Intentional and Effective Application Transfer to a new situation
Identify different viewpoints, describe the differences between them and position themselves in relation to them. Focus on explaining and finding support for an initial (plausible) way of formulating and solving a given problem. Do not clearly identify the assumptions of the examined theories or practices or their strengths and weaknesses. Draw a conclusion logically tied to information. Some related outcomes are identified clearly.	Engage with different viewpoints and examine their respective strengths and weaknesses and provide a reasoned argument for their own position. Consider alternative ways of solving a critical problem. Show a clear understanding of the strength and limitations of the chosen and the alternative positions. Draw a conclusion logically tied to a range of information, including opposing viewpoints; related outcomes are identified clearly.	Compare and contrast different viewpoints and critically examine the evidence in their support as well as the underlying assumptions informing them before arriving at their own position. Consider several ways of formulating and answering a given problem. Show an openness to the ideas, critiques or feedback of others when relevant. Draw a conclusion and related outcomes logically and to place evidence and perspectives discussed in priority order.

Digital literacy



Digital literacy is the ability to use digital methods, technologies and media, both discipline specific and generic, in a disciplined, safe and secure manner in educational as well as professional and civic context.

During the teaching and learning activity, students learn digital literacy according to one of the following levels. By the end of the teaching activity, students should be able to:

Novice	Intermediate	Advanced
Awareness of Base Level Knowledge Explain	Apply the concept somewhat Analyze	Intentional and Effective Application Transfer to a new situation
Describe relevant digital methods, technologies and/or media but have limited knowledge about underlying ideas and relevance to a broader context. Use relevant digital methods, technologies and/or media to solve academic and/or professional tasks and problems. Select and use relevant digital methods, technologies and/or media, but with limited adaptation to the specific context.	Describe relevant digital methods, technologies and/or media and can explain the underlying ideas, potentials and limitations to a broader context. Use and adjust relevant digital methods, technologies and/or media to solve academic and/or professional tasks and problems, but with limited critical reflection. Select and use relevant digital methods, technologies and/or media with some appropriate adaptation to the specific context.	Demonstrate a good understanding of relevant digital methods, technologies and/or media and provides critical explanations of underlying ideas, potentials and limitations to a broader context. Use and adjust relevant digital methods, technologies and/or media to solve academic and/or professional tasks and problems, and reflects critically on the results. Suggest and use relevant digital methods, technologies and/or media appropriately and argues critically about relevance, potentials and limitations.

<p>On a general level describe issues related to security, safety and ethics in the use of digital technologies in educational, professional or civic contexts.</p>	<p>Reflect on issues related to security, safety and ethics in the use of digital technologies with direct coupling to the specific educational, professional and/or civic context.</p>	<p>Reflect on issues related to security, safety and ethics in the use of digital technologies with direct coupling to the specific educational, professional and/or civic context and identifies appropriate preventive actions.</p>
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Entrepreneurship

Entrepreneurship is a series of skills enabling an individual to:

- **enhance a concept, idea or product**
- **recognize and act on opportunities**
- **be willing to embrace risk and responsibility**
- **initiate and lead a project**

in order to create social, economic and cultural value.

During the teaching and learning activity, students learn to practice entrepreneurship according to one of the following levels. By the end of the teaching activity, students should be able to:

NB: Entrepreneurship is a complex topic. It relates to creativity, teamwork, collaboration ... Therefore, the analysis of the rubric could refer to the analysis of other rubrics.

Novice	Intermediate	Advanced
Awareness of Base Level Knowledge Explain	Apply the concept somewhat Analyze	Intentional and Effective Application Transfer to a new situation
Analyze the situation in an appropriate way but barely identify areas for improvement. Conduct small-scale search for new procedures and methods. Describe a new way of doing things, although the pros and cons are not yet detailed. Replicate procedures and known problems.	Analyze the situation in an appropriate way and identify areas for improvement. Search for new procedures, with an adequate level of quality. Describe new ways of doing things, some pros and cons are analyzed. Know why known procedures are suitable or not for a known or new problem.	Comprehensively analyze the situation and continuously identify areas for improvement. Search for innovative procedures and methods and evaluate their effectiveness. Identify and apply new ways of doing things, based on pros and cons. Mobilize resources in support of an idea or project. Address an unknown procedure and new situations and make well-considered proposals.

<p>Find and use resources (material, non-material and digital resources) needed to turn ideas into actions.</p> <p>Develop multiple ideas that create value for others.</p>	<p>Gather and manage different type of resources to create value for others, make the most of resources.</p> <p>Test and refine ideas that create value for others and identify changes needed to achieve it.</p>	<p>Gather and manage all the resources needed at any stage (technical, legal, tax, digital, ...), define strategies to mobilize the resources needed to create value for others.</p> <p>Transform ideas into solutions that create value for other, while identifying the variety of stakeholders affected and adopting their perspectives.</p>
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Global citizenship

Global citizenship is thinking like global citizens, considering global issues based on a deep understanding of diverse values. Promoting wellbeing not only of the self but also contributing to the welfare of others. Knowing to exercise the rights and obligations of citizenship at local, state and national level.

During the teaching and learning activity, students learn to practice global citizenship according to one of the following levels. By the end of the teaching activity, students should be able to:

Novice	Intermediate	Advanced
Awareness of Base Level Knowledge Explain	Apply the concept somewhat Analyze	Intentional and Effective Application Transfer to a new situation
Describe a range of local/national/regional/global issues relevant to the specific educational/professional context. Use knowledge and procedures with basic awareness of the societal and cultural context. Act professionally in a given situation, but demonstrate modest sensitivity to societal and cultural dynamics.	Describe a range of local/national/regional/global issues relevant to the specific educational/professional context and relate the issues to relevant societal topics. Use knowledge and procedures with systematic and relevant awareness of the societal and cultural context. Act professionally in a given situation, and demonstrate the ability to adjust one’s own role to societal and cultural dynamics.	Describe a range of local/national/regional/global issues relevant to the specific educational/professional context and relate the issues to relevant societal and cultural topics in a critical and reflective manner. Use knowledge and procedures with sensitive and critical awareness of the societal and cultural context. Act professionally in a given situation, and demonstrate the ability to adjust and reflect on one’s own role to societal and cultural dynamics.

<p>Adjust one’s own communication and behavior to the actual context, but demonstrate little flexibility and sensitivity to the dynamics of the situation.</p>	<p>Adjust one’s own communication and behavior to the actual context, and demonstrate flexibility and sensitivity to the dynamics of the situation.</p>	<p>Adjust one’s own communication and behavior to the actual context, and demonstrate reflective and critical flexibility and sensitivity to the dynamics of the situation.</p>
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Information literacy



Set of skills, attitudes and knowledge necessary to:

- **know when information is needed to help solve a problem or make a decision**
- **identify, articulate, evaluate, understand, interpret and use that information.**

During the teaching and learning activity, students learn information literacy according to one of the following levels. By the end of the teaching activity, students should be able to:

<p>Novice</p> <p>Awareness of Base Level Knowledge Explain</p>	<p>Intermediate</p> <p>Apply the concept somewhat Analyze</p>	<p>Advanced</p> <p>Intentional and Effective Application Transfer to a new situation</p>
<p>Define the scope of the research question or hypothesis incompletely.</p> <p>Take all information without comparative analysis.</p> <p>Have a good knowledge of vocabulary, functional grammar and the functions of language.</p> <p>Look for information online using a search engine.</p>	<p>Define the scope of the research question or hypothesis completely.</p> <p>Compare different sources to access the reliability of the information.</p> <p>Have a good awareness of the main types of verbal interaction, a range of literacy and non-literacy texts, and the main features of different styles and registers of language.</p> <p>Use different search engines to find information. Use some filters when searching.</p>	<p>Effectively define the scope of the research question or hypothesis / assumption.</p> <p>Assess the validity and credibility of information using a range of criteria.</p> <p>Have a perfect mastery of grammatical and vocabulary subtleties.</p> <p>Use advanced search strategies to find reliable information.</p>

<p>Question some assumptions. Identify several relevant contexts when presenting a position.</p> <p>Communicate, organize information from sources. The information is not yet synthesized, so the intended purpose is not fully achieved.</p> <p>Communicate both orally and in writing a variety of situation.</p>	<p>Identify own and others' assumptions and several relevant contexts when presenting a position.</p> <p>Communicate, organize and synthesize information from sources. Intended purpose is achieved.</p> <p>Adapt their own communication to the requirements of the situation both orally and in writing.</p>	<p>Systematically and methodically analyze own and others' assumptions and carefully evaluate the relevance of contexts when presenting a position.</p> <p>Communicate, organize and synthesize information from sources to fully achieve a specific purpose, with clarity and depth.</p> <p>Ability to distinguish and use different types of sources, 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.</p>
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Interdisciplinarity



Interdisciplinarity is the interaction of two or more existing disciplines. It is a process of answering a question, solving a problem, or addressing a topic that is too broad or complex to be dealt adequately by a single discipline.

During the teaching and learning activity, students learn to practice interdisciplinarity according to one of the following levels. By the end of the teaching activity, students should be able to:

Novice	Intermediate	Advanced
Awareness of Base Level Knowledge Explain	Apply the concept somewhat Analyze	Intentional and Effective Application Transfer to a new situation
Ask open questions to understand the reasoning involved in the disciplines. Present examples, facts, or theories from more than one field of study or perspective. Use skills, abilities, theories, or methodologies gained in one situation in a new situation to contribute to understanding of problems or issues.	Explain the disciplinary perspectives that are used to interpret the knowledge elements. Connect examples, facts, or theories from more than one field of study or perspective. Adapt and apply skills, abilities, theories, or methodologies gained in one situation to new situations to solve problems or explore issues.	Make meaningful and creative connection between relevant disciplinary insights and to produce a more comprehensive understanding or solution. Create wholes out of multiple parts (synthesizes) or draws conclusions by combining examples, facts, or theories from more than one field of study or perspective. Adapt and apply, independently, skills, abilities, theories, or methodologies gained in one situation to new situations to solve difficult problems or explore complex issues in original ways.

<p>Use a format, language, graph, visual representation, ... that connect in a basic way relevant disciplinary knowledge for the particular purpose.</p> <p>Demonstrate an ability to apply disciplinary concept and language to a given problem and define the limitation of them.</p>	<p>Use a format, language, graph, visual representation, ... that explicitly connect content and form and demonstrates awareness of purpose.</p> <p>Describe an awareness and sensitivity towards the limitation and difficulty of language and context.</p>	<p>Use a format, language, graph, visual representation, ... in ways that enhance meaning, making clear the interdependence of language and meaning, thought, and expression.</p> <p>Demonstrate an ability to comment ideas and concepts across disciplinary boundaries.</p>
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(Inter)Cultural understanding



Intercultural understanding is the knowledge and understanding of intercultural interactions and sociocultural difference by individuals or groups within a society.

It involves knowledge about one’s own culture, other cultures, and the similarities and differences between cultures.

Acquiring intercultural understanding means recognizing that one’s own perspective is shaped by multiple influences and supports effective and appropriate interaction in a variety of cultural contexts.

During the teaching and learning activity, students learn (inter)cultural understanding according to one of the following levels. By the end of the teaching activity, students should be able to:

<p>Novice</p> <p>Awareness of Base Level Knowledge Explain</p>	<p>Intermediate</p> <p>Apply the concept somewhat Analyze</p>	<p>Advanced</p> <p>Intentional and Effective Application Transfer to a new situation</p>
<p>Demonstrate partial understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices.</p> <p>Identify the components of another culture but respond in all situations with own worldview.</p>	<p>Demonstrate adequate understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices.</p> <p>Recognize intellectual and emotional dimensions of more than one worldview. Sometimes use more than one worldview in interactions with others.</p>	<p>Demonstrate sophisticated understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices.</p> <p>Interpret intercultural experience from the perspectives of own and more than one worldview. Demonstrate ability to act in a supportive manner that recognize the feelings of another cultural group.</p>

<p>Ask simple or surface questions about other cultures.</p> <p>Express openness to most, if not all, interactions with individuals from different cultures. Have difficulty suspending any judgment in her/his interactions with culturally different others, and is aware of own judgment and express a willingness to change.</p>	<p>Ask deeper questions about other cultures and seek out answer to these questions.</p> <p>Initiate and develop interactions with individuals from different cultures. Begin to suspend judgment in valuing her/his interactions with culturally different others.</p>	<p>Ask complex questions about other cultures, seek out and articulates answers that reflect multiple cultural perspectives. Look at one’s own culture from a different perspective.</p> <p>Develop interactions with individuals from different cultures. Suspend judgment in valuing her/his interactions with culturally different others.</p>
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Oral communication



Communication is a skill of presenting information in a clear, concise and meaningful way. Articulate thoughts, ideas or messages in order to inform, educate, influence, motivate or persuade.

Oral communication is a prepared, purposeful presentation designed to increase knowledge, to foster understanding, or to promote change in the listeners’ attitude, values, beliefs or behaviors. It requires an ability to choose an appropriate content to the situation and to interact with various interlocutors on less familiar subjects in varied circumstances.

During the teaching and learning activity, students learn to practice oral communication according to one of the following levels. By the end of the teaching activity, students should be able to:

<p>Novice</p> <p>Awareness of Base Level Knowledge Explain</p>	<p>Intermediate</p> <p>Apply the concept somewhat Analyze</p>	<p>Advanced</p> <p>Intentional and Effective Application Transfer to a new situation</p>
<p>Make language choices that are mundane and commonplace and partially support the effectiveness of the presentation. Language presentation is generally appropriate to audience.</p> <p>Make a presentation understandable through appropriate technical gestures (posture, gesture, eye contact and vocal expressiveness). Speaker appears tentative.</p>	<p>Make language choices that are thoughtful and generally support the effectiveness of the presentation. Language presentation is appropriate to audience.</p> <p>Make a presentation interesting through appropriate technical gestures (posture, gesture, eye contact and vocal expressiveness). Speaker appears comfortable.</p>	<p>Make language choices that are imaginative, memorable and compelling and enhance the effectiveness of the presentation. Language presentation is continually adapted to audience.</p> <p>Make a presentation compelling through appropriate technical gestures (posture, gesture, eye contact and vocal expressiveness). Speaker appears polished and confident.</p>

<p>Central message is basically understandable but is not often repeated and is not memorable.</p> <p>Acknowledge and respond to questioning based on their factual knowledge of topic.</p> <p>Offer a basic defence of their argument in response to questioning.</p>	<p>Central message is clear and consistent with the supporting material.</p> <p>Respond and react knowledgably to questioning of their position.</p> <p>Spontaneously defend, adapt or expand their argument in response to critical questioning.</p>	<p>Central message is compelling (precisely stated, appropriately repeated, memorable, and strongly supported).</p> <p>Actively engage in and help co create multiple interactions.</p> <p>Creatively adapt their argument and engage with critical questioning.</p>
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Problem solving



Problem solving is the process of designing, evaluating and implementing a strategy to answer an open-ended question or achieve a desired goal. This requires knowledge, facts, and data to effectively

- **solve problems,**
- **analyze issues**
- **or make decisions.**

During the teaching and learning activity, students learn to solve problems according to one of the following levels. By the end of the teaching activity, students should be able to:

<p style="text-align: center;">Novice</p> <p style="text-align: center;">Awareness of Base Level Knowledge Explain</p>	<p style="text-align: center;">Intermediate</p> <p style="text-align: center;">Apply the concept somewhat Analyze</p>	<p style="text-align: center;">Advanced</p> <p style="text-align: center;">Intentional and Effective Application Transfer to a new situation</p>
<p>Identify a problem.</p> <p>Find support and assistance when a problem occurs or if confronted to an unknown situation.</p> <p>Solve some routine problems; Apply known tools and methods or procedures.</p> <p>Identify a range of appropriate approaches helpful to solve known problems.</p> <p>Demonstrate that tools, procedures and methods can help in solving problems but that tools have their limitations.</p>	<p>Analyze a problem.</p> <p>Solve in an autonomous way most of the more frequent problems or a set of similar problems.</p> <p>Solve problems by exploring and comparing options and alternatives.</p> <p>Select suitable methods, tools or procedures and assess their effectiveness.</p>	<p>Redefine a problem.</p> <p>Solve in an autonomous way almost all problems, including new ones of the same family (transfer to a new situation).</p> <p>Select the best solution among a set of suitable methods, tools or procedures.</p> <p>Discuss options and alternatives; including their limits, for known and new situations.</p>

	Explain and justify why a selected approach is a good choice.	Combine multiple approaches in an effective and an optimal way, to justify why this is the best choice.
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Teamwork



Teamwork is being able to act as part of a group composed of individual team members who have different skill sets, personalities and work styles. It requires to operate and communicate smoothly and efficiently within a group, interacting with others on the team, monitoring or evaluating progress, urging the team on when needed, contributing innovative new ideas in order to deliver efficient and effective results.

During the teaching and learning activity, students learn to work in a team according to one of the following levels. By the end of the teaching activity, students should be able to:

Novice	Intermediate	Advanced
Awareness of Base Level Knowledge Explain	Apply the concept somewhat Analyze	Intentional and Effective Application Transfer to a new situation
Identify the operating modes of a team. Share ideas. Engage team members by taking turns and listening to others without interrupting.	Identify their own role and the role of each team member in a group. Offer new suggestions to advance the work of the group. Engage team members in ways that facilitate their contributions to meetings by constructively building upon or synthesizing the contributions of others.	Change position and role. Lead and develop collective work. Help the team move forward by articulating alternative ideas or proposals and being able to take calculated risks. Engage team members in ways that facilitate their contributions to meetings by constructively building upon or synthesizing the contributions of others as well as noticing when someone is not participating and inviting them to engage.

<p>Complete all assigned tasks by deadline.</p> <p>Support a constructive team climate by doing any one of the following:</p> <ul style="list-style-type: none"> - treat team members respectfully by being polite and constructive in communication. - stay positive to convey a positive attitude about the team and its work. <p>Accept alternate viewpoints/ideas/opinions.</p> <p>Describe on own contribution.</p>	<p>Plan and complete all assigned tasks by deadline; can explain why and how work accomplished advances the project.</p> <p>Support a constructive team climate by doing any one of the following:</p> <ul style="list-style-type: none"> - treat team members respectfully by being polite and constructive in communication. - stay positive to convey a positive attitude about the team and its work - motivate teammates by expressing confidence about the importance of the task and the team’s ability to accomplish it. <p>Identify and acknowledge conflict and stay engaged with it.</p> <p>Reflect on own contribution.</p>	<p>Plan and complete all assigned tasks by deadline; can draw lessons about why and how work accomplished advances the project.</p> <p>Proactively helps other team members complete their assigned tasks to a similar level of excellence.</p> <p>Support a constructive team climate by doing any one of the following:</p> <ul style="list-style-type: none"> - treat team members respectfully by being polite and constructive in communication. - stay positive to convey a positive attitude about the team and its work - motivate teammates by expressing confidence about the importance of the task and the team’s ability to accomplish it. - provide assistance and/or encouragement to team members. <p>Address destructive conflict directly and constructively, helping to manage/resolve it in a way that strengthens overall team cohesiveness and future effectiveness.</p> <p>Reflect and adjust on own contribution.</p>
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Written communication



Communication is a skill of presenting information in a clear, concise and meaningful way. Articulate thoughts, ideas or messages in order to inform, educate, influence, motivate or persuade.

Written communication is the development and expression of ideas in writing. Written communication involves learning to work in many genres and styles. It can involve working with many different writing technologies, and mixing texts, data, and images.

During the teaching and learning activity, students learn to practice written communication according to one of the following levels. By the end of the teaching activity, students should be able to:

Novice	Intermediate	Advanced
Awareness of Base Level Knowledge Explain	Apply the concept somewhat Analyze	Intentional and Effective Application Transfer to a new situation
Demonstrate awareness of context, audience, purpose, and to the assigned task(s).	Demonstrate adequate consideration of context, audience, and purpose, and a clear focus on the assigned task(s).	Demonstrate a thorough understanding of context, audience, and purpose that is responsive to the assigned task(s) and focuses all elements of the work.
Use credible and/or relevant sources and materials to support ideas that are appropriate for the discipline or genre of the writing.	Support consistently their argument with (a range of) relevant sources to support ideas that are situated within the discipline and genre of the writing.	Engage competently with a range of relevant sources and materials to develop ideas that are appropriate for the discipline and genre of the writing.
Use language that generally conveys meaning to readers with clarity, although writing may include some errors.	Use straightforward language that generally conveys meaning to readers. The language has few errors.	Use language skillfully to communicate meaning to readers with clarity and fluency, and is virtually error free.
Present a text mostly descriptive of the event or fact.	Present the information in a structured and contextualized way.	Present a coherent and argued analysis.

<p>Ideas are sketchy with no clear relationships and transitions.</p> <p>Do not hold readers' attention for very long.</p>	<p>Ideas are there but not presented in a logical manner or presented with inadequate transitions.</p> <p>Readers find it mostly interesting.</p>	<p>Ideas are logically and systematically organized with paragraphs and adequate transitions.</p> <p>Keep and guides readers' attention throughout the paper.</p>
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Appendix

Creativity



- **Definition from the literature**

1. Québec: Ministère de l'Éducation et de l'Enseignement supérieur. [2019].

Digital Competency Framework.

http://www.education.gouv.qc.ca/fileadmin/site_web/documents/ministere/Cadre-reference-competence-num-AN.pdf

Ability or attitude that enables individuals to develop ideas, concepts or products they consider to be innovative.

2. UNESCO International Bureau of Education. [2014]. **Guiding Principles for Learning in the Twenty-first Century.**

<http://www.ibe.unesco.org/en/document/guiding-principles-learning-twenty-first-century>

Students should be taught the skills of creative thinking.

We are living in a world that requires creative thinking to solve increasingly complex problems. [...]

Mental behaviors suggest that creative thinking is at work when we use skills-based command terms such as: add to, adapt, alter, amend, analogize, analyze, combine, create, design, generate ideas, hypothesize, modify, re-arrange, re-design, restate, reverse, substitute and supplement. [...]

3. Knezevic, D. **21st Century Skills: 6 C's of Education in Your Classroom.**

<http://blog.awwapp.com/6-cs-of-education-classroom/> Consulted on February 2020.

In the 21st century, an individual must be able to create something new or create something in a new way, utilizing the knowledge he has already acquired. It does not just signify art, but also various solutions to a problem in real life situations. In our last blog post, we have suggested few methods how to foster creativity in the math classroom.

4. Fullan, M., Scott, G. [2014]. **Education Plus.**

<https://www.michaelfullan.ca/wp-content/uploads/2014/09/Education-Plus-A-Whitepaper-July-2014-1.pdf>

Having an 'entrepreneurial eye' for economic and social opportunities, asking the right questions to generate novel ideas, and demonstrating leadership to pursue those ideas into practice.

5. European Commission. **EntreComp conceptual Model.**

https://ec.europa.eu/jrc/sites/jrcsh/files/EntreCompConceptualModel_16.pdf.

Consulted on January 2020.

Develop creative and purposeful ideas

- Develop several ideas and opportunities to create value, including better solutions to existing and new challenges

- Explore and experiment with innovative approaches
- Combine knowledge and resources to achieve valuable effects

6. Dede, C. [2009]. **Comparing Frameworks for “21st Century Skills”**.
[http://sttechnology.pbworks.com/f/Dede_\(2010\)_Comparing%20Frameworks%20for%2021st%20Century%20Skills.pdf](http://sttechnology.pbworks.com/f/Dede_(2010)_Comparing%20Frameworks%20for%2021st%20Century%20Skills.pdf)

Creativity and Innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

Students:

- a. apply existing knowledge to generate new ideas, products, or processes.
- b. create original works as a means of personal or group expression.
- c. use models and simulations to explore complex systems and issues.
- d. identify trends and forecast possibilities.

- **Proposal for a definition:**

Creativity is the ability or attitude that enables individuals to develop ideas and opportunities, to create something new or create something in a new way, utilizing the knowledge she/he has already acquired.

- **Existing grids:**

1. Susan M. Brookhart. [2013]. **How to Create and Use Rubrics for Formative Assessment and Grading**.
<http://www.ascd.org/publications/educational-leadership/feb13/vol70/num05/Assessing-Creativity.aspx>

	Very Creative	Creative	Ordinary/Routine	Imitative
Variety of ideas and contexts	Ideas represent a startling variety of important concepts from different contexts or disciplines.	Ideas represent important concepts from different contexts or disciplines.	Ideas represent important concepts from the same or similar contexts or disciplines.	Ideas do not represent important concepts.
Variety of sources	Created product draws on a wide variety of sources, including different texts, media, resource persons, or personal experiences.	Created product draws on a variety of sources, including different texts, media, resource persons, or personal experiences.	Created product draws on a limited set of sources and media.	Created product draws on only one source or on sources that are not trustworthy or appropriate.

Combining ideas	Ideas are combined in original and surprising ways to solve a problem, address an issue, or make something new.	Ideas are combined in original ways to solve a problem, address an issue, or make something new.	Ideas are combined in ways that are derived from the thinking of others (for example, of the authors in sources consulted).	Ideas are copied or restated from the sources consulted.
Communicating something new	Created product is interesting, new, or helpful, making an original contribution that includes identifying a previously unknown problem, issue, or purpose.	Created product is interesting, new, or helpful, making an original contribution for its intended purpose (for example, solving a problem or addressing an issue).	Created product serves its intended purpose (for example, solving a problem or addressing an issue).	Created product does not serve its intended purpose (for example, solving a problem or addressing an issue).

2. Clary, R., Brzuszek, R., Fulford, T. [2011]. **Measuring Creativity: A Case Study Probing Rubric Effectiveness for Evaluation of Project-Based Learning Solutions.** <https://file.scirp.org/Html/7970.html>

Appendix A. Rubric and Score Sheet for the Tennessee Williams Park

	Level one	Level two	Level three
Explanation (Wiggins & McTighe)	Naïve: a superficial account, more implicit than analytical or explanatory, sketchy account of experience; less a theory than an unexamined hunch or borrowed ideas.	Developed: an account that reflects some in-depth and personalized reflection; making a thinking process that is their own; going beyond the given.	Sophisticated: an unusually thorough, explanatory, and inventive account; fully supported, verified, and justified; deep and broad.
Design Concept	Guiding idea is basically explained	Guiding idea is well written and conceived with some allusion to form	Guiding idea is rich and novel, compelling statement that leads to strong forms.
Interpretation (hybrid) Storytelling Or Abstract	Simplistic or superficial; no interpretation A decoding with no interpretation; no sense of wider significance	A plausible storyline with clear details A helpful interpretation of analysis of the significance or meaning of cognitive strategies	A well structured storyline with rich details and imagery; provides a detailed history A powerful and illuminating interpretation and analysis; tells a rich and insightful account of cognition through reflection; sees deeply
Elaboration	Some details or ideas	Expanded details or ideas	Rich imagery and elaborate details
Forms/Structures	Forms have basic expression for selection; little expansion	Forms chosen for design are well selected to reinforce original concept	Forms are complex or novel and excellently reflect the guiding idea
Originality/Novelty	Commonplace ideas and expected usage	Unusual ideas and elements	Sophisticated: an unusually complex and rich approach, far outside the ordinary

3. Vincent-Lancrin, S. et al. [2019]. **Fostering Students' Creativity and Critical Thinking- What it Means in School.** Educational Research and Innovation, OECD Publishing, Paris. <https://doi.org/10.1787/62212c37-en>

Table 1.2. OECD rubric on creativity and critical thinking (domain-general, class-friendly)

	CREATIVITY Coming up with new ideas and solutions	CRITICAL THINKING Questioning and evaluating ideas and solutions
INQUIRING	Make connections to other concepts and knowledge from the same or from other disciplines	Identify and question assumptions and generally accepted ideas or practices
IMAGINING	Generate and play with unusual and radical ideas	Consider several perspectives on a problem based on different assumptions
DOING	Produce, perform or envision a meaningful output that is personally novel	Explain both strengths and limitations of a product, a solution or a theory justified on logical, ethical or aesthetic criteria
REFLECTING	Reflect on the novelty of the solution and of its possible consequences	Reflect on the chosen solution/position relative to possible alternatives

Note: This rubric is meant for teachers/faculty to identify the student skills related to creativity and to critical thinking that they have to foster in their teaching and learning, not for assessment.

Table 2.1. OECD rubric on creativity and critical thinking (domain-general, comprehensive)

	CREATIVITY	CRITICAL THINKING
	Coming up with new ideas and solutions	Questioning and evaluating ideas and solutions
INQUIRING	<ul style="list-style-type: none"> • Feel, empathise, observe, describe relevant experience, knowledge and information • Make connections to other concepts and ideas, integrate other disciplinary perspectives 	<ul style="list-style-type: none"> • Understand context/frame and boundaries of the problem • Identify and question assumptions, check accuracy of facts and interpretations, analyse gaps in knowledge
IMAGINING	<ul style="list-style-type: none"> • Explore, seek and generate ideas • Stretch and play with unusual, risky or radical ideas 	<ul style="list-style-type: none"> • Identify and review alternative theories and opinions and compare or imagine different perspectives on the problem • Identify strengths and weaknesses of evidence, arguments, claims and beliefs
DOING	<ul style="list-style-type: none"> • Produce, perform, envision, prototype a product, a solution or a performance in a personally novel way 	<ul style="list-style-type: none"> • Justify a solution or reasoning on logical, ethical or aesthetic criteria/reasoning
REFLECTING	<ul style="list-style-type: none"> • Reflect and assess the novelty of the chosen solution and of its possible consequences • Reflect and assess the relevance of the chosen solution and of its possible consequences 	<ul style="list-style-type: none"> • Evaluate and acknowledge the uncertainty or limits of the endorsed solution or position • Reflect on the possible bias of one’s own perspective compared to other perspectives

Note: This rubric is meant for teachers/faculty to identify the student skills related to creativity and to critical thinking that they have to foster in their teaching and learning, not for assessment.

Table 2.3. OECD assessment rubric: Creativity

	Level 4: Outstanding	Level 3: Excellent	Level 2: Emergent	Level 1: Dormant
PRODUCT	<p>The student work:</p> <ul style="list-style-type: none"> is highly imaginative, showing many instances of personal features and risk taking (formulation, technique, composition or content) fully meets the requirements of the task goes beyond the knowledge and rules expected to be mastered by the student in more than one aspect. 	<p>The student work:</p> <ul style="list-style-type: none"> is imaginative, showing some examples of personal features (formulation, technique, composition or content) meets the requirements of the task goes beyond the knowledge and rules expected to be mastered by the student in one aspect. 	<p>The student work:</p> <ul style="list-style-type: none"> is personal in some of its features (formulation, technique, composition or content) meets some but possibly not all the requirements of the task is in line with the knowledge and rules expected to be mastered by the student. 	<p>The student work:</p> <ul style="list-style-type: none"> meets the requirement of the task but reproduces existing examples, with little personal perspective on formulation, content, technique or composition.
PROCESS	<p>The work process:</p> <ul style="list-style-type: none"> shows a willingness to examine carefully a variety of ideas as well the ability to make meaningful connections with other ideas or domains. generated several unusual or radical ideas and pushed some to their limits before making the final choices. shows a clear awareness of the areas of personal novelty and risk that were pursued, and of why the final choices were made. 	<p>The work process:</p> <ul style="list-style-type: none"> shows a willingness to brainstorm ideas and examines carefully the chosen idea. generated one unusual or radical idea and pushed it to its limit before making the final choices. shows a clear awareness of the areas of personal novelty or risk that were pursued. 	<p>The work process:</p> <ul style="list-style-type: none"> shows a willingness to think or act beyond one’s first idea, but connections made between ideas or domains lack consistency or remain superficial. fails to explore selected ideas with depth. shows little awareness of the areas of personal novelty or risk that were pursued. 	<p>The work process:</p> <ul style="list-style-type: none"> is limited to the exploration of imitative patterns or to the examples presented by the teacher or expected to be familiar.

Notes: The class-friendly assessment rubric for creativity is supposed to assess a task targeting the acquisition of some learning outcome in a discipline or more. It is not meant to assess a “creativity” exercise, but any exercise in which students have space to develop their creative thinking skills. “Product” refers to a visible final student work (for example the response to a problem, an essay, an artefact of a performance). The criteria are meant to assess the student work even if the learning process is not observable by the rater or was not fully documented. “Process” refers to the learning and production process observed by the teachers or documented by the students: the process may not be entirely visible in the final product as some interim ideas or aspects of the process may not be reflected in the final student work. Typically, the process could show a greater level of acquisition of the skills than the product. Levels 1 to 4 correspond to a continuum. Level 1 corresponds to little effort to exercise one’s creativity, whether the technical requirements of the task are met or not. Level 2 corresponds to some effort, even if the technical requirements of the task are met or not. Level 3 corresponds to both an output that shows some level of creativity and some technical mastery. Level 4 combines both a high level of creativity and technical mastery.

- **Creativity rubrics: A proposal of a grid for analyzing the 10 flagship initiatives:**

During the teaching and learning activity, students learn to be creative according to one of the following levels:

<p>Novice</p> <p>Awareness of Base Level Knowledge Explain</p>	<p>Intermediate</p> <p>Apply the concept somewhat Analyze</p>	<p>Advanced</p> <p>Intentional and Effective Application Transfer to a new situation</p>
<p>Reuse or restate ideas from the sources that are consulted.</p> <p>Feel, empathize, observe, describe relevant experience, knowledge and information: exploration of examples presented by the teacher or expected to be familiar.</p> <p>Think and act beyond one’s first idea but few connections are made between ideas or domain.</p>	<p>Combine ideas in ways that are derived from the thinking of others.</p> <p>Explore, seek, brainstorm and generate ideas; examine the chose idea.</p> <p>Generate, stretch and play with one unusual or radical ideas and push it to its limit before making the final choice.</p> <p>Produce, perform, envision, prototype a product, a solution or a performance in a personally novel way</p>	<p>Combine ideas in original and surprising ways relevant to the problem.</p> <p>Examine a variety of ideas, reflect and assess the novelty of the chosen solution, of its relevance and of its possible consequences</p> <p>Generate several unusual, risky or radical ideas and push some to their limits before making the final choice.</p> <p>Goes beyond knowledge and known rules and show a clear awareness of why the final choices are made and of the areas of novelty and risk that were pursued.</p>

Critical thinking



- **Definition from the literature**

1. Association of American Colleges and Universities (AAC&U). [2009]. **Critical Thinking VALUE Rubric.** https://www.usna.edu/Academics/Academic-Dean/Assessment/All_Rubrics.pdf

Critical thinking is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion.

2. UNESCO. [2017]. **Education for Sustainable Development Goals: Learning Objectives.** <https://unesdoc.unesco.org/ark:/48223/pf0000247444?posInSet=1&queryId=eb7f6ccf-5fd5-4460-84d2-3af37bc392e0>

The ability to question norms, practices and opinions; to reflect on own one's values, perceptions and actions; and to take a position in the sustainability discourse.

3. Knezevic, D. **21st Century Skills: 6 C's of Education in Your Classroom.** <http://blog.awwapp.com/6-cs-of-education-classroom/> Consulted on January 2020.

Critical thinking is the process of filtering, analyzing and questioning information/content found in various media, and then synthesizing it in a form that has a value to an individual. It allows students to make sense of the presented content and apply it to their daily lives.

4. Fullan, M., Scott, G. [2014]. **Education Plus.** <https://www.michaelfullan.ca/wp-content/uploads/2014/09/Education-Plus-A-Whitepaper-July-2014-1.pdf>

Critically evaluating information and arguments, seeing patterns and connections, construction meaningful knowledge and applying it in the real world.

5. Québec: Ministère de l'Éducation et de l'Enseignement supérieur. [2019]. **Digital Competency Framework.** http://www.education.gouv.qc.ca/fileadmin/site_web/documents/ministere/Cadre-reference-competence-num-AN.pdf

Practice of rational evaluation based on reflection, self-criticism and self-correction. Requires a series of skills and a willingness to engage in reasoning. Also involves the mobilization of different resources depending on the context in order to determine reasonable conclusions or courses of action, based on a set of criteria.

6. Paul, R., Elder, L. [2006]. **Critical Thinking. Concepts and Tools.**
https://www.academia.edu/10006132/Critical_Thinking_Concepts_and_Tools_by_Richard_Paul_and_Linda_Elder

Critical thinking is the art of analyzing and evaluating thinking with a view to improving it.

7. Cuenca, L., Alarcón, F., Boza, A., Fernández-Diego, M., Ruiz, L., Gordo, M., Poler, R., & Alemany, M. [2016]. **RUBRIC FOR THE ASSESSMENT THE COMPETENCE OF INNOVATION CREATIVITY AND ENTREPRENEURSHIP IN BACHELOR DEGREE.**
<https://doi.org/https://doi.org/10.14488/BJOPM.2016.v13.n1.a14>

Logically identifying how different possible approaches are strong and weak, and analyzing these judgments.

8. UNESCO International Bureau of Education. [2014]. **Guiding Principles for Learning in the Twenty-first Century.**
<http://www.ibe.unesco.org/en/document/guiding-principles-learning-twenty-first-century>

- Critical thinking is simply “good thinking”

Critical thinking is a popular, sometimes overused, term that in reality describes, quite simply, the principles of “good” or “clear” thinking. “Good thinking” is the ability to judge arguments or points of view with intelligence and not to be influenced by ideology, fundamentalism, indoctrination, prejudice and unverified beliefs. Critical thinking allows students to think for themselves.

- Critical thinking happens in all domains through knowledge, skills and attitudes.

Critical thinking is not merely rational thinking, it involves propositional knowledge (“knowing that”), procedural knowledge (“knowing how”) and dispositional knowledge (“knowing to”) (Ryle, 1971). This involves a respectful, open-minded approach.

- Critical thinking is essential for inquiry based learning.

The way students ask questions is essential for them to become critical thinkers. On the one hand, teachers need to use questions as tools to stimulate critical thinking. On the other hand, students should also be shown how to appreciate what makes a good question.

- Critical thinking requires a high-gain/low risk learning environment.

Students should feel free to take risks, to be corrected without feeling that they are being criticized, to challenge, to be challenged and to discuss different opinions.

- Knowledge is a prerequisite for achieving critical thought.

- Critical thinking can lead to international mindedness.

Since critical thinking involves open-mindedness, good listening skills and the ability to look at different points of view, it can lead to a rich appreciation of cultural, national and historical diversity in human thought.

- Teachers should model skeptical though.

Teachers should demonstrate healthy skepticism when dealing with unproven information.

- **Proposal for a definition:**

Critical thinking is the ability

- to question norms, ideas, practices and opinions
- to analyze, to question, to evaluate information, content or arguments before accepting or formulating an opinion or a conclusion.

- to question and evaluate solutions.

It requires a willingness to engage in reasoning.

- **Existing grids/ rubrics :**

1. Association of American Colleges and Universities (AAC&U). [2009]. **Critical Thinking VALUE Rubric.**

https://teaching.berkeley.edu/sites/default/files/value_rubric_packet.pdf

Critical thinking is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion.

	Capstone 4	Milestones 3 2		Benchmark 1
Explanation of issues	Issue/ problem to be considered critically is stated clearly and described comprehensively, delivering all relevant information necessary for full understanding.	Issue/ problem to be considered critically is stated, described, and clarified so that understanding is not seriously impeded by omissions.	Issue/ problem to be considered critically is stated but description leaves some terms undefined, ambiguities unexplored, boundaries undetermined, and/ or backgrounds unknown.	Issue/ problem to be considered critically is stated without clarification or description.
Evidence <i>Selecting and using information to investigate a point of view or conclusion</i>	Information is taken from source(s) with enough interpretation/ evaluation to develop a comprehensive analysis or synthesis. Viewpoints of experts are questioned thoroughly.	Information is taken from source(s) with enough interpretation/ evaluation to develop a coherent analysis or synthesis. Viewpoints of experts are subject to questioning.	Information is taken from source(s) with some interpretation/ evaluation, but not enough to develop a coherent analysis or synthesis. Viewpoints of experts are taken as mostly fact, with little questioning.	Information is taken from source(s) without any interpretation/ evaluation. Viewpoints of experts are taken as fact, without question.
Influence of context and assumptions	Thoroughly (systematically and methodically) analyzes own and others' assumptions and carefully evaluates the relevance of contexts when presenting a position.	Identifies own and others' assumptions and several relevant contexts when presenting a position.	Questions some assumptions. Identifies several relevant contexts when presenting a position. May be more aware of others' assumptions than one's own (or vice versa).	Shows an emerging awareness of present assumptions (sometimes labels assertions as assumptions). Begins to identify some contexts when presenting a position.
Student's position (perspective, thesis/hypothesis)	Specific position (perspective, thesis/hypothesis) is imaginative, taking into account the complexities of an issue. Limits of position (perspective, thesis/ hypothesis) are acknowledged. Others' points of view are synthesized within position (perspective, thesis/ hypothesis).	Specific position (perspective, thesis/hypothesis) takes into account the complexities of an issue. Others' points of view are acknowledged within position (perspective, thesis/ hypothesis).	Specific position (perspective, thesis/ hypothesis) acknowledges different sides of an issue.	Specific position (perspective, thesis/ hypothesis) is stated, but is simplistic and obvious.
Conclusions and related outcomes (implications and consequences)	Conclusions and related outcomes (consequences and implications) are logical and reflect student's informed evaluation and ability to place evidence and perspectives discussed in priority order.	Conclusion is logically tied to a range of information, including opposing viewpoints; related outcomes (consequences and implications) are identified clearly.	Conclusion is logically tied to information (because information is chosen to fit the desired conclusion); some related outcomes (consequences and implications) are identified clearly.	Conclusion is inconsistently tied to some of the information discussed; related outcomes (consequences and implications) are oversimplified.

2. Ralson, P. [2010]. **AC 2010-1518: Refining a critical thinking rubric for engineering.**

<https://www.semanticscholar.org/paper/AC-2010-1518-%3A-REFINING-A-CRITICAL-THINKING-RUBRIC-Ralston/5be1bfeb98a2fa44ad4a1c9f38d3edc35dd3db21>

University of Louisville
 JB Speed School of Engineering
 Holistic Critical Thinking Rubric

Consistently does all or most of the following:

4	<p>Clearly identifies the purpose including all complexities of relevant questions. Accurate, complete information that is supported by relevant evidence. Complete, fair presentation of all relevant assumptions and points of view. Clearly articulates significant, logical implications and consequences based on relevant evidence.</p>
3	<p>Clearly identifies the purpose including some complexities of relevant questions. Accurate, mostly complete information that is supported by evidence. Complete, fair presentation of some relevant assumptions and points of view. Clearly articulates some implications and consequences based on evidence.</p>
2	<p>Identifies the purpose including irrelevant and/or insufficient questions. Accurate but incomplete information that is not supported by evidence. Simplistic presentation that ignores relevant assumptions and points of view. Articulates insignificant or illogical implications and consequences that are not supported by evidence.</p>
1	<p>Unclear purpose that does not include questions. Inaccurate, incomplete information that is not supported by evidence. Incomplete presentation that ignores relevant assumptions and points of view. Fails to recognize or generates invalid implications and consequences based on irrelevant evidence.</p>

3. The Organisation for Economic Co-operation and Development. [2019]. **Fostering Students’s creativity and Critical Thinking.**
<https://www.oecd.org/education/class-friendly-assessment-rubric-critical-thinking.pdf>

OECD class-friendly assessment rubric Critical thinking

	Level 4 Outstanding	Level 3 Excellent	Level 2 Emergent	Level 1 Dormant
Product	<p>The student work</p> <ul style="list-style-type: none"> • presents a specific personal position to a clearly formulated problem, • relates this position to alternative theories or perspectives within or outside the discipline, • justifies the position with good evidence, • acknowledges the assumptions and limitations of the chosen position. 	<p>The student work</p> <ul style="list-style-type: none"> • presents a personal position to a clearly formulated problem, • relates this position to one alternative theory or perspective within or outside the discipline, • justifies the position with some evidence, and • acknowledges the assumptions of the chosen position. 	<p>The student work</p> <ul style="list-style-type: none"> • presents a position to a problem that is not clearly formulated, • relates this position to one alternative theory or perspective within the discipline, • provides little evidence or acknowledge only minimally the assumptions and limitations of the chosen position. 	<p>The student work</p> <ul style="list-style-type: none"> • presents a commonly accepted position to a problem, • justifies it with sound evidence, but • fails to question its assumptions or consider other possible perspectives on the problem.
Process	<p>The work process</p> <ul style="list-style-type: none"> • considers several ways of formulating and answering a problem, • challenges several common positions or ideas about the problem • shows a clear understanding of the strength and limitations of the chosen and alternative positions. • shows an openness to the ideas, critiques or feedback of others when relevant. 	<p>The work process</p> <ul style="list-style-type: none"> • considers one other way to formulate and answer the problem, • challenges one common position or idea about the problem • shows a clear understanding of the strength and limitations of the chosen and the alternative positions. 	<p>The work process</p> <ul style="list-style-type: none"> • shows the willingness to go beyond one’s initial way to formulate and answer the problem, but • does not clearly identify the assumptions of the examined theories or practices or their strengths and weaknesses. 	<p>The work process</p> <ul style="list-style-type: none"> • shows little willingness to explore other positions or theories than the most commonly accepted one and • shows no willingness to question the assumptions of the chosen position, theory or practices.

Note: The class-friendly assessment rubric for critical thinking is supposed to assess a task targeting the acquisition of some learning outcome in a discipline or more. It is not meant to assess a “critical thinking” exercise, but just any exercise in which students have space to develop their critical thinking skills.

Note: “Product” refers to a visible final student work (for example the response to a problem, a, essay, an artefact of a performance). The criteria are meant to assess the student work even if the learning process is not observable by the rater or was not fully documented. “Process” refers to the learning and production process observed by the teachers or documented by the students: the process may not be entirely visible in the final product as some interim ideas or aspects of the process may not be reflected in the final student work. Typically, the process could show a greater level of acquisition of the skills than the product.

Note: The levels 1 to 4 correspond to a continuum. Level 1 corresponds to little effort in exercising one’s critical thinking, whether the technical requirements of the task are met or not. Level 2 corresponds to some effort, even though the technical requirements of the task are not met. Level 3 corresponds to both an output that shows some level of critical thinking and some technical mastery. Level 4 combines both a high level of critical thinking and technical mastery. It should be noted that level 4 may correspond to a conventional position, to the extent that it is well understood and related to other ones.

4. General Education Committee, University of Rhode Island. [2005]. **NEIU’s Critical Thinking Rubric.**

https://web.uri.edu/assessment/files/CriticalThinkingRubric_NEIU.pdf

Quality Criteria	No/Limited Proficiency (1 point)	Some Proficiency (2 points)	Proficiency (3 points)	High Proficiency (4 points)	Rating (1,2,3,4pts)
1. Identifies & explains ISSUES	Fails to identify, summarize, or explain the main problem or question. (OR) Represents the issues inaccurately or inappropriately.	Identifies main issues but does not summarize or explain them clearly or sufficiently	Successfully identifies and summarizes the main issues, but does not explain why/how they are problems or create questions	Clearly identifies and summarizes main issues and successfully explains why/how they are problems or questions; and identifies embedded or implicit issues, addressing their relationships to each other.	
2. Recognizes stakeholders and CONTEXTS (i.e., cultural/social, educational, technological, political, scientific, economic, ethical, personal experience)	Fails accurately to identify and explain any empirical or theoretical contexts for the issues. (OR) Presents problems as having no connections to other conditions or contexts.	Shows some general understanding of the influences of empirical and theoretical contexts on stakeholders, but does not identify any specific ones relevant to situation at hand.	Correctly identifies all the empirical and most of the theoretical contexts relevant to all the main stakeholders in the situation.	Not only correctly identifies all the empirical and theoretical contexts relevant to all the main stakeholders, but also finds minor stakeholders and contexts and shows the tension or conflicts of interests among them.	
3. Frames personal responses and acknowledges other PERSPECTIVES	Fails to formulate and clearly express own point of view, (OR) fails to anticipate objections to his/her point of view, (OR) fails to consider other perspectives and position.	Formulates a vague and indecisive point of view, (OR) anticipates minor but not major objections to his/her point of view, (OR) considers weak but not strong alternative positions.	Formulates a clear and precise personal point of view concerning the issue, and seriously discusses its weaknesses as well as its strengths.	Not only formulates a clear and precise personal point of view, but also acknowledges objections and rival positions and provides convincing replies to these.	
4. Evaluates ASSUMPTIONS	Fails to identify and evaluate any of the important assumptions behind the claims and recommendations made.	Identifies some of the most important assumptions, but does not evaluate them for plausibility or clarity.	Identifies and evaluates all the important assumptions, but not the ones deeper in the background – the more abstract ones.	Not only identifies and evaluates all the important assumptions, but also some of the more hidden, more abstract ones.	
5. Evaluates EVIDENCE	Fails to identify data and information that counts as evidence for truth-claims and fails to evaluate its credibility.	Successfully identifies data and information that counts as evidence but fails to thoroughly evaluate its credibility.	Identifies all important evidence and rigorously evaluates it.	Not only identifies and rigorously evaluates all important evidence offered, but also provides new data or information for consideration.	
6. Evaluates IMPLICATIONS, conclusions, and consequences	Fails to identify implications, conclusions, and consequences of the issue, (OR) the key relationships between the other elements of the problem, such as context, assumptions, or data and evidence.	Suggests some implications, conclusions, and consequences, but without clear reference to context, assumptions, data, and evidence.	Identifies and briefly discusses implications, conclusions, and consequences considering most but not all the relevant assumptions, contexts, data, and evidence.	Identifies and thoroughly discusses implications, conclusions, and consequences, considering all relevant assumptions, contexts, data, and evidence.	

5. Foundation for Critical Thinking. **Critical Thinking Grid.**
<https://www.criticalthinking.org/pages/critical-thinking-testing-and-assessment/594>

	4 - Exemplary If applicable, consistently does all or almost all of the following	3 - Satisfactory If applicable, consistently does most or many of the following	2- Below Satisfactory If applicable, consistently does most or many of the following	1 -Unsatisfactory If applicable, consistently does all or almost all of the following
Purpose	-Demonstrates a clear understanding of the assignment’s purpose	-Demonstrates an understanding of the assignment’s purpose	-Is not completely clear about the purpose of the assignment	-Does not clearly understand the purpose of the assignment
Key Question, Problem, or Issue	-Clearly defines the issue or problem; accurately identifies the core issues -Appreciates depth and breadth of problem -Demonstrates fair-mindedness toward problem	-Defines the issue; identifies the core issues, but may not fully explore their depth and breadth -Demonstrates fair-mindedness	-Defines the issue, but poorly (superficially, narrowly); may overlook some core issues -Has trouble maintaining a fair-minded approach toward the problem	-Fails to clearly define the issue or problem; does not recognize the core issues -Fails to maintain a fair-minded approach toward the problem
Point of View	-Identifies and evaluates relevant significant points of view -Is empathetic, fair in examining all relevant points of view	-Identifies and evaluates relevant points of view -Is fair in examining those views	-May identify other points of view but struggles with maintaining fairmindedness; may focus on irrelevant or insignificant points of view	-Ignores or superficially evaluates alternate points of view -Cannot separate own vested interests and feelings when evaluating other points of view
Information	-Gathers sufficient, credible, relevant information: observations, statements, logic, data, facts, questions, graphs, themes, assertions, descriptions, etc. -Includes information that opposes as well as supports the argued position -Distinguishes between information and inferences drawn from that information	-Gathers sufficient, credible, and relevant information -Includes some information from opposing views -Distinguishes between information and inferences drawn from it	-Gathers some credible information, but not enough; some information may be irrelevant -Omits significant information, including some strong counter-arguments -Sometimes confuses information and the inferences drawn from it	-Relies on insufficient, irrelevant, or unreliable information -Fails to identify or hastily dismisses strong, relevant counter-arguments -Confuses information and inferences drawn from that information
Concepts	-Identifies and accurately explains/uses the relevant key concepts	-Identifies and accurately explains and uses the key concepts, but not with the depth and precision of a “4”	-Identifies some (not all) key concepts, but use of concepts is superficial and inaccurate at times	-Misunderstands key concepts or ignores relevant key concepts altogether

Assumptions	<ul style="list-style-type: none"> -Accurately identifies assumptions (things taken for granted) -Makes assumptions that are consistent, reasonable, valid 	<ul style="list-style-type: none"> -Identifies assumptions -Makes valid assumptions 	<ul style="list-style-type: none"> -Fails to identify assumptions, or fails to explain them, or the assumptions identified are irrelevant, not clearly stated, and/or invalid 	<ul style="list-style-type: none"> -Fails to identify assumptions -Makes invalid assumptions
Interpretations, Inferences	<ul style="list-style-type: none"> -Follows where evidence and reason lead in order to obtain defensible, thoughtful, logical conclusions or solutions -Makes deep rather than superficial inferences -Makes inferences that are consistent with one another 	<ul style="list-style-type: none"> -Follows where evidence and reason lead to obtain justifiable, logical conclusions -Makes valid inferences, but not with the same depth and as a "4" 	<ul style="list-style-type: none"> -Does follow some evidence to conclusions, but inferences are more often than not unclear, illogical, inconsistent, and/or superficial 	<ul style="list-style-type: none"> -Uses superficial, simplistic, or irrelevant reasons and unjustifiable claims -Makes illogical, inconsistent inferences -Exhibits closed-mindedness or hostility to reason; regardless of the evidence, maintains or defends views based on self-interest
Implications, Consequences	<ul style="list-style-type: none"> -Identifies the most significant implications and consequences of the reasoning (whether positive and/or negative) -Distinguishes probable from improbable implications 	<ul style="list-style-type: none"> -Identifies significant implications and consequences and distinguishes probable from improbable implications, but not with the same insight and precision as a "4" 	<ul style="list-style-type: none"> -Has trouble identifying significant implications and consequences; identifies improbable implications 	<ul style="list-style-type: none"> -Ignores significant implications and consequences of reasoning

4 = Thinking is exemplary, skilled, marked by excellence in clarity, accuracy, precision, relevance, depth, breadth, logicity, and fairness
 3 = Thinking is competent, effective, accurate and clear, but lacks the exemplary depth, precision, and insight of a 4
 2 = Thinking is inconsistent, ineffective; shows a lack of consistent competence: is often unclear, imprecise, inaccurate, and superficial
 1 = Thinking is unskilled and insufficient, marked by imprecision, lack of clarity, superficiality, illogicality, and inaccuracy, and unfairness

- **Critical thinking rubrics: A proposal of a grid for analyzing the 10 flagship initiatives:**

During the teaching and learning activity, students learn to practice critical thinking according to one of the following levels:

<p style="text-align: center;">Novice</p> <p style="text-align: center;">Awareness of Base Level Knowledge Explain</p>	<p style="text-align: center;">Intermediate</p> <p style="text-align: center;">Apply the concept somewhat Analyze</p>	<p style="text-align: center;">Advanced</p> <p style="text-align: center;">Intentional and Effective Application Transfer to a new situation</p>
<p>Viewpoints are taken as mostly facts with little questioning</p> <p>Show the willingness to go beyond one’s initial way to formulate and answer the problem.</p> <p>Do not clearly identify the assumptions of the examined theories or practices or their strengths and weaknesses.</p> <p>Conclusion is logically tied to information. Some related outcomes are identified clearly.</p>	<p>Viewpoints are subject to questioning.</p> <p>Consider some other way to formulate and answer the problem.</p> <p>Show a clear understanding of the strength and limitations of the chosen and the alternative positions.</p> <p>Challenge one common position or idea about the problem.</p> <p>Conclusion is logically tied to a range of information, including opposing viewpoints; related outcomes are identified clearly.</p>	<p>Viewpoints are questioned thoroughly.</p> <p>Consider several ways of formulating and answering a problem.</p> <p>Show an openness to the ideas, critiques or feedback of others when relevant.</p> <p>Challenge several common positions or ideas about the problem.</p> <p>Conclusion and related outcomes are logical and reflect student’s informed evaluation and ability to place evidence and perspectives discussed in priority order.</p>

Digital literacy



Definition from the literature

1. European Erasmus + Programme. [2016-2019]. **RECTEC - Handbook Identifying transversal skills for employability and certifications.**
<http://rectec.ac-versailles.fr/>

The following elements were taken into account when defining the proficiency levels:

- Ability to research or produce information and to sort it autonomously to achieve a certain goal;
- Capacity to adapt to new digital environments;
- Ability to use basic functions on a computer, a smartphone, an email service and collaborative tools.

2. Québec: Ministère de l'Éducation et de l'Enseignement supérieur. [2019]. **Digital Competency Framework.**
http://www.education.gouv.qc.ca/fileadmin/site_web/documents/ministere/Cadre-reference-competence-num-AN.pdf

Knowledge and skills that enable a person to use, understand, assess, engage and create in a digital context and, more generally, to participate in society. Consequently, digital literacy is not limited to technological knowledge. It also includes numerous ethical and social practices applied daily in workplaces and learning environments as well as in recreational and everyday activities.

3. Forest Woody Horton, Jr. [2007]. **Understanding Information Literacy: A Primer.**
<https://unesdoc.unesco.org/ark:/48223/pf0000157020/PDF/157020eng.pdf.multi>

Set of skills, attitudes and knowledge necessary to understand and operate the basic functions of information and communications technologies, including devices and tools such as personal computers (PCs), laptops, cell phones, iPods, BlackBerrys, and so forth; Computer Literacy is usually sub-divided into Hardware Literacy and Software Literacy, the former referring to, for example knowing how to use basic PC and Laptop features and functions such as a mouse, connecting a monitor to a central processing unit, using a printer, and so on, whereas the latter refers to learning how to use various kinds of application software packages. [...].

- **Proposal for a definition:**

The ability to use digital methods, technologies and media, both discipline specific and generic, in a disciplined, safe and secure manner in educational as well as professional and civic context.

- **Existing grids:**

1. European Erasmus + Programme. [2016-2019]. **RECTEC - Handbook Identifying transversal skills for employability and certifications.**
<http://rectec.ac-versailles.fr/>

Digital literacy

USING DIGITAL RESOURCES

SKILLS DESCRIPTORS	AUTONOMY AND RESPONSIBILITY	GENERIC INDICATORS
CIRCLE 1 Completes basic tasks on or with familiar digital tools.	Use of basic functions is done with external help.	Access to the digital functions in use for the activity is made possible by external help who provides assistance and the elements of content needed for the completion of the task.
CIRCLE 2 Uses basic functions on some digital tools.	Choice of digital function is done with external help if needed. Use of basic functions is done under supervision.	Basic functions are used with instructions and guidance from another person.
CIRCLE 3 Uses digital resources regularly depending on the activity and the context.	Use of basic functions is done autonomously. Choice of digital functions used is under one's responsibility.	Functions and contents used vary depending on contexts.
CIRCLE 4 Customizes digital resources to their needs or the needs of the situation.	Software customization is under one's responsibility.	Digital resources and their functions are analysed and modified if needed.






2. AEFA. [2017]. **Evaluer les compétences transversales.**
http://www.agence-erasmus.fr/docs/2496_2496_aefa-guide-competences-juin-2017.pdf

UTILISER LES OUTILS NUMÉRIQUES ET L'INFORMATIQUE

Identifie et accède aux fonctions de base des outils informatiques ou numériques	Utilise partiellement les fonctionnalités de base d'un ordinateur (traitement de texte, messagerie, internet)	Utilise les outils informatiques et numériques liés à sa situation	Personnalise les ressources informatiques et numériques au service de sa situation et de son parcours
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3. European Commission. **Digital competences.**
<https://europass.cedefop.europa.eu/resources/digital-competences> Consulted
 on January 2020.

Digital competences - Self-assessment grid

	Basic User	Independent user	Proficient user
 Information processing	I can look for information online using a search engine. I know not all online information is reliable. I can save or store files or content (e.g. text, pictures, music, videos, web pages) and retrieve them once saved or stored.	I can use different search engines to find information. I use some filters when searching (e.g. searching only images, videos, maps). I compare different sources to assess the reliability of the information I find. I classify the information in a methodical way using files and folders to locate these easier. I do backups of information or files I have stored.	I can use advanced search strategies (e.g. using search operators) to find reliable information on the internet. I can use web feeds (like RSS) to be updated with content I am interested in. I can assess the validity and credibility of information using a range of criteria. I am aware of new advances in information search, storage and retrieval. I can save information found on the internet in different formats. I can use cloud information storage services.
 Communication	I can communicate with others using mobile phone, Voice over IP (e.g. Skype) e-mail or chat – using basic features (e.g. voice messaging, SMS, send and receive e-mails, text exchange). I can share files and content using simple tools. I know I can use digital technologies to interact with services (as governments, banks, hospitals). I am aware of social networking sites and online collaboration tools. I am aware that when using digital tools, certain communication rules apply (e.g. when commenting, sharing personal information).	I can use advanced features of several communication tools (e.g. using Voice over IP and sharing files). I can use collaboration tools and contribute to e.g. shared documents/files someone else has created. I can use some features of online services (e.g. public services, e-banking, online shopping). I pass on or share knowledge with others online (e.g. through social networking tools or in online communities). I am aware of and use the rules of online communication ("netiquette").	I actively use a wide range of communication tools (e-mail, chat, SMS, instant messaging, blogs, micro-blogs, social networks) for online communication. I can create and manage content with collaboration tools (e.g. electronic calendars, project management systems, online proofing, online spreadsheets). I actively participate in online spaces and use several online services (e.g. public services, e-banking, online shopping). I can use advanced features of communication tools (e.g. video conferencing, data sharing, application sharing).
 Content creation	I can produce simple digital content (e.g. text, tables, images, audio files) in at least one format using digital tools. I can make basic editing to content produced by others. I know that content can be covered by copyright. I can apply and modify simple functions and settings of software and applications that I use (e.g. change default settings).	I can produce complex digital content in different formats (e.g. text, tables, images, audio files). I can use tools/editors for creating web page or blog using templates (e.g. WordPress). I can apply basic formatting (e.g. insert footnotes, charts, tables) to the content I or others have produced. I know how to reference and reuse content covered by copyright. I know the basics of one programming language.	I can produce or modify complex, multimedia content in different formats, using a variety of digital platforms, tools and environments. I can create a website using a programming language. I can use advanced formatting functions of different tools (e.g. mail merge, merging documents of different formats, using advanced formulas, macros). I know how to apply licences and copyrights. I can use several programming languages. I know how to design, create and modify databases with a computer tool.
 Safety	I can take basic steps to protect my devices (e.g. using anti-viruses and passwords). I know that not all online information is reliable. I am aware that my credentials (username and password) can be stolen. I know I should not reveal private information online. I know that using digital technology too extensively can affect my health. I take basic measures to save energy.	I have installed security programmes on the device(s) that I use to access the Internet (e.g. antivirus, firewall). I run these programmes on a regular basis and I update them regularly. I use different passwords to access equipment, devices and digital services and I modify them on a periodic basis. I can identify the websites or e-mail messages which might be used to scam. I can identify a phishing e-mail. I can shape my online digital identity and keep track of my digital footprint. I understand the health risks associated with the use of digital technology (e.g. ergonomics, risk of addiction). I understand the positive and negative impact of technology on the environment.	I frequently check the security configuration and systems of my devices and/or of the applications I use. I know how to react if my computer is infected by a virus. I can configure or modify the firewall and security settings of my digital devices. I know how to encrypt e-mails or files. I can apply filters to spam e-mails. To avoid health problems (physical and psychological), I make reasonable use of information and communication technology. I have an informed stance on the impact of digital technologies on everyday life, online consumption, and the environment.
 Problem solving	I can find support and assistance when a technical problem occurs or when using a new device, program or application. I know how to solve some routine problems (e.g. close program, re-start computer, re-install/update program, check internet connection). I know that digital tools can help me in solving problems. I am also aware that they have their limitations. When confronted with a technological or non-technological problem, I can use the digital tools I know to solve it. I am aware that I need to update my digital skills regularly.	I can solve most of the more frequent problems that arise when using digital technologies. I can use digital technologies to solve (non-technical) problems. I can select a digital tool that suits my needs and assess its effectiveness. I can solve technological problems by exploring the settings and options of programmes or tools. I regularly update my digital skills. I am aware of my limits and try to fill my gaps.	I can solve almost all problems that arise when using digital technology. I can choose the right tool, device, application, software or service to solve (non-technical) problems. I am aware of new technological developments. I understand how new tools work. I frequently update my digital skills.

4. Ferrari, A. [2013]. **DIGCOMP: A Framework for Developing and Understanding Digital Competence in Europe.**

<http://ftp.jrc.es/EURdoc/JRC83167.pdf>

	A - Foundation	B- Intermediate	C- Advanced
Information	I can do some online searches through search engines. I know how to save or store files and content (e.g. texts, pictures, music, videos, and web pages). I know how to go back to the content I saved. I know that not all online information is reliable.	I can browse the internet for information and I can search for information online. I can select the appropriate information I find. I can compare different information sources. I know how to save, store or tag files, content and information and I have my own storing strategy. I can retrieve and manage the information and content I saved or stored.	I can use a wide range of strategies when searching for information and browsing on the Internet. I am critical about the information I find and I can cross-check and assess its validity and credibility. I can filter and monitor the information I receive. I can apply different methods and tools to organise files, content and information. I can deploy a set of strategies for retrieving and managing the content I or others have organised and stored. I know whom to follow in online information sharing places (e.g. micro-blogging).
Communication	I can interact with others using basic features of communication tools, (e.g. mobile phone, VoIP, chat or email). I know basic behaviour norms that apply when communicating with others using digital tools. I can share files and content with others through simple technological means. I know that technology can be used to interact with services and I passively use some. I can collaborate with others using traditional technologies. I am aware of the benefits and risks related to digital identity.	I can use several digital tools to interact with others using more advanced features of communication tools (e.g. mobile phone, VoIP, chat, email). I know the principles of online etiquette and I am able to apply them in my own context. I can participate in social networking sites and online communities, where I pass on or share knowledge, content and information. I can actively use some basic features of online services. I can create and discuss outputs in collaboration with others using simple digital tools. I can shape my online digital identity and keep track of my digital footprint.	I am engaged in the use of a wide range of tools for online communication (emails, chats, SMS, instant messaging, blogs, micro-blogs, SNS). I can apply the various aspects of online etiquette to different digital communication spaces and contexts. I have developed strategies to discover inappropriate behaviour. I can adopt digital modes and ways of communication that best fit the purpose. I can tailor the format and ways of communication to my audience. I can manage the different types of communication I receive. I can actively share information, content and resources with others through online communities, networks and collaboration platforms. I am actively participating in online spaces. I know how to get actively engaged in online participation and I can use several different online services. I frequently and confidently use several digital collaboration tools and means to collaborate with others in the production and sharing of resources, knowledge and content. I can manage several digital identities according to the context and purpose, I can monitor the information and data I produce through my online interaction, I know how to protect my digital reputation.
Content creation	I can produce simple digital content (e.g. text, or tables, or images, or audio, etc.). I can make basic changes to the content that others have produced. I can modify some simple function of software and applications (apply basic settings). I know that some of the content I find can be covered by copyright.	I can produce digital content in different formats (e.g. text, tables, images, audio, etc.). I can edit, refine and modify the content I or others have produced. I have basic knowledge of the differences between copyright, copyleft and creative commons and I can apply some licences to the content I create. I can apply several modifications to software and applications (advanced settings, basic programme modifications).	I can produce digital content in different formats, platforms and environments. I can use a variety of digital tools for creating original multimedia outputs. I can mash-up existing items of content to create new ones. I know how different types of licences apply to the information and resources I use and create. I can interfere with (open) programmes, modify, change or write source code, I can code and programme in several languages, I understand the systems and functions that are behind programmes.
Safety	I can take basic steps to protect my devices (for instance: by using anti-viruses, passwords, etc.). I know that I can only share certain types of information about myself or others in online environments. I know how to avoid cyber bullying. I know that technology can affect my health, if misused. I take basic measures to save energy.	I know how to protect my digital devices, I update my security strategies. I can protect my and others online privacy. I have a general understanding of privacy issues and I have basic knowledge of how my data is collected and used. I know how to protect myself and others from cyber bullying. I understand the health risks associated with the use of technologies (from ergonomic aspects to addiction to technologies). I understand the positive and negative aspects of the use of technology on the environment.	I frequently update my security strategies. I can take action when the device is under threat. I often change the default privacy settings of online services to enhance my privacy protection. I have an informed and wide understanding of privacy issues and I know how my data is collected and used. I am aware of the correct use of technologies to avoid health problems. I know how to find a good balance between online and off-line worlds. I have an informed stance on the impact of technologies on everyday life, online consumption, and the environment.
Problem solving	I can ask for targeted support and assistance when technologies do not work or when using a new device, programme or application. I can use some technologies to solve routine tasks. I can make decisions when choosing a digital tool for a routine practice. I know that technologies and digital tools can be used for creative purposes and I can make some creative use of technologies. I have some basic knowledge, but I am aware of my limits when using technologies.	I can solve easy problems that arise when technologies do not work. I understand what technology can do for me and what it cannot. I can solve a non-routine task by exploring technological possibilities. I can select an appropriate tool according to the purpose and I can evaluate the effectiveness of the tool. I can use technologies for creative outputs and I can use technologies to solve problems. I collaborate with others in the creation of innovative and creative outputs, but I don't take the initiative. I know how to learn to do something new with technologies.	I can solve a wide-range of problems that arise from the use of technology. I can make informed decisions when choosing a tool, device, application, software or service for the task I am not familiar with. I am aware of new technological developments. I understand how new tools work and operate. I can critically evaluate which tool serves my purposes best. I can solve conceptual problems taking advantage of technologies and digital tools, I can contribute to knowledge creation through technological means, I can take part in innovative actions through the use of technologies. I proactively collaborate with others to produce creative and innovative outputs. I frequently update my digital competence needs.

- **Digital literacy rubrics: A proposal of a grid for analyzing the 10 flagship initiatives:**

During the teaching and learning activity, students learn digital literacy according to one of the following levels:

<p style="text-align: center;">Novice</p> <p style="text-align: center;">Awareness of Base Level Knowledge Explain</p>	<p style="text-align: center;">Intermediate</p> <p style="text-align: center;">Apply the concept somewhat Analyze</p>	<p style="text-align: center;">Advanced</p> <p style="text-align: center;">Intentional and Effective Application Transfer to a new situation</p>
<p>Describe relevant digital methods, technologies and/or media but has limited knowledge about underlying ideas and relevance to a broader context.</p> <p>Use relevant digital methods, technologies and/or media to solve academic and/or professional tasks and problems.</p> <p>Select and use relevant digital methods, technologies and/or media, but with limited adaptation to the specific context.</p> <p>On a general level describe issues related to security, safety and ethics in the use of digital technologies in educational, professional or civic contexts.</p>	<p>Describe a range of relevant digital methods, technologies and/or media and provides general explanations of underlying ideas, potentials and limitations to a broader context.</p> <p>Use and adjust relevant digital methods, technologies and/or media to solve academic and/or professional tasks and problems, but with limited critical reflection.</p> <p>Select and use relevant digital methods, technologies and/or media with some appropriate adaptation to the specific context.</p> <p>Reflect on issues related to security, safety and ethics in the use of digital technologies with direct coupling to the specific educational, professional and/or civic context.</p>	<p>Describe a range of relevant digital methods, technologies and/or media and provides critical explanations of underlying ideas, potentials and limitations to a broader context.</p> <p>Use and adjust relevant digital methods, technologies and/or media to solve academic and/or professional tasks and problems, and reflects critically on the results.</p> <p>Suggest and use relevant digital methods, technologies and/or media appropriately and argues critically about relevance, potentials and limitations.</p> <p>Reflect on issues related to security, safety and ethics in the use of digital technologies with direct coupling to the specific educational, professional and/or civic context and identifies appropriate preventive actions.</p>

Entrepreneurship



- **Definition from the literature**

1. Québec: Ministère de l'Éducation et de l'Enseignement supérieur. [2019].

Digital Competency Framework.

http://www.education.gouv.qc.ca/fileadmin/site_web/documents/ministere/Cadre-reference-competence-num-AN.pdf

Series of skills enabling an individual to enhance a concept, idea or product, take risks, and demonstrate initiative and leadership in order to complete a project.

2. European Commission. **EntreComp: The entrepreneurship competence framework.**

<https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/entrecomp-entrepreneurship-competence-framework>. Consulted on January 2020.

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.

3. Scott, C. [2015]. **The futures of learning 2: what kind of learning for the 21st century?** <https://unesdoc.unesco.org/ark:/48223/pf0000242996>

The ability to recognize and act on opportunities and the willingness to embrace risk and responsibility.

4. Salzano, C., Bahri, S., Haftendorn, K. [2006]. **Towards an entrepreneurial culture for the twenty-first century.**

<https://unesdoc.unesco.org/ark:/48223/pf0000147057>

Entrepreneurship is both a science and an art. Science must be learned through training, but managing an enterprise is an art, which could be learned, at least partially, by doing.

5. European Commission. [2019]. **Key competences for lifelong learning.**

<https://op.europa.eu/en/publication-detail/-/publication/297a33c8-a1f3-11e9-9d01-01aa75ed71a1/language-en>

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.

- **Proposal for a definition:**

Entrepreneurship is a series of skills enabling an individual to:

- enhance a concept, idea or product
- recognize and act on opportunities
- to be willing to embrace risk and responsibility
- to initiate and lead a project

in order to create social, economic and cultural value.

- **Existing grids/ rubrics :**

1. Cuenca, L., Alarcón, F., Boza, A., Fernández-Diego, M., Ruiz, L., Gordo, M., Poler, R., & Alemany, M. [2016]. **Rubric for the assessment the competence of innovation creativity and entrepreneurship in bachelor degree.** <https://doi.org/https://doi.org/10.14488/BJOPM.2016.v13.n1.a14>

		Learning out-look/Results	Level 1	Level 2	Level 3	Level 4
ENTREPRENEURSHIP	SI	Analysing an existing situation and identifying areas for improvement.	The analysis of the situation was limited and areas for improvement were not identified.	The analysis of the situation was appropriate but the identification of areas for improvement was limited.	The situation was appropriately analysed and the identification of areas for improvement was completed.	The analysis of the situation and the identification of areas for improvement was completed and increased over time.
	SI	Searching new procedures and methods in order to do things.	Current procedures and methods have been identified but new procedures weren't sought.	The search for new procedures and methods is limited, unfinished and lacks in detail.	The search for new procedures and quality methods shows an adequate quality.	New procedures and methods were searched that were constant in time and duplicable.
	SI	Thinking up new ways of doing things.	New ways to make things haven't been identified.	A new way of doing things has been described, although the pros and cons are not yet understood.	Two or more new ways of doing things have been described, but not all the pros and cons are understood as yet.	Two or more new ways of doing things are described and all the pros and cons are understood.

- European Commission. **EntreComp: The entrepreneurship competence framework.** <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/entrecomp-entrepreneurship-competence-framework> Consulted on January 2020.

Table 3: EntreComp Overview

Area	Competence	Levels of proficiency		
		Foundation	Intermediate	Advanced
Ideas and opportunities	Spotting opportunities	Learners ⁹ can find opportunities to generate value for others.	Learners can recognise opportunities to address needs that have not been met.	Learners can seize and shape opportunities to respond to challenges and create value for others.
	Creativity	Learners can develop multiple ideas that create value for others.	Learners can test and refine ideas that create value for others.	Learners can transform ideas into solutions that create value for others.
	Vision	Learners can imagine a desirable future.	Learners can build an inspiring vision that engages others.	Learners can use their vision to guide strategic decision-making.
	Valuing ideas	Learners can understand and appreciate the value of ideas.	Learners understand that ideas can have different types of value, which can be used in different ways.	Learners can develop strategies to make the most of the value generated by ideas.
	Ethical and sustainable thinking	Learners can recognise the impact of their choices and behaviours, both	Learners are driven by ethics and sustainability when making decisions	Learners act to make sure that their ethical and sustainability goals are
	Mobilising resources	Learners can find and use resources responsibly.	Learners can gather and manage different types of resources to create value for others.	Learners can define strategies to mobilise the resources they need to generate value for others.
	Financial and economic literacy	Learners can draw up the budget for a simple activity.	Learners can find funding options and manage a budget for their value-creating activity.	Learners can make a plan for the financial sustainability of a value-creating activity.
	Mobilising others	Learners can communicate their ideas clearly and with enthusiasm.	Learners can persuade, involve and inspire others in value-creating activities.	Learners can inspire others and get them on board for value-creating activities.
Into action	Taking the initiative	Learners are willing to have a go at solving problems that affect their communities.	Learners can initiate value-creating activities.	Learners can look for opportunities to take the initiative to add or create value.
	Planning and management	Learners can define the goals for a simple value-creating activity.	Learners can create an action plan, which identifies the priorities and milestones to achieve their goals.	Learners can refine priorities and plans to adjust to changing circumstances.
	Coping with uncertainty, ambiguity and risk	Learners are not afraid of making mistakes while trying new things.	Learners can evaluate the benefits and risks of alternative options and make choices that reflect their preferences.	Learners can weigh up risks and make decisions despite uncertainty and ambiguity.
	Working with others	Learners can work in a team to create value.	Learners can work together with a wide range of individuals and groups to create value.	Learners can build a team and networks based on the needs of their value-creating activity.
	Learning through experience	Learners can recognise what they have learnt through taking part in value-creating activities.	Learners can reflect and judge their achievements and failures and learn from these.	Learners can improve their abilities to create value by building on their previous experiences and interactions with others.

- **Entrepreneurship rubrics: A proposal of a grid for analyzing the 10 flagship initiatives:**

During the teaching and learning activity, students learn to practice entrepreneurship according to one of the following levels:

NB: Entrepreneurship is a complex topic. It relates to creativity, teamwork, collaboration

...Therefore, the analysis of the rubric could refer to the analysis of other rubrics.

<p style="text-align: center;">Novice</p> <p style="text-align: center;">Awareness of Base Level Knowledge Explain</p>	<p style="text-align: center;">Intermediate</p> <p style="text-align: center;">Apply the concept somewhat Analyze</p>	<p style="text-align: center;">Advanced</p> <p style="text-align: center;">Intentional and Effective Application Transfer to a new situation</p>
<p>Analyze of the situation in an appropriate way but the identification of areas for improvement is limited</p> <p>Small-scale search for new procedures and methods</p> <p>Describe a new way of doing things, although the pros and cons are not yet detailed.</p> <p>Replicate procedures and known problems.</p> <p>Find and use resources (material, non-material and digital resources) needed to turn ideas into actions</p>	<p>Analyze of the situation in an appropriate way and the identification of areas for improvement is completed.</p> <p>Search for new procedures, with an adequate level of quality.</p> <p>Describe two or more new ways of doing things, some pros and cons are analyzed.</p> <p>Know why knows procedures are suitable or not for a known or new problem.</p> <p>Gather and manage different type of resources to create value for others, make the most of resources</p>	<p>Comprehensively analyze the situation and continuously identify areas for improvement.</p> <p>Search for innovative procedures and methods.</p> <p>Identify and apply two or more new ways of doing things, based on pros and cons. Mobilize resources in support of an idea or project.</p> <p>Address an unknown procedure and new situations and make well-considered proposals</p> <p>Gather and manage all the resources needed at any stage (technical, legal, tax, digital, ...), define strategies to mobilize the resources needed to create value for others</p>

<p>Develop multiple ideas that create value for others</p>	<p>Test and refine ideas that create value for others and identify changes needed to achieve this</p>	<p>Transform ideas into solutions that create value for other, while identifying the variety of stakeholders affected and adopting their perspectives.</p>
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Global citizenship



- **Definition from the literature**

1. Fullan, M., Scott, G. [2014]. **Education Plus.**
<https://www.michaelfullan.ca/wp-content/uploads/2014/09/Education-Plus-A-Whitepaper-July-2014-1.pdf>

Thinking like global citizens, considering global issues based on a deep understanding of diverse values with genuine interest in engaging with others to solve complex problems that impact human and environmental sustainability.

2. UNESDOC. [2013]. **Measurement of Global Citizenship Education.**
<https://unesdoc.unesco.org/ark:/48223/pf0000229287?posInSet=1&queryId=66bdc4d6-5199-4853-99ef-291accf3bf0d> Consulted on January 2020.

Global citizenship education may focus on advancing core humanistic values such as tolerance towards others and respect for human dignity. It can also include inter-personal and intra-personal skills such as emotional awareness, communication, cooperation, problem-solving and conflict resolution abilities.

3. UNESCO. **Global Citizenship.** <https://education.vermont.gov/student-learning/content-areas/global-citizenship> Consulted on January 2020.

“Global Citizenship Education aims to empower learners to assume active roles to face and resolve global challenges and to become proactive contributors to a more peaceful, tolerant, inclusive and secure world”.

4. UNESCO MGIEP. **Global Citizenship Education.**
<https://mgiep.unesco.org/global-citizenship> Consulted on January 2020.

The underlying theme of global citizenship is to promote wellbeing not only of the self but also contributing to the welfare of others. When students who are future citizens develop skills that enable self-regulation and disposition, which promote social contribution, they engage in prosocial behavior.

5. Wing On Lee. [2016]. **From 21st century competences to global citizenship and global competences.**

<https://www.researchgate.net/publication/315882116> From 21st Century Competences to Global Citizenship and Global Competences

Notably, 21st century competences are also closely related to the skills and values pertinent for active citizenship in the global and interdependent society. For example, Merry M. Merryfield and Lisa Duty describe four skills necessary for active global citizenship. They include (1) skills in perspective consciousness to understand the points of views of people different from themselves; (2) intercultural competence to participate effectively in today's multicultural societies; (3) critical thinking skills, especially the ability to evaluate conflicting information; and (4) habits of mind compatible with civic responsibilities in a global age, such as to approach judgments and decisions with open-mindedness, anticipation of complexity, resistance to stereotyping, and develop the habit of asking – is this the common good.

6. Scott, C. [2015]. **The futures of learning 2: what kind of learning for the 21st century ?**

<https://unesdoc.unesco.org/ark:/48223/pf0000242996?posInSet=8&queryId=N-EXPLORE-78c56d38-7b91-40d7-9dc0-da36ffb41813>

Civic literacy is an essential skill that consists of knowing how to exercise the rights and obligations of citizenship at local, state and national level; developing the motivation, disposition and skills for civic participation; and understanding the local and global implications of civic issues (P21, 2007a, 2013).

7. Division of Student Affairs Texas A&M University. [2009]. **Ethical Leadership Outcomes Student Leader Learning Outcomes (SLLO) Project.**

<https://sllo.tamu.edu/wp-content/uploads/2018/07/Ethical-Leadership-OUTCOMES-7-28-09.pdf>

Citizenship – the quality of an individual's response to membership in a community • Do your share to make your organization better. Cooperate. Get involved. Stay informed. Be a good colleague. Respect authority. Protect the organizational environment.

- **Proposal for a definition:**

Thinking like global citizens, considering global issues based on a deep understanding of diverse values. Promoting wellbeing not only of the self but also contributing to the welfare of others. Knowing to exercise the rights and obligations of citizenship at local, state and national level.

• **Existing grids/ rubrics:**

1. Texas A&M University. [2009]. **Ethical Leadership Rubric Student Leader Learning Outcomes (SLO) Project.** <https://slo.tamu.edu/wp-content/uploads/2018/07/Ethical-Leadership-Rubric-7-28-09.pdf>

ETHICAL LEADERSHIP OUTCOMES	<u>NOVICE</u> Awareness or Base Level Knowledge	<u>TRANSITION</u> From Novice to Intermediate	<u>INTERMEDIATE</u> Apply the concept somewhat	<u>TRANSITION</u> From Intermediate to Advanced	<u>ADVANCED</u> Intentional and Effective Application
CITIZENSHIP	<ul style="list-style-type: none"> • Does not understand the norms and rules of the organization • Rarely seeks ways to improve the organization • Rarely cooperates with others to accomplish organizational responsibilities • Rarely follows the directives of organizational authorities • Rarely participates in organizational decisions and activities 		<ul style="list-style-type: none"> • Understands but does not always abide by the norms and rules of the organization • Sometimes seeks ways to improve the organization • Sometimes cooperates with others to accomplish organizational responsibilities • Sometimes follows the directives of organizational authorities • Sometimes participates in organizational decisions and activities 		<ul style="list-style-type: none"> • Understands and abides by the norms and rules of the organization • Actively seeks ways to improve the organization • Regularly cooperates with others to accomplish organizational responsibilities • Follows the directives of organizational authorities • Actively participates in organizational decisions and activities

2. [Shallenberger, D., McGury, S. It's New, But Is It Learning? Assessment Rubrics for Intercultural Learning Programs.](https://www.researchgate.net/figure/Global-Citizen-Rubric_tbl3_265316921) https://www.researchgate.net/figure/Global-Citizen-Rubric_tbl3_265316921

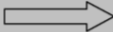
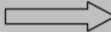



Excellent	Adequate	Insufficient
<p>Fully understands and expresses the interrelationships between his or her own life and the lives of those in other parts of the world</p> <p>Analyzes global priorities based on factors other than proximity to his or her home community (or communities) and demonstrates participation in a global community</p>	<p>Describes some connections between his or her own life and the lives of those in other parts of the world</p> <p>Demonstrates an understanding of the rationale and benefits of a global perspective in analyzing global issues</p>	<p>Articulates little or no connection between his or her own life and the lives of those in other parts of the world</p> <p>Proximity to his or her home community (or communities) overrides other considerations in evaluating and understanding global issues</p>

3. Pocahontas Ag Communication. **Demonstrate civic responsibility and global citizenship.**

<https://sites.google.com/site/pocahontasagcommunication/program-learning-outcomes/professional-skills-outcomes-10-15/plo-15-civic-global-responsibility> Consulted on January 2020.

Professional Knowledge and Skills Program Learning Outcomes 10-15					
Program Level Outcomes		Capstone 4	Milestone 3	Milestone 2	Benchmark 1
15	Demonstrate civic responsibility and global citizenship.	<i>Extension of Knowledge</i>			
		Connects and extends knowledge (facts, theories, etc.) from one's own academic study/field/discipline to civic engagement and to one's own participation in civic life, politics, and government.	Analyzes knowledge (facts, theories, etc.) from one's own academic study/field/discipline making relevant connections to civic engagement and to one's own participation in civic life, politics, and government.	Begins to connect knowledge (facts, theories, etc.) from one's own academic study/field/discipline to civic engagement and to one's own participation in civic life, politics, and government.	Begins to identify knowledge (facts, theories, etc.) from one's own academic study/field/discipline that is relevant to civic engagement and to one's own participation in civic life, politics, and government.
		<i>Civic Communication</i>			
		Tailors communication strategies to effectively express, listen, and adapt to others to establish relationships to further civic action.	Effectively communicates in civic context, showing ability to do all of the following: express, listen, and adapt ideas and messages based on others' perspectives.	Communicates in civic context, showing ability to do more than one of the following: express, listen, and adapt ideas and messages based on others' perspectives.	Communicates in civic context, showing ability to do one of the following: express, listen, and adapt ideas and messages based on others' perspectives.
		<i>Civic Contexts/ Structures</i>			
		Demonstrates ability and commitment to collaboratively work across and within community contexts and structures to achieve a civic aim.	Demonstrates ability and commitment to work actively within community contexts and structures to achieve a civic aim.	Demonstrates experience identifying intentional ways to participate in civic contexts and structures.	Experiments with civic contexts and structures, tries out a few to see what fits.

4. Texas A&M University. [2008]. **Citizenship Rubric Student Leader Learning Outcomes (SLLO) Project.** <https://slllo.tamu.edu/wp-content/uploads/2018/07/Citizenship-Rubric-8-28-08.pdf>

CITIZENSHIP OUTCOMES	NOVICE	TRANSITION	INTERMEDIATE	TRANSITION	ADVANCED
	Awareness or Base Level Knowledge Member/Volunteer 	From Novice to Intermediate	Apply the concept somewhat Conscientious Citizen 	From Intermediate to Advanced	Intentional and Effective Application Active Citizen
Ability to identify one's role within organization 	Focuses on self Attends meetings in consistently Does not participate Does not commit to organization		Attends meetings regularly but sparingly Focuses on relationship between self & organization Limits participation to mandatory events		Attends meetings regularly and speaks his/her mind on relevant topics Exhibits pride in being a member of organization Actively participates in most organization events Commits to pursuing leadership positions within organization Focuses on giving back to organization through personal strengths and talents
Develop behavior congruent with organizational mission 	Exhibits incongruent behavior outside of organization setting Possess beliefs and values that conflict with organization mission		Models pieces of congruent behavior in specific settings and situations (meetings, events, etc...)		Models congruent behavior within and outside of organizational setting Prioritizes organization in values and life choices Incorporates lessons from organization into their everyday life
Translate role within organization to larger community 	Notices (see, hear, read, etc.) their social topic in everyday life (on TV, radio, newspapers, etc.)		Actively searches out books and newspaper articles on relevant subject matters pertaining to the organization Seeks to understand relationship between organization & social issues		Discusses the organization's subject matter in an educated way to outside constituents including professors, classmates, friends and family

- **Global citizenship rubrics: A proposal of a grid for analyzing the 10 flagship initiatives:**

During the teaching and learning activity, students learn to practice global citizenship according to one of the following levels:

<p>Novice</p> <p>Awareness of Base Level Knowledge Explain</p>	<p>Intermediate</p> <p>Apply the concept somewhat Analyze</p>	<p>Advanced</p> <p>Intentional and Effective Application Transfer to a new situation</p>
<p>Describe a range of local/national/regional/global issues relevant to the specific educational/professional context.</p> <p>Use knowledge and procedures with basic awareness of the societal and cultural context.</p> <p>Act professionally in a given situation, but demonstrate modest sensitivity to societal and cultural dynamics.</p> <p>Adjust one’s own communication and behavior to the actual context, but demonstrate little flexibility and sensitivity to the dynamics of the situation.</p>	<p>Describe a range of local/national/regional/global issues relevant to the specific educational/professional context and relate the issues to relevant societal topics.</p> <p>Use knowledge and procedures with systematic and relevant awareness of the societal and cultural context.</p> <p>Act professionally in a given situation, and demonstrate the ability to adjust one’s own role to societal and cultural dynamics.</p> <p>Adjust one’s own communication and behavior to the actual context, and demonstrate flexibility and sensitivity to the dynamics of the situation.</p>	<p>Describe a range of local/national/regional/global issues relevant to the specific educational/professional context and relate the issues to relevant societal and cultural topics in a critical and reflective manner.</p> <p>Use knowledge and procedures with sensitive and critical awareness of the societal and cultural context.</p> <p>Act professionally in a given situation, and demonstrate the ability to adjust and reflect on one’s own role to societal and cultural dynamics.</p> <p>Adjust one’s own communication and behavior to the actual context, and demonstrate reflective and critical flexibility and sensitivity to the dynamics of the situation.</p>

Information literacy



- **Definition from the literature**

1. Association of American Colleges and Universities (AAC&U). [2009].

Information Literacy VALUE Rubric.

https://teaching.berkeley.edu/sites/default/files/value_rubric_packet.pdf

The ability to know when there is a need for information, to be able to identify, locate, evaluate, and effectively and responsibly use and share that information for the problem at hand.

2. Forest Woody Horton, Jr. [2007]. **Understanding Information Literacy: A Primer.**

<https://unesdoc.unesco.org/ark:/48223/pf0000157020/PDF/157020eng.pdf.multi>

Set of skills, attitudes and knowledge necessary to know when information is needed to help solve a problem or make a decision, how to articulate that information need in searchable terms and language, then search efficiently for the information, retrieve it, interpret and understand it, organize it, evaluate its credibility and authenticity, assess its relevance, communicate it to others if necessary, then utilize it to accomplish bottom-line purposes; Information Literacy is closely allied to learning to learn, and to critical thinking, both of which may be established, formal educational goals, but too often are not integrated into curricula, syllabi and lesson plan outlines as discrete, teachable and learnable outcomes; sometimes the terms “Information Competency,” or “Information Fluency” or even other terms, are used in different countries, cultures or languages, in preference to the term Information Literacy.

3. European Commission. [2019]. **Key competences for lifelong learning.**

<https://op.europa.eu/en/publication-detail/-/publication/297a33c8-a1f3-11e9-9d01-01aa75ed71a1/language-en>

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.

- **Proposal for a definition:**

Set of skills, attitudes and knowledge necessary to:

- know when information is needed to help solve a problem or make a decision
- identify, articulate, evaluate, understand, interpret and use that information.





• **Existing grids/ rubrics:**

1. Association of American Colleges and Universities (AAC&U). [2009]. **Information Literacy VALUE Rubric.** https://teaching.berkeley.edu/sites/default/files/value_rubric_packet.pdf

	Capstone 4	Milestones		Benchmark 1
		3	2	
Determine the Extent of Information Needed	Effectively defines the scope of the research question or thesis. Effectively determines key concepts. Types of information (sources) selected directly relate to concepts or answer research question.	Defines the scope of the research question or thesis completely. Can determine key concepts. Types of information (sources) selected relate to concepts or answer research question.	Defines the scope of the research question or thesis incompletely (parts are missing, remains too broad or too narrow, etc.). Can determine key concepts. Types of information (sources) selected partially relate to concepts or answer research question.	Has difficulty defining the scope of the research question or thesis. Has difficulty determining key concepts. Types of information (sources) selected do not relate to concepts or answer research question.
Access the Needed Information	Accesses information using effective, well-designed search strategies and most appropriate information sources.	Accesses information using variety of search strategies and some relevant information sources. Demonstrates ability to refine search.	Accesses information using simple search strategies, retrieves information from limited and similar sources.	Accesses information randomly, retrieves information that lacks relevance and quality.
Evaluate Information and its Sources Critically	Thoroughly (systematically and methodically) analyzes own and others' assumptions and carefully evaluates the relevance of contexts when presenting a position.	Identifies own and others' assumptions and several relevant contexts when presenting a position.	Questions some assumptions. Identifies several relevant contexts when presenting a position. May be more aware of others' assumptions than one's own (or vice versa).	Shows an emerging awareness of present assumptions (sometimes labels assertions as assumptions). Begins to identify some contexts when presenting a position.
Use Information Effectively to Accomplish a Specific Purpose	Communicates, organizes and synthesizes information from sources to fully achieve a specific purpose, with clarity and depth	Communicates, organizes and synthesizes information from sources. Intended purpose is achieved.	Communicates and organizes information from sources. The information is not yet synthesized, so the intended purpose is not fully achieved.	Communicates information from sources. The information is fragmented and/ or used inappropriately (misquoted, taken out of context, or incorrectly paraphrased, etc.), so the intended purpose is not achieved.
Access and Use Information Ethically and Legally	Students use correctly all of the following information use strategies (use of citations and references; choice of paraphrasing, summary, or quoting; using information in ways that are true to original context; distinguishing between common knowledge and ideas requiring attribution) and demonstrate a full understanding of the ethical and legal restrictions on the use of published, confidential, and/ or proprietary information.	Students use correctly three of the following information use strategies (use of citations and references; choice of paraphrasing, summary, or quoting; using information in ways that are true to original context; distinguishing between common knowledge and ideas requiring attribution) and demonstrates a full understanding of the ethical and legal restrictions on the use of published, confidential, and/ or proprietary information.	Students use correctly two of the following information use strategies (use of citations and references; choice of paraphrasing, summary, or quoting; using information in ways that are true to original context; distinguishing between common knowledge and ideas requiring attribution) and demonstrates a full understanding of the ethical and legal restrictions on the use of published, confidential, and/ or proprietary information.	Students use correctly one of the following information use strategies (use of citations and references; choice of paraphrasing, summary, or quoting; using information in ways that are true to original context; distinguishing between common knowledge and ideas requiring attribution) and demonstrates a full understanding of the ethical and legal restrictions on the use of published, confidential, and/ or proprietary information.

2. European Commission. **Digital competences.**
<https://europass.cedefop.europa.eu/resources/digital-competences> Consulted
 on December 2019.

Digital competences - Self-assessment grid

	Basic User	Independent user	Proficient user
 Information processing	I can look for information online using a search engine. I know not all online information is reliable. I can save or store files or content (e.g. text, pictures, music, videos, web pages) and retrieve them once saved or stored.	I can use different search engines to find information. I use some filters when searching (e.g. searching only images, videos, maps). I compare different sources to assess the reliability of the information I find. I classify the information in a methodical way using files and folders to locate these easier. I do backups of information or files I have stored.	I can use advanced search strategies (e.g. using search operators) to find reliable information on the internet. I can use web feeds (like RSS) to be updated with content I am interested in. I can assess the validity and credibility of information using a range of criteria. I am aware of new advances in information search, storage and retrieval. I can save information found on the internet in different formats. I can use cloud information storage services.
 Communication	I can communicate with others using mobile phone, Voice over IP (e.g. Skype) e-mail or chat – using basic features (e.g. voice messaging, SMS, send and receive e-mails, text exchange). I can share files and content using simple tools. I know I can use digital technologies to interact with services (as governments, banks, hospitals). I am aware of social networking sites and online collaboration tools. I am aware that when using digital tools, certain communication rules apply (e.g. when commenting, sharing personal information).	I can use advanced features of several communication tools (e.g. using Voice over IP and sharing files). I can use collaboration tools and contribute to e.g. shared documents/files someone else has created. I can use some features of online services (e.g. public services, e-banking, online shopping). I pass on or share knowledge with others online (e.g. through social networking tools or in online communities). I am aware of and use the rules of online communication ("netiquette").	I actively use a wide range of communication tools (e-mail, chat, SMS, instant messaging, blogs, micro-blogs, social networks) for online communication. I can create and manage content with collaboration tools (e.g. electronic calendars, project management systems, online proofing, online spreadsheets). I actively participate in online spaces and use several online services (e.g. public services, e-banking, online shopping). I can use advanced features of communication tools (e.g. video conferencing, data sharing, application sharing).
 Content creation	I can produce simple digital content (e.g. text, tables, images, audio files) in at least one format using digital tools. I can make basic editing to content produced by others. I know that content can be covered by copyright. I can apply and modify simple functions and settings of software and applications that I use (e.g. change default settings).	I can produce complex digital content in different formats (e.g. text, tables, images, audio files). I can use tools/editors for creating web page or blog using templates (e.g. WordPress). I can apply basic formatting (e.g. insert footnotes, charts, tables) to the content I or others have produced. I know how to reference and reuse content covered by copyright. I know the basics of one programming language.	I can produce or modify complex, multimedia content in different formats, using a variety of digital platforms, tools and environments. I can create a website using a programming language. I can use advanced formatting functions of different tools (e.g. mail merge, merging documents of different formats, using advanced formulas, macros). I know how to apply licences and copyrights. I can use several programming languages. I know how to design, create and modify databases with a computer tool.
 Safety	I can take basic steps to protect my devices (e.g. using anti-viruses and passwords). I know that not all online information is reliable. I am aware that my credentials (username and password) can be stolen. I know I should not reveal private information online. I know that using digital technology too extensively can affect my health. I take basic measures to save energy.	I have installed security programmes on the device(s) that I use to access the Internet (e.g. antivirus, firewall). I run these programmes on a regular basis and I update them regularly. I use different passwords to access equipment, devices and digital services and I modify them on a periodic basis. I can identify the websites or e-mail messages which might be used to scam. I can identify a phishing e-mail. I can shape my online digital identity and keep track of my digital footprint. I understand the health risks associated with the use of digital technology (e.g. ergonomics, risk of addiction). I understand the positive and negative impact of technology on the environment.	I frequently check the security configuration and systems of my devices and/or of the applications I use. I know how to react if my computer is infected by a virus. I can configure or modify the firewall and security settings of my digital devices. I know how to encrypt e-mails or files. I can apply filters to spam e-mails. To avoid health problems (physical and psychological), I make reasonable use of information and communication technology. I have an informed stance on the impact of digital technologies on everyday life, online consumption, and the environment.
 Problem solving	I can find support and assistance when a technical problem occurs or when using a new device, program or application. I know how to solve some routine problems (e.g. close program, re-start computer, re-install/update program, check internet connection). I know that digital tools can help me in solving problems. I am also aware that they have their limitations. When confronted with a technological or non-technological problem, I can use the digital tools I know to solve it. I am aware that I need to update my digital skills regularly.	I can solve most of the more frequent problems that arise when using digital technologies. I can use digital technologies to solve (non-technical) problems. I can select a digital tool that suits my needs and assess its effectiveness. I can solve technological problems by exploring the settings and options of programmes or tools. I regularly update my digital skills. I am aware of my limits and try to fill my gaps.	I can solve almost all problems that arise when using digital technology. I can choose the right tool, device, application, software or service to solve (non-technical) problems. I am aware of new technological developments. I understand how new tools work. I frequently update my digital skills.

- **Information Literacy rubrics: A proposal of a grid for analyzing the 10 flagship initiatives:**

During the teaching and learning activity, students learn information literacy according to one of the following levels:

<p>Novice</p> <p>Awareness of Base Level Knowledge Explain</p>	<p>Intermediate</p> <p>Apply the concept somewhat Analyze</p>	<p>Advanced</p> <p>Intentional and Effective Application Transfer to a new situation</p>
<p>Define the scope of the research question or hypothesis incompletely.</p> <p>Know not all information is reliable.</p> <p>Look for information online using a search engine.</p> <p>Knowledge of vocabulary, functional grammar and the functions of language.</p> <p>Question some assumptions. Identify several relevant contexts when presenting a position.</p>	<p>Define the scope of the research question or hypothesis completely.</p> <p>Compare different sources to access the reliability of the information.</p> <p>Use different search engines to find information. Use some filters when searching.</p> <p>Awareness of the main types of verbal interaction, a range of literacy and non-literacy texts, and the main features of different styles and registers of language.</p> <p>Identify own and others' assumptions and several relevant contexts when presenting a position.</p>	<p>Effectively define the scope of the research question or hypothesis / assumption.</p> <p>Assess the validity and credibility of information using a range of criteria.</p> <p>Use advanced search strategies to find reliable information.</p> <p>Systematically and methodically analyze own and others' assumptions and carefully evaluate the relevance of contexts when presenting a position.</p>

<p>Communicate, organize information from sources. The information is not yet synthesized, so the intended purpose is not fully achieved.</p> <p>Communicate both orally and in writing a variety of situation.</p>	<p>Communicate, organize and synthesize information from sources. Intended purpose is achieved.</p> <p>Adapt their own communication to the requirements of the situation.</p>	<p>Communicate, organize and synthesize information from sources to fully achieve a specific purpose, with clarity and depth.</p> <p>Ability to distinguish and use different types of sources, 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.</p>
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Interdisciplinarity



- **Definition from the literature**

1. University College London. **More about interdisciplinarity.**
<https://www.ucl.ac.uk/basc/prospective/faq/interdisciplinarity> Consulted on January 2020.

Interdisciplinary means 'combining subjects together in new ways.' Literally, interdisciplinary means 'working between different academic disciplines.'

2. Warwick International Higher Education Academy. **About interdisciplinarity.**
https://warwick.ac.uk/fac/cross_fac/academy/keythemes/interdisciplinarity/
Consulted on January 2020.

Interdisciplinarity is the combining of methods and insights of two or more academic disciplines into the pursuit of a common task, such as a research project. It is typically characterised by the crossing of 'traditional boundaries' between academic disciplines or schools of thought to address new and emerging issues.

Often, interdisciplinarity is applied in cases where traditional disciplines are unable to address the problem, such as women's studies or sustainability. It can likewise be applied to complex subjects that can only be understood by combining the perspectives of two or more fields.

3. Aarts E., Valcke, P., Wilthagen, T. [2018]. **A Time for Interdisciplinarity.**
<https://www.tilburguniversity.edu/sites/tiu/files/download/Impact%20program%20Essay%20Time%20for%20Interdisciplinarity.pdf>

Interdisciplinarity is a noun describing the interaction of two or more different disciplines. This interaction may range from simple communication of ideas to the mutual integration of organizing concepts, methodology, procedures, epistemology, terminology, data and terms organized into a common effort on a common problem with continuous intercommunication among the participants from the different disciplines.

4. Klein, Newell. [1998]. **Defining "Interdisciplinarity"**.
<https://sites.google.com/a/ualberta.ca/rick-szostak/research/about-interdisciplinarity/definitions/defining-instrumental-interdisciplinarity>

A process of answering a question, solving a problem, or addressing a topic that is too broad or complex to be dealt with adequately by a single discipline or profession... [It] draws on disciplinary perspectives and integrates their insights through construction of a more comprehensive perspective. (p. 393-4)

5. Sweetman, F. [2019]. **Exploring interdisciplinarity studies: a reconstructed curricular approach to the development of a humanities course emphasizing conceptual intergration and synthesis of disciplinary concepts.**
https://opus.uleth.ca/bitstream/handle/10133/5560/SWEETMAN_FLEUR_MED_2019.pdf?sequence=3&isAllowed=y

Interdisciplinary refers to a knowledge view and curriculum approach that consciously applies methodology and language from more than one discipline to examine a central theme, issue, problem, topic or experience.

- **Proposal for a definition:**

Interdisciplinarity is the interaction of two or more existing disciplines. It is a process of answering a question, solving a problem, or addressing a topic that is too broad or complex to be dealt adequately by a single discipline.

• **Existing grids/ rubrics :**

1. Spelt, E. [2015]. **Teaching and learning of interdisciplinarity thinking in higher education in engineering.** <https://edepot.wur.nl/358332>

Table 5.7 Initial rubric on the development of competence in IDT

Category of subskill	An individual competent in IDT:
Having knowledge of disciplines	<ul style="list-style-type: none"> - asks open questions to understand the reasoning involved in disciplines - draws tables or figures showing the relevant disciplinary knowledge for the particular research purpose
Having knowledge of disciplinary paradigms	<ul style="list-style-type: none"> - distinguishes differences and similarities between disciplinary perspectives and knowledge elements - explains the disciplinary perspectives that are used to interpret the knowledge elements
Having knowledge of interdisciplinarity	<ul style="list-style-type: none"> - explains on a meta-level the interdisciplinary approach that was taken in order to achieve the interdisciplinary research purpose
Having higher-order cognitive skills	<ul style="list-style-type: none"> - shows creativity in making meaningful connections between the relevant disciplinary knowledge with a view to producing a cognitive advancement - tests the plausibility of the connections and the sufficiency of the cognitive advancement
Having communication skills	<ul style="list-style-type: none"> - is able to communicate the advancement in understanding to disciplinarians and interdisciplinarians - is able to communicate how the knowledge connections were made as well as their benefits and shortcomings

IDT = Interdisciplinarity thinking

2. Spelt, E. [2015]. **Teaching and learning of interdisciplinarity thinking in higher education in engineering.** <https://edepot.wur.nl/358332>

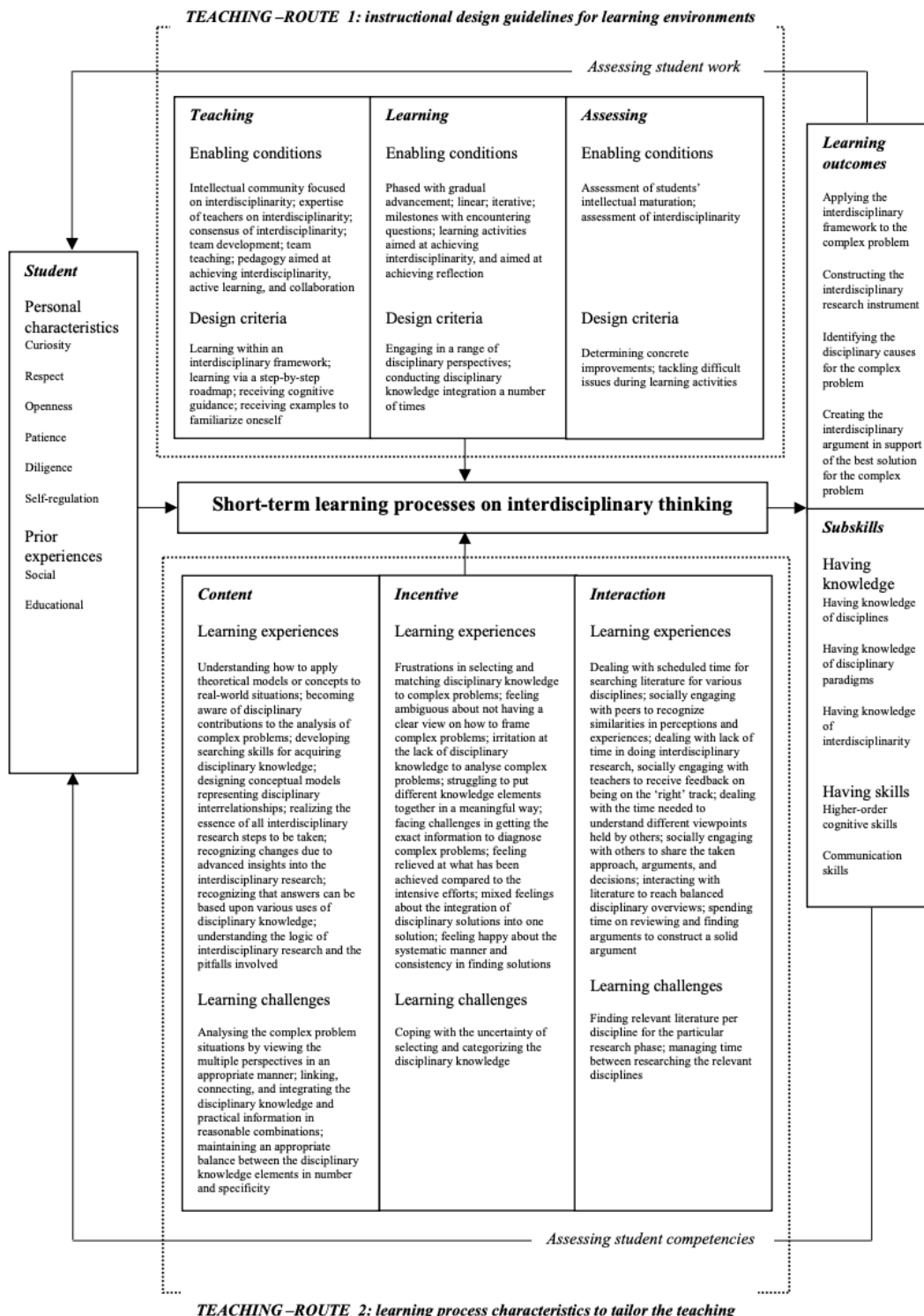


Figure 6.6 Conceptual framework on teaching and learning aspects for IDT

Content: learning experiences

- Understanding how to apply theoretical models or concepts to real-world situations,
- becoming aware of disciplinary contributions to the analysis of complex problems,
- developing searching skills for acquiring disciplinary knowledge,
- designing conceptual models representing disciplinary interrelationships,
- realizing the essence of all interdisciplinary research steps to be taken,
- recognizing changes due to advanced insights into the interdisciplinary research,
- recognizing that answers can be based upon various uses of disciplinary knowledge,
- understanding the logic of interdisciplinary research and the pitfalls involved

Content: learning challenges

- Analyzing the complex problem situations by viewing the multiple perspectives in an appropriate manner,
- linking, connecting, and integrating the disciplinary knowledge and practical information in reasonable combinations,
- maintaining an appropriate balance between the disciplinary knowledge elements in number and specificity

Incentive: learning experiences

- Frustrations in selecting and matching disciplinary knowledge to complex problems,
- feeling ambiguous about not having a clear view on how to frame complex problems,
- irritation at the lack of the disciplinary knowledge to analyze complex problems,
- struggling to put different knowledge elements together in a meaningful way,
- facing challenges in getting the exact information to diagnose complex problems,
- feeling relieved at what has been achieved compared to the intensive efforts,
- mixed feelings about the integration of disciplinary solutions into one solution,
- feeling happy about the systematic manner and consistency in finding solutions

Incentive: learning challenges

- coping with the uncertainty of selecting and categorizing the disciplinary knowledge

Interaction: learning experiences

- Dealing with scheduled time for searching literature for various disciplines,
- socially engaging with peers to recognize similarities in perceptions and experiences,
- dealing with lack of time in doing interdisciplinary research,
- socially engaging with teachers to receive feedback on being on the 'right' track or not,
- dealing with the time needed to understand different viewpoints held by others,
- socially engaging with others to share the taken approach, arguments, and decisions,
- interacting with literature to reach balanced disciplinary overviews,
- spending time on reviewing and finding arguments to construct a solid argument

Interaction: learning challenges

- Finding relevant literature per discipline for the particular research phase; managing time between researching the relevant disciplines
-

3. De Greef, L., Post, G., Vink, C., Wenting, L. [2017]. **Designing interdisciplinary education: a practical handbook for university.** https://www.degruyter.com/view/title/543343?tab_body=toc

- The student is able to ask open questions to understand the reasoning involved in disciplines.
 - The student is able to draw a table or figure showing the relevant disciplinary knowledge for the particular research purpose.
 - The student is able to explain the disciplinary perspectives that are used to interpret the knowledge elements.
 - The student is able to make a meaningful and creative connection between relevant disciplinary insights and to produce a more comprehensive understanding or solution.
 - The student is able to communicate the advancement in understanding to disciplinarians and interdisciplinarians.
 - The student is able to communicate how the knowledge connections were made as well as their benefits and shortcomings.
-

- **Interdisciplinarity rubrics: A proposal of a grid for analyzing the 10 flagship initiatives:**

During the teaching and learning activity, students learn to practice interdisciplinarity according to one of the following levels:

<p style="text-align: center;">Novice</p> <p style="text-align: center;">Awareness of Base Level Knowledge Explain</p>	<p style="text-align: center;">Intermediate</p> <p style="text-align: center;">Apply the concept somewhat Analyze</p>	<p style="text-align: center;">Advanced</p> <p style="text-align: center;">Intentional and Effective Application Transfer to a new situation</p>
<p>Ask open questions to understand the reasoning involved in the disciplines</p> <p>Presents examples, facts, or theories from more than one field of study or perspective</p> <p>Uses skills, abilities, theories, or methodologies gained in one situation in a new situation to contribute to understanding of problems or issues.</p> <p>Use a format, language, graph, visual representation, ... that connect in a basic way relevant disciplinary knowledge for the particular purpose</p>	<p>Explain the disciplinary perspectives that are used to interpret the knowledge elements</p> <p>Connects examples, facts, or theories from more than one field of study or perspective</p> <p>Adapts and applies skills, abilities, theories, or methodologies gained in one situation to new situations to solve problems or explore issues</p> <p>Use a format, language, graph, visual representation, ... that explicitly connect content and form and demonstrates awareness of purpose</p>	<p>Make meaningful and creative connection between relevant disciplinary insights and to produce a more comprehensive understanding or solution</p> <p>Creates wholes out of multiple parts (synthesizes) or draws conclusions by combining examples, facts, or theories from more than one field of study or perspective</p> <p>Adapts and applies, independently, skills, abilities, theories, or methodologies gained in one situation to new situations to solve difficult problems or explore complex issues in original ways.</p> <p>Use a format, language, graph, visual representation, ... in ways that enhance meaning, making clear the interdependence of language and meaning, thought, and expression.</p>

<p>Demonstrate an ability to apply disciplinary concept and language to a given problem and define the limitation of them.</p>	<p>Describe an awareness and sensitivity towards the limitation and difficulty of language and context.</p>	<p>Communicate how the knowledge connections we made as well as their benefits and shortcoming</p> <p>Demonstrate an ability to comment ideas and concepts across disciplinary boundaries.</p>
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(Inter)Cultural understanding



- **Definition from the literature**

1. Institute for the Future for the University of Phoenix Research Institute. [2011]. **Future Work Skills 2020.** http://www.iftf.org/uploads/media/SR-1382A_UPRI_future_work_skills_sm.pdf

Ability to operate in different cultural settings.

Cross-cultural competency will become an important skill for all workers, not just those who have to operate in diverse geographical environments. Organizations increasingly see diversity as a driver of innovation. Research now tells us that what makes a group truly intelligent and innovative is the combination of different ages, skills, disciplines, and working and thinking styles that members bring to the table.

Scott E. Page, professor and director of the Center of the Study of Complex Systems at the University of Michigan has demonstrated that groups displaying a range of perspectives and skill levels outperform like-minded experts. He concludes that "progress depends as much on our collective differences as it does on our individual IQ scores." [...].

2. OECD. [2016]. **Global competency for an inclusive world.** <http://globalcitizen.nctu.edu.tw/wp-content/uploads/2016/12/2.-Global-competency-for-an-inclusive-world.pdf>

Intercultural knowledge and understanding can be defined as knowledge and understanding of intercultural interactions and culture. It involves knowledge about one's own culture, other cultures, and the similarities and differences between cultures. Knowledge about cultures without understanding adds little value. One can know, and continue to judge and dismiss superficially (Williams-Gualandi, 2015). Acquiring intercultural understanding means recognizing that one's own perspective is shaped by multiple influences (e.g., culture, religion, gender, socio-economic status, education), as a way to develop an understanding of other people's perspectives, to distinguish between unique and common qualities, and to understand how these different perspectives might relate in an intercultural context (Doscher, 2012). To understand another's values is not necessarily to accept them. But to see through 'another cultural filter' (Fennes and Hapgood, 1997) may be an opportunity to deepen and inflect one's own values.

3. Rollins College. **Intercultural Knowledge Competency Rubric.** <https://www.stetson.edu/administration/career/media/Rollins%20College%20Intercultural%20Knowledge%20Competency%20Rubric.pdf> Consulted on January 2020.

Intercultural Knowledge and Competence is " a set of cognitive, affective, and behavioral skills and characteristics that support effective and appropriate interaction in a variety of cultural contexts."

4. The University of British Columbia Blog. [2015]. **What does 'Intercultural Understanding' actually mean?**
<https://blogs.ubc.ca/interculturalu/2015/07/15/what-does-intercultural-understanding-actually-mean/>

An understanding of the social **positions, practices** and **power relations** of sociocultural difference understood by individuals or groups within a society.

5. European Commission. [2018]. **Key Competences for Lifelong Learning.**
<https://op.europa.eu/en/publication-detail/-/publication/297a33c8-a1f3-11e9-9d01-01aa75ed71a1/language-en>

Competence in cultural awareness and expression involves having an understanding of 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.

- **Proposal for a definition:**

Intercultural understanding is the knowledge and understanding of intercultural interactions and sociocultural difference by individuals or groups within a society. It involves knowledge about one's own culture, other cultures, and the similarities and differences between cultures.

Acquiring intercultural understanding means recognizing that one's own perspective is shaped by multiple influences and supports effective and appropriate interaction in a variety of cultural contexts.

- **Existing grids/rubrics:**

1. Association of American Colleges and Universities (AAC&U). [2009].

Intercultural Knowledge and Competence VALUE Rubric.

https://www.umass.edu/oapa/sites/default/files/pdf/tools/rubrics/intercultural_knowledge_and_competence_value_rubric.pdf

	Capstone 4	Milestones		Benchmark 1
		3	2	
Knowledge <i>Cultural self-awareness</i>	Articulates insights into own cultural rules and biases (e.g. seeking complexity; aware of how her/his experiences have shaped these rules, and how to recognize and respond to cultural biases, resulting in a shift in self-description.)	Recognizes new perspectives about own cultural rules and biases (e.g. not looking for sameness; comfortable with the complexities that new perspectives offer.)	Identifies own cultural rules and biases (e.g. with a strong preference for those rules shared with own cultural group and seeks the same in others.)	Shows minimal awareness of own cultural rules and biases (even those shared with own cultural group(s)) (e.g. uncomfortable with identifying possible cultural differences with others.)
Knowledge <i>Knowledge of cultural worldview frameworks</i>	Demonstrates sophisticated understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices.	Demonstrates adequate understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices.	Demonstrates partial understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices.	Demonstrates surface understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices.
Skills <i>Empathy</i>	Interprets intercultural experience from the perspectives of own and more than one worldview and demonstrates ability to act in a supportive manner that recognizes the feelings of another cultural group.	Recognizes intellectual and emotional dimensions of more than one worldview and sometimes uses more than one worldview in interactions.	Identifies components of other cultural perspectives but responds in all situations with own worldview.	Views the experience of others but does so through own cultural worldview.
Skills <i>Verbal and nonverbal communication</i>	Articulates a complex understanding of cultural differences in verbal and nonverbal communication (e.g., demonstrates understanding of the degree to which people use physical contact while communicating in different cultures or use direct/indirect and explicit/implicit meanings) and is able to skillfully negotiate a shared understanding based on those differences.	Recognizes and participates in cultural differences in verbal and nonverbal communication and begins to negotiate a shared understanding based on those differences.	Identifies some cultural differences in verbal and nonverbal communication and is aware that misunderstandings can occur based on those differences but is still unable to negotiate a shared understanding.	Has a minimal level of understanding of cultural differences in verbal and nonverbal communication; is unable to negotiate a shared understanding.
Attitudes <i>Curiosity</i>	Asks complex questions about other cultures, seeks out and articulates answers to these questions that reflect multiple cultural perspectives.	Asks deeper questions about other cultures and seeks out answers to these questions.	Asks simple or surface questions about other cultures.	States minimal interest in learning more about other cultures.
Attitudes <i>Openness</i>	Initiates and develops interactions with culturally different others. Suspends judgment in valuing her/his interactions with culturally different others.	Begins to initiate and develop interactions with culturally different others. Begins to suspend judgment in valuing her/his interactions with culturally different others.	Expresses openness to most, if not all, interactions with culturally different others. Has difficulty suspending any judgment in her/his interactions with culturally different others, and is aware of own judgment and expresses a willingness to change.	Receptive to interacting with culturally different others. Has difficulty suspending any judgment in her/his interactions with culturally different others, but is unaware of own judgment.

2. Rollins College. **Intercultural Knowledge Competency Rubric.**

<https://www.stetson.edu/administration/career/media/Rollins%20College%20Intercultural%20Knowledge%20Competency%20Rubric.pdf>

Student will be able to...	Mastering 4	Advancing 3	Developing 2	Beginning 1
Develop Awareness of Own and Other Cultures	Asks complex questions about own and other cultures, and seeks out and articulates answers to these questions that reflect insights into the construction of varied cultural norms and biases (e.g. aware of how experiences shape these rules, and how to recognize and respond to cultural biases).	Asks deeper questions about own and other cultures, and seeks out answers to these questions that include varied perspectives about cultural norms and biases (e.g. not looking for sameness).	Asks simple or surface questions about own and other cultures and identifies only own cultural norms and biases (e.g. with a strong preference for norms of own cultural group).	States minimal interest in learning more about own and other cultures and exhibits minimal awareness of cultural norms and biases (uncomfortable with identifying possible cultural differences).
Gain Knowledge About Culture(s)	Demonstrates sophisticated understanding of the complexity of elements important to members of a culture in relation to its history, values, politics, communication styles, economy, or beliefs, and practices.	Demonstrates adequate understanding of the complexity of elements important to members of a culture in relation to its history, values, politics, communication styles, economy, or beliefs, and practices.	Demonstrates partial understanding of the complexity of elements important to members of a culture in relation to its history, values, politics, communication styles, economy, or beliefs, and practices.	Demonstrates surface or limited understanding of the complexity of elements important to members of a culture in relation to its history, values, politics, communication styles, economy, or beliefs, and practices.
Engage and Empathize with Multiple Worldviews	Interprets experiences from the perspectives of own and more than one worldview and demonstrates ability to act in a supportive manner that recognizes the feelings of another group.	Recognizes intellectual and emotional dimensions of more than one worldview and sometimes uses more than one worldview in interactions with others.	Identifies components of other cultural perspectives but responds in all situations with own worldview.	Views the experience of others but does so through own cultural worldview.
Act with Open-mindedness Towards Other Cultures	Initiates and develops interactions with individuals from different cultures. Suspends judgment during personal interactions with culturally different others and sees value in the suspension of judgment	Begins to initiate and develop interactions with individuals from different cultures. Begins to suspend judgment during personal interactions with culturally different others and may see some value in the suspension of judgment.	Expresses openness to most, if not all, interactions with individuals from different cultures. Has difficulty suspending any judgment in personal interactions with culturally different others, is aware of own judgment, and expresses a willingness to change.	Is not open to interacting with individuals from different cultures. Has difficulty suspending any judgment in personal interactions with culturally different others, and may be unaware of own judgment.

3. Columbia Gorge Community College. **Intercultural Knowledge and Competence Scoring Rubric.**

<https://www.cgcc.edu/institutional-assessment/intercultural-knowledge-and-competence-scoring-rubric>

4	3	2	1	Not Demonstrated 0
Articulates insights into own cultural realities and biases (e.g. seeking complexity; aware of how her/ his experiences have shaped these rules, and how to recognize and respond to cultural biases, resulting in a shift in self-description.)	Recognizes new perspectives about own cultural realities and biases (e.g. not looking for sameness; comfortable with the complexities that new perspectives offer.)	Identifies own cultural realities and biases (e.g. with a strong preference for those rules shared with own cultural group and seeks the same in others.)	Shows minimal awareness of own cultural realities and biases (even those shared with own cultural group(s)) (e.g. uncomfortable with identifying possible cultural differences with others.)	Awareness of own cultural realities and biases (even those shared with own cultural group(s)) (e.g. uncomfortable with identifying possible cultural differences with others) not demonstrated.

During the teaching and learning activity, students learn (inter)cultural understanding according to one of the following levels:

<p style="text-align: center;">Novice</p> <p style="text-align: center;">Awareness of Base Level Knowledge Explain</p>	<p style="text-align: center;">Intermediate</p> <p style="text-align: center;">Apply the concept somewhat Analyze</p>	<p style="text-align: center;">Advanced</p> <p style="text-align: center;">Intentional and Effective Application Transfer to a new situation</p>
<p>Demonstrate partial understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices.</p> <p>Identify components of other cultural perspectives but respond in all situations with own worldview.</p> <p>Ask simple or surface questions about other cultures.</p> <p>Express openness to most, if not all, interactions with</p>	<p>Demonstrate adequate understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices.</p> <p>Recognize intellectual and emotional dimensions of more than one worldview and sometimes use more than one worldview in interactions with others.</p> <p>Ask deeper questions about other cultures and seek out answer to these questions.</p> <p>Begin to initiate and develop interactions with</p>	<p>Demonstrate sophisticated understanding of the complexity of elements important to members of another culture in relation to its history, values, politics, communication styles, economy, or beliefs and practices.</p> <p>Interpret intercultural experience from the perspectives of own and more than one worldview and demonstrate ability to act in a supportive manner that recognize the feelings of another cultural group.</p> <p>Ask complex questions about other cultures, seek out and articulates answer to these questions that reflect multiple cultural perspectives.</p> <p>Initiate and develop interactions with</p>

<p>individuals from different cultures. Have difficulty suspending any judgment in her/his interactions with culturally different others, and is aware of own judgment and expresses a willingness to change.</p>	<p>individuals from different cultures. Begin to suspend judgment in valuing her/his interactions with culturally different others.</p>	<p>individuals from different cultures. Suspend judgment in valuing her/his interactions with culturally different others.</p>
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Oral communication



- **Definition from the literature**

1. Association of American Colleges and Universities (AAC&U). [2009]. **Oral Communication VALUE Rubric.**
https://teaching.berkeley.edu/sites/default/files/value_rubric_packet.pdf

Oral communication is a prepared, purposeful presentation designed to increase knowledge, to foster understanding, or to promote change in the listeners' attitudes, values, beliefs, or behaviors.

2. European Erasmus + Programme. [2016-2019]. **RECTEC - Handbook Identifying transversal skills for employability and certifications.**
<http://rectec.ac-versailles.fr/>

USING ORAL COMMUNICATION

- Ability to interact with various interlocutors on less familiar subjects in more varied circumstances;
- Purpose of the interaction and variables of the communication situations: formal/informal, simple/complex, high/low stakes;
- Ability to choose appropriate content to the situation (what can be said or not depending on the situation).

3. Knezevic, D. **21st Century Skills: 6 C's of Education in Your Classroom.**
<http://blog.awwapp.com/6-cs-of-education-classroom/> Consulted on January 2020.

Communication is a skill of presenting information in a clear, concise and meaningful way. It also designates careful listening and articulating thoughts. Communication has various purposes: informing, instructing, motivating, and persuading.

4. De Paul University. **Bridging an Awareness Gap: Integrating Transferable Skills in Your Classroom.**
https://resources.depaul.edu/career-center/faculty-staff/Documents/TransferableSkillsBooklet_05.14.18.pdf Consulted on January 2020.

Speak clearly to convey messages in a calm and focused way. Articulate thoughts, ideas and messages in order to educate, influence or persuade.

5. RCampus.**iRubric: Oral Communication Rubric.**

<https://www.rcampus.com/rubricshowc.cfm?sp=yes&code=U8B49B&>

Consulted on January 2020.

Oral communication is a prepared, purposeful presentation designed to increase knowledge, to foster understanding, or to promote change in the listeners' attitudes, values, beliefs, or behaviors. Oral communication takes many forms. This rubric is specifically designed to evaluate oral presentations of a single speaker at a time and is best applied to live or video-recorded presentations. For panel presentations or group presentations, it is recommended that each speaker be evaluated separately. This rubric best applies to presentations of sufficient length such that a central message is conveyed, supported by one or more forms of supporting materials and includes a purposeful organization. An oral answer to a single question not designed to be structured into a presentation does not readily apply to this rubric.

- **Proposal for a definition:**

Communication is a skill of presenting information in a clear, concise and meaningful way. Articulate thoughts, ideas or messages in order to inform, educate, influence, motivate or persuade.

Oral communication is a prepared, purposeful presentation designed to increase knowledge, to foster understanding, or to promote change in the listeners' attitude, values, beliefs or behaviors. It requires an ability to choose an appropriate content to the situation and to interact with various interlocutors on less familiar subjects in varied circumstances.

• **Existing grids/ rubrics:**

1. Association of American Colleges and Universities (AAC&U). [2009]. **Oral Communication VALUE Rubric.**

https://teaching.berkeley.edu/sites/default/files/value_rubric_packet.pdf

	Capstone 4	Milestones		Benchmark 1
		3	2	
Organization	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is clearly and consistently observable and is skillful and makes the content of the presentation cohesive.	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is clearly and consistently observable within the presentation.	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is intermittently observable within the presentation.	Organizational pattern (specific introduction and conclusion, sequenced material within the body, and transitions) is not observable within the presentation.
Language	Language choices are imaginative, memorable, and compelling, and enhance the effectiveness of the presentation. Language in presentation is appropriate to audience.	Language choices are thoughtful and generally support the effectiveness of the presentation. Language in presentation is appropriate to audience.	Language choices are mundane and commonplace and partially support the effectiveness of the presentation. Language in presentation is appropriate to audience.	Language choices are unclear and minimally support the effectiveness of the presentation. Language in presentation is not appropriate to audience.
Delivery	Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation compelling, and speaker appears polished and confident.	Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation interesting, and speaker appears comfortable.	Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) make the presentation understandable, and speaker appears tentative.	Delivery techniques (posture, gesture, eye contact, and vocal expressiveness) detract from the understandability of the presentation, and speaker appears uncomfortable.
Supporting Material	A variety of types of supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make appropriate reference to information or analysis that significantly supports the presentation or establishes the presenter's credibility/ authority on the topic.	Supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make appropriate reference to information or analysis that generally supports the presentation or establishes the presenter's credibility/ authority on the topic.	Supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make appropriate reference to information or analysis that partially supports the presentation or establishes the presenter's credibility/ authority on the topic.	Insufficient supporting materials (explanations, examples, illustrations, statistics, analogies, quotations from relevant authorities) make reference to information or analysis that minimally supports the presentation or establishes the presenter's credibility/ authority on the topic.
Central Message	Central message is compelling (precisely stated, appropriately repeated, memorable, and strongly supported.)	Central message is clear and consistent with the supporting material.	Central message is basically understandable but is not often repeated and is not memorable.	Central message can be deduced, but is not explicitly stated in the presentation.

2. European Erasmus + Programme. [2016-2019]. **RECTEC - Handbook Identifying transversal skills for employability and certifications.**

<http://rectec.ac-versailles.fr/>

SKILLS DESCRIPTORS	AUTONOMY AND RESPONSIBILITY	GENERIC INDICATORS
CIRCLE 1 Communicates partially in a one-to-one exchange.	Participation in the interaction is limited to brief answers to the interlocutor's solicitations.	Answers to questions on familiar subjects are partial.
CIRCLE 2 Communicates on familiar subjects.	Ability to take initiative depends on their familiarity with the subject and the interlocutor's status.	Exchanges happen with known interlocutors and cover activities and objects related to one's daily activity.
CIRCLE 3 Communicates according to their needs in various situations.	Management of the exchanges is done autonomously with various interlocutors.	The array of possible exchanges covers multiple communication situations and interlocutors, known and unknown. Communication channels are varied.
CIRCLE 4 Adapts their way of communicating to the stakes.	Speech is used appropriately in multiples interactions including ones with high stakes.	Ways of saying things and questioning are adapted depending on the interlocutors—known and unknown—and the type of exchanges. Dealing with complex communication situations is achieved by the use of paraphrasing strategies (anonymization, generalization...).

NB: Circle 1 corresponds to a "novice" level while circle 4 refers to an advanced level.

3. RCampus.**iRubric: Oral Communication Rubric.**

<https://www.rcampus.com/rubricshowc.cfm?sp=yes&code=U8B49B&>

Consulted on January 2020.

Oral Presentation Rubric B			
	Excellent 10 pts	Proficient 8 pts	Basic 6 pts
Organization	<p>Excellent</p> <ul style="list-style-type: none"> -Specific introduction and conclusion -Sequenced material within the body -Cohesive presentation content 	<p>Proficient</p> <ul style="list-style-type: none"> -Specific introduction and conclusion -Sequenced material within the body -Cohesive presentation content 	<p>Basic</p> <ul style="list-style-type: none"> -Specific introduction and conclusion -Sequenced material within the body is inconsistent
Language	<p>Excellent</p> <ul style="list-style-type: none"> -Enhance the effectiveness of the presentation -Correct grammar -Appropriate to audience 	<p>Proficient</p> <ul style="list-style-type: none"> -Support the effectiveness of the presentation -Correct grammar -Appropriate to audience 	<p>Basic</p> <ul style="list-style-type: none"> -Not interesting -Partially support the effectiveness of the presentation -Correct grammar -Appropriate to audience
Delivery	<p>Excellent</p> <ul style="list-style-type: none"> -Good posture -Eye contact with the audience most of the time -Appropriate gesture and expression -Deliverance with confidence -Full group participation 	<p>Proficient</p> <ul style="list-style-type: none"> -Good posture -Frequent eye contact with the audience -Appropriate gesture and expression -Almost full group participation 	<p>Basic</p> <ul style="list-style-type: none"> -Intermittent good posture -Occasional eye contact with the audience -Appropriate gesture and expression -Partial group presentation
Content	<p>Excellent</p> <p>Student discuss the importance of variables Student describes in detail about their findings Students indicate what they have learnt</p>	<p>Proficient</p> <p>Student shows that they change there investigation but does not say why. Student outlines their finding Students show what they have learnt</p>	<p>Basic</p> <p>Student shows that they change there investigation but does not say why. Student do no outline there finding Student misconceptions are still seen</p>

4. Carnegie Mellon University. Teaching Excellence & Educational Innovation.

<https://www.cmu.edu/teaching/designteach/teach/rubrics.html> Consulted on January 2020.






Components	3-Sophisticated	2-Competent	1-Not yet Competent
<i>Organization</i>	Presentation is clear, logical, and organized. Listener can follow line of reasoning.	Presentation is generally clear and well organized. A few minor points may be confusing.	Organization is haphazard; listener can follow presentation only with effort. Arguments are not clear.
<i>Style</i>	Level of presentation is appropriate for the audience. Presentation is a planned conversation, paced for audience understanding. It is not a reading of a paper. Speaker is comfortable in front of the group and can be heard by all.	Level of presentation is generally appropriate. Pacing is sometimes too fast or too slow. Presenter seems slightly uncomfortable at times, and audience occasionally has trouble hearing him/her.	Aspects of presentation are too elementary or too sophisticated for audience. Presenter seems uncomfortable and can be heard only if listener is very attentive. Much of the information is read.
<i>Use of Communication Aids</i>	Communication aids enhance presentation. <ul style="list-style-type: none"> - The font on the visuals is readable. - Information is represented and organized to maximize audience comprehension. - Details are minimized so that main points stand out. 	Communication aids contribute to the quality of the presentation. <ul style="list-style-type: none"> - Font size is mostly readable. - Appropriate information is included. - Some material is not supported by visual aids. 	Communication aids are poorly prepared or used inappropriately. <ul style="list-style-type: none"> - Font size is too small to read. - Too much information is included. - Details or some unimportant information is highlighted, and may confuse the audience.

<p>Content Depth of Content</p>	<p>Speaker provides accurate and complete explanations of key concepts and theories, drawing on relevant literature. Applications of theory illuminate issues. Listeners gain insights.</p>	<p>For the most part, explanations of concepts and theories are accurate and complete. Some helpful applications are included.</p>	<p>Explanations of concepts and/or theories are inaccurate or incomplete. Little attempt is made to tie theory to practice. Listeners gain little from the presentation.</p>
<p>Accuracy of Content</p>	<p>Information (names, facts, etc) included in the presentation is consistently accurate.</p>	<p>No significant errors are made. Listeners recognize any errors to be the result of nervousness or oversight.</p>	<p>Enough errors are made to distract a knowledgeable listener. Some information is accurate but the listener must determine what information is reliable.</p>
<p>Use of Language</p> <p>Grammar and Word Choice</p>	<p>Sentences are complete and grammatical. They flow together easily. Words are well chosen; they express the intended meaning precisely.</p>	<p>Sentences are complete and grammatical for the most part. They flow together easily. With some exceptions, words are well chosen and precise.</p>	<p>Listeners can follow presentation, but they are distracted by some grammatical errors and use of slang. Some sentences are halting, incomplete, or vocabulary is limited or inappropriate.</p>
<p>Freedom from Bias (e.g., sexism, racism, heterosexism, agism, etc.,)</p>	<p>Both oral language and body language are free from bias.</p>	<p>Oral language and body language are free from bias with one or two minor exceptions.</p>	<p>Oral language and/or body language includes some identifiable bias. Some listeners will be offended.</p>
<p>Responsiveness to Audience</p> <p>Verbal Interaction</p>	<p>Consistently clarifies, restates, and responds to questions. Summarizes when needed.</p>	<p>Generally responsive to audience questions and needs. Misses some opportunities for interaction.</p>	<p>Responds to questions inadequately.</p>
<p>Body Language</p>	<p>Body language reflects comfort interacting with audience.</p>	<p>Body language reflects some discomfort interacting with audience.</p>	<p>Body language reveals a reluctance to interact with audience.</p>

5. European Commission. **Digital competences.**

<https://europass.cedefop.europa.eu/resources/digital-competences> Consulted on January 2020.

Digital competences - Self-assessment grid

	Basic User	Independent user	Proficient user
 <p>Information processing</p>	<p>I can look for information online using a search engine. I know not all online information is reliable. I can save or store files or content (e.g. text, pictures, music, videos, web pages) and retrieve them once saved or stored.</p>	<p>I can use different search engines to find information. I use some filters when searching (e.g. searching only images, videos, maps). I compare different sources to assess the reliability of the information I find. I classify the information in a methodical way using files and folders to locate these easier. I do backups of information or files I have stored.</p>	<p>I can use advanced search strategies (e.g. using search operators) to find reliable information on the internet. I can use web feeds (like RSS) to be updated with content I am interested in. I can assess the validity and credibility of information using a range of criteria. I am aware of new advances in information search, storage and retrieval. I can save information found on the internet in different formats. I can use cloud information storage services.</p>
 <p>Communication</p>	<p>I can communicate with others using mobile phone, Voice over IP (e.g. Skype) e-mail or chat – using basic features (e.g. voice messaging, SMS, send and receive e-mails, text exchange). I can share files and content using simple tools. I know I can use digital technologies to interact with services (as governments, banks, hospitals). I am aware of social networking sites and online collaboration tools. I am aware that when using digital tools, certain communication rules apply (e.g. when commenting, sharing personal information).</p>	<p>I can use advanced features of several communication tools (e.g. using Voice over IP and sharing files). I can use collaboration tools and contribute to e.g. shared documents/files someone else has created. I can use some features of online services (e.g. public services, e-banking, online shopping). I pass on or share knowledge with others online (e.g. through social networking tools or in online communities). I am aware of and use the rules of online communication ("netiquette").</p>	<p>I actively use a wide range of communication tools (e-mail, chat, SMS, instant messaging, blogs, micro-blogs, social networks) for online communication. I can create and manage content with collaboration tools (e.g. electronic calendars, project management systems, online proofing, online spreadsheets). I actively participate in online spaces and use several online services (e.g. public services, e-banking, online shopping). I can use advanced features of communication tools (e.g. video conferencing, data sharing, application sharing).</p>
 <p>Content creation</p>	<p>I can produce simple digital content (e.g. text, tables, images, audio files) in at least one format using digital tools. I can make basic editing to content produced by others. I know that content can be covered by copyright. I can apply and modify simple functions and settings of software and applications that I use (e.g. change default settings).</p>	<p>I can produce complex digital content in different formats (e.g. text, tables, images, audio files). I can use tools/editors for creating web page or blog using templates (e.g. WordPress). I can apply basic formatting (e.g. insert footnotes, charts, tables) to the content I or others have produced. I know how to reference and reuse content covered by copyright. I know the basics of one programming language.</p>	<p>I can produce or modify complex, multimedia content in different formats, using a variety of digital platforms, tools and environments. I can create a website using a programming language. I can use advanced formatting functions of different tools (e.g. mail merge, merging documents of different formats, using advanced formulas, macros). I know how to apply licences and copyrights. I can use several programming languages. I know how to design, create and modify databases with a computer tool.</p>
 <p>Safety</p>	<p>I can take basic steps to protect my devices (e.g. using anti-viruses and passwords). I know that not all online information is reliable. I am aware that my credentials (username and password) can be stolen. I know I should not reveal private information online. I know that using digital technology too extensively can affect my health. I take basic measures to save energy.</p>	<p>I have installed security programmes on the device(s) that I use to access the Internet (e.g. antivirus, firewall). I run these programmes on a regular basis and I update them regularly. I use different passwords to access equipment, devices and digital services and I modify them on a periodic basis. I can identify the websites or e-mail messages which might be used to scam. I can identify a phishing e-mail. I can shape my online digital identity and keep track of my digital footprint. I understand the health risks associated with the use of digital technology (e.g. ergonomics, risk of addiction). I understand the positive and negative impact of technology on the environment.</p>	<p>I frequently check the security configuration and systems of my devices and/or of the applications I use. I know how to react if my computer is infected by a virus. I can configure or modify the firewall and security settings of my digital devices. I know how to encrypt e-mails or files. I can apply filters to spam e-mails. To avoid health problems (physical and psychological), I make reasonable use of information and communication technology. I have an informed stance on the impact of digital technologies on everyday life, online consumption, and the environment.</p>
 <p>Problem solving</p>	<p>I can find support and assistance when a technical problem occurs or when using a new device, program or application. I know how to solve some routine problems (e.g. close program, re-start computer, re-install/update program, check internet connection). I know that digital tools can help me in solving problems. I am also aware that they have their limitations. When confronted with a technological or non-technological problem, I can use the digital tools I know to solve it. I am aware that I need to update my digital skills regularly.</p>	<p>I can solve most of the more frequent problems that arise when using digital technologies. I can use digital technologies to solve (non-technical) problems. I can select a digital tool that suits my needs and assess its effectiveness. I can solve technological problems by exploring the settings and options of programmes or tools. I regularly update my digital skills. I am aware of my limits and try to fill my gaps.</p>	<p>I can solve almost all problems that arise when using digital technology. I can choose the right tool, device, application, software or service to solve (non-technical) problems. I am aware of new technological developments. I understand how new tools work. I frequently update my digital skills.</p>

- **Oral communication rubrics: A proposal of a grid for analyzing the 10 flagship initiatives:**

During the teaching and learning activity, students learn to practice oral communication according to one of the following levels:

<p style="text-align: center;">Novice</p> <p style="text-align: center;">Awareness of Base Level Knowledge Explain</p>	<p style="text-align: center;">Intermediate</p> <p style="text-align: center;">Apply the concept somewhat Analyze</p>	<p style="text-align: center;">Advanced</p> <p style="text-align: center;">Intentional and Effective Application Transfer to a new situation</p>
<p>Language choices are mundane and commonplace and partially support the effectiveness of the presentation. Language presentation is generally appropriate to audience.</p> <p>Delivery techniques (posture, gesture, eye contact and vocal expressiveness) make the presentation understandable and speaker appears tentative.</p> <p>Central message is basically understandable but is not often repeated and is not memorable.</p> <p>The ability to take initiative depends on their familiarity with the subject and the interlocutor’s status.</p>	<p>Language choices are thoughtful and generally support the effectiveness of the presentation. Language presentation is appropriate to audience.</p> <p>Delivery techniques (posture, gesture, eye contact and vocal expressiveness) make the presentation interesting and speaker appears comfortable.</p> <p>Central message is clear and consistent with the supporting material.</p> <p>Ability to respond and react to the interlocutors.</p>	<p>Language choices are imaginative, memorable and compelling and enhance the effectiveness of the presentation. Language presentation is continually adapted to audience.</p> <p>Delivery techniques (posture, gesture, eye contact and vocal expressiveness) make the presentation compelling, and speaker appears polished and confident.</p> <p>Central message is compelling (precisely stated, appropriately repeated, memorable, and strongly supported).</p> <p>Engage co-creating in multiples interactions including ones with high stakes.</p>

Problem solving



- **Definition from the literature**

1. Association of American Colleges and Universities (AAC&U). [2009]. **Problem solving VALUE Problem Rubric.**
https://teaching.berkeley.edu/sites/default/files/value_rubric_packet.pdf

Problem solving is the process of designing, evaluating and implementing a strategy to answer an open-ended question or achieve a desired goal.

2. UNESCO. [2017]. **Education for Sustainable Development Goals: Learning Objectives.**
<https://unesdoc.unesco.org/ark:/48223/pf0000247444?posInSet=1&queryId=eb7f6ccf-5fd5-4460-84d2-3af37bc392e0>

The overarching ability to apply different problem-solving frameworks to complex sustainability problems and develop viable, inclusive and equitable solution options that promote sustainable development, integrating the above-mentioned competences.

3. De Paul University. **Bridging an Awareness Gap: Integrating Transferable Skills in Your Classroom.**
https://resources.depaul.edu/career-center/faculty-staff/Documents/TransferableSkillsBooklet_05.14.18.pdf Consulted on January 2020.

Use knowledge, facts, and data to effectively solve problems, analyze issues or make decisions. Use logic and be resourceful.

4. Québec: Ministère de l'Éducation et de l'Enseignement supérieur. [2019]. **Digital Competency Framework.**
http://www.education.gouv.qc.ca/fileadmin/site_web/documents/ministere/Cadre-reference-competence-num-AN.pdf

Process of developing an adequate understanding or representation of a problem, and of seeking and implementing a satisfactory solution. A problem is considered to be complex if it has multiple possible solutions or can be solved in various ways, or if its purpose is not explicitly disclosed.

5. KeyStart2Work. **Catalogue of Transversal Competences Key for Employability.**
http://www.keystart2work.eu/images/docs/o2-catalogue/O2_Catalogue_EN.pdf Consulted on January 2020.

Problem solving competency is an individual's capacity to engage in cognitive processing to understand and resolve problem situations where a method of solution is not immediately obvious. It includes the willingness to engage with such situations in order to achieve one's potential as a constructive and reflective citizen. (OECD,

2010) Developing of analytical skills in order to be able to evaluate information or situations; break them down into their key components; consider various ways of approaching and resolving them and decide which is the most appropriate. Problem Solving includes recognizing long-term consequences of solutions to problems and probing, devising, implementing, and evaluating a plan of action for problem resolution (Brewer, 2013). Moreover, it is the capacity to use ordinary elements in a creative way to produce new and efficient solutions using divergent thinking.

- **Proposal for a definition:**






Problem solving is the process of designing, evaluating and implementing a strategy to answer an open-ended question or achieve a desired goal. This requires knowledge, facts, and data to effectively

- *solve problems,*
- *analyze issues*
- *or make decisions.*

- **Existing grids:**

1. European Union. [2015]. **Europass – Digital competences.**
<https://europass.cedefop.europa.eu/resources/digital-competences>

Digital competences - Self-assessment grid

	Basic User	Independent user	Proficient user
 Information processing	I can look for information online using a search engine. I know not all online information is reliable. I can save or store files or content (e.g. text, pictures, music, videos, web pages) and retrieve them once saved or stored.	I can use different search engines to find information. I use some filters when searching (e.g. searching only images, videos, maps). I compare different sources to assess the reliability of the information I find. I classify the information in a methodical way using files and folders to locate these easier. I do backups of information or files I have stored.	I can use advanced search strategies (e.g. using search operators) to find reliable information on the internet. I can use web feeds (like RSS) to be updated with content I am interested in. I can assess the validity and credibility of information using a range of criteria. I am aware of new advances in information search, storage and retrieval. I can save information found on the internet in different formats. I can use cloud information storage services.
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 Content creation	I can produce simple digital content (e.g. text, tables, images, audio files) in at least one format using digital tools. I can make basic editing to content produced by others. I know that content can be covered by copyright. I can apply and modify simple functions and settings of software and applications that I use (e.g. change default settings).	I can produce complex digital content in different formats (e.g. text, tables, images, audio files). I can use tools/editors for creating web page or blog using templates (e.g. WordPress). I can apply basic formatting (e.g. insert footnotes, charts, tables) to the content I or others have produced. I know how to reference and reuse content covered by copyright. I know the basics of one programming language.	I can produce or modify complex, multimedia content in different formats, using a variety of digital platforms, tools and environments. I can create a website using a programming language. I can use advanced formatting functions of different tools (e.g. mail merge, merging documents of different formats, using advanced formulas, macros). I know how to apply licences and copyrights. I can use several programming languages. I know how to design, create and modify databases with a computer tool.
 Safety	I can take basic steps to protect my devices (e.g. using anti-viruses and passwords). I know that not all online information is reliable. I am aware that my credentials (username and password) can be stolen. I know I should not reveal private information online. I know that using digital technology too extensively can affect my health. I take basic measures to save energy.	I have installed security programmes on the device(s) that I use to access the internet (e.g. antivirus, firewall). I run these programmes on a regular basis and I update them regularly. I use different passwords to access equipment, devices and digital services and I modify them on a periodic basis. I can identify the websites or e-mail messages which might be used to scam. I can identify a phishing e-mail. I can shape my online digital identity and keep track of my digital footprint. I understand the health risks associated with the use of digital technology (e.g. ergonomics, risk of addiction). I understand the positive and negative impact of technology on the environment.	I frequently check the security configuration and systems of my devices and/or of the applications I use. I know how to react if my computer is infected by a virus. I can configure or modify the firewall and security settings of my digital devices. I know how to encrypt e-mails or files. I can apply filters to spam e-mails. To avoid health problems (physical and psychological), I make reasonable use of information and communication technology. I have an informed stance on the impact of digital technologies on everyday life, online consumption, and the environment.
 Problem solving	I can find support and assistance when a technical problem occurs or when using a new device, program or application. I know how to solve some routine problems (e.g. close program, re-start computer, re-install/update program, check internet connection). I know that digital tools can help me in solving problems. I am also aware that they have their limitations. When confronted with a technological or non-technological problem, I can use the digital tools I know to solve it. I am aware that I need to update my digital skills regularly.	I can solve most of the more frequent problems that arise when using digital technologies. I can use digital technologies to solve (non-technical) problems. I can select a digital tool that suits my needs and assess its effectiveness. I can solve technological problems by exploring the settings and options of programmes or tools. I regularly update my digital skills. I am aware of my limits and try to fill my gaps.	I can solve almost all problems that arise when using digital technology. I can choose the right tool, device, application, software or service to solve (non-technical) problems. I am aware of new technological developments. I understand how new tools work. I frequently update my digital skills.

2. Association of American Colleges and Universities (AAC&U). [2009]. **Problem solving VALUE Rubric.**

https://teaching.berkeley.edu/sites/default/files/value_rubric_packet.pdf

	Capstone 4	Milestones		Benchmark 1
		3	2	
Define Problem	Demonstrates the ability to construct a clear and insightful problem statement with evidence of all relevant contextual factors.	Demonstrates the ability to construct a problem statement with evidence of most relevant contextual factors, and problem statement is adequately detailed.	Begins to demonstrate the ability to construct a problem statement with evidence of most relevant contextual factors, but problem statement is superficial.	Demonstrates a limited ability in identifying a problem statement or related contextual factors.
Identify Strategies	Identifies multiple approaches for solving the problem that apply within a specific context.	Identifies multiple approaches for solving the problem, only some of which apply within a specific context.	Identifies only a single approach for solving the problem that does apply within a specific context.	Identifies one or more approaches for solving the problem that do not apply within a specific context.
Propose Solutions/Hypotheses	Proposes one or more solutions/hypotheses that indicates a deep comprehension of the problem. Solution/hypotheses are sensitive to contextual factors as well as all of the following: ethical, logical, and cultural dimensions of the problem.	Proposes one or more solutions/hypotheses that indicates comprehension of the problem. Solutions/hypotheses are sensitive to contextual factors as well as the one of the following: ethical, logical, or cultural dimensions of the problem.	Proposes one solution/hypothesis that is "off the shelf" rather than individually designed to address the specific contextual factors of the problem.	Proposes a solution/hypothesis that is difficult to evaluate because it is vague or only indirectly addresses the problem statement.
Evaluate Potential Solutions	Evaluation of solutions is deep and elegant (for example, contains thorough and insightful explanation) and includes, deeply and thoroughly, all of the following: considers history of problem, reviews logic/reasoning, examines feasibility of solution, and weighs impacts of solution.	Evaluation of solutions is adequate (for example, contains thorough explanation) and includes the following: considers history of problem, reviews logic/reasoning, examines feasibility of solution, and weighs impacts of solution.	Evaluation of solutions is brief (for example, explanation lacks depth) and includes the following: considers history of problem, reviews logic/reasoning, examines feasibility of solution, and weighs impacts of solution.	Evaluation of solutions is superficial (for example, contains cursory, surface level explanation) and includes the following: considers history of problem, reviews logic/reasoning, examines feasibility of solution, and weighs impacts of solution.
Implement Solution	Implements the solution in a manner that addresses thoroughly and deeply multiple contextual factors of the problem.	Implements the solution in a manner that addresses multiple contextual factors of the problem in a surface manner.	Implements the solution in a manner that addresses the problem statement but ignores relevant contextual factors.	Implements the solution in a manner that does not directly address the problem statement.
Evaluate Outcomes	Reviews results relative to the problem defined with thorough, specific considerations of need for further work.	Reviews results relative to the problem defined with some consideration of need for further work.	Reviews results in terms of the problem defined with little, if any, consideration of need for further work.	Reviews results superficially in terms of the problem defined with no consideration of need for further work.

3. Youth Climate Leaders Academy. **Creative & Practical Problem-Solving.**

<https://www.badgelist.com/YCLA/Creative-Practical-Problem-Solving>

PERFORMANCE INDICATOR	BEGINNING	DEVELOPING	PROFICIENT	EXPANDING
Use a range of tools, including technology, to solve a problem.	<p><i>I can...</i></p> <p>Identify a range of appropriate tools, including digital technology, to help solve a problem.</p>	<p><i>I can...</i></p> <p>Use a tool to solve a problem and articulate and/or explain why the tool is the best choice.</p>	<p><i>I can...</i></p> <p>Use multiple tools together to effectively solve a problem.</p>	<p><i>I can...</i></p> <p>Develop generalizations about the tools used and apply them to new problems or situations;</p> <p>Or</p> <p>Create alternative evidence that expands upon proficient.</p>

4. KeyStart2Work. **Catalogue of Transversal Competences Key for Employability.** http://www.keystart2work.eu/images/docs/o2-catalogue/O2_Catalogue_EN.pdf

Problem solving

Definition:		
<p>Problem solving competency is an individual's capacity to engage in cognitive processing to understand and resolve problem situations where a method of solution is not immediately obvious. It includes the willingness to engage with such situations in order to achieve one's potential as a constructive and reflective citizen. (OECD, 2010) Developing of analytical skills in order to be able to evaluate information or situations; break them down into their key components; consider various ways of approaching and resolving them and decide which is the most appropriate. Problem Solving includes recognizing long-term consequences of solutions to problems and probing, devising, implementing, and evaluating a plan of action for problem resolution (Brewer, 2013). Moreover, it is the capacity to use ordinary elements in a creative way to produce new and efficient solutions using divergent thinking.</p>		
Knowledge	Skills (behaviours)	Attitudes
<p>Has factual and theoretical knowledge on the following topics:</p> <ul style="list-style-type: none"> • Problem solving techniques • Creativity techniques • Analytical tools for solving problems 	<ul style="list-style-type: none"> • Identify and define problem • Search for information • Analyse available information • Break a problems into its key components • Formulate alternative solutions • Recognise long-term consequences of alternative solutions • Assess risks • Identify the best solution • Delegate problem • Monitor implementation of the solution • Apply a different solution if the chosen one does not bring desired effects 	<ul style="list-style-type: none"> • Responsibility • Readiness to engage in problem situations where the solution is not obvious

- **Problem solving rubrics: A proposal of a grid for analyzing the 10 flagship initiatives:**

During the teaching and learning activity, students learn to solve problems according to one of the following levels:

<p>Novice</p> <p>Awareness of Base Level Knowledge Explain</p>	<p>Intermediate</p> <p>Apply the concept somewhat Analyze</p>	<p>Advanced</p> <p>Intentional and Effective Application Transfer to a new situation</p>
<p>Identify the problem.</p> <p>Identify your knowledge “about” the problem.</p> <p>Find support and assistance when a problem occurs or if confronted to an unknown situation.</p> <p>Know how to solve some routine problems; Apply known tools and methods or procedures.</p> <p>Identify a range of appropriate approaches helpful to solve known problems.</p> <p>Is aware that tools, procedures and methods can help in solving problems and that tools have their limitations.</p>	<p>Analyze the problem.</p> <p>Identify one area for further learning.</p> <p>Solve in an autonomous way most of the more frequent problems or a set of similar problems</p> <p>Solve problems by exploring and comparing options and alternatives</p> <p>Select suitable methods, tools or procedures and assess their effectiveness.</p> <p>Explain and justify why a selected approach is a good choice.</p>	<p>Redefine the problem.</p> <p>Identify what you need to learn.</p> <p>Solve in an autonomous way almost all problems, including new ones of the same family (transfer to a new situation).</p> <p>Select the best solution among a set of suitable methods, tools or procedures</p> <p>Is able to discuss options and alternatives; including their limits, for known and new situations.</p> <p>Combine multiple approaches in an effective and an optimal way, to justify why this is the best choice.</p>

Teamwork



- **Definition from the literature**

1. Association of American Colleges and Universities (AAC&U). [2009]. **Teamwork VALUE Rubric.**
https://teaching.berkeley.edu/sites/default/files/value_rubric_packet.pdf

Teamwork is behaviors under the control of individual team members (effort they put into team tasks, their manner of interacting with others on team, and the quantity and quality of contributions they make to team discussions).

2. European Erasmus + Programme. [2016-2019]. **RECTEC - Handbook Identifying transversal skills for employability and certifications.**
<http://rectec.ac-versailles.fr/>

The following elements were taken into account when defining the proficiency levels:

- Attitude toward others in order to work together;
- Ability to question their own opinions and to broaden them based on other's contributions;
- Understanding of the worth of collective work, from the perspective of the individual, their project, and the team's work and efficiency.

3. KeyStart2Work. **Catalogue of Transversal Competences Key for Employability.**
http://www.keystart2work.eu/images/docs/o2-catalogue/O2_Catalogue_EN.pdf Consulted on January 2020.

Being able to feel yourself as part of the group and to operate and communicate smoothly and efficiently within a group (...) monitoring or evaluating progress, urging the team on when needed; contributing innovative new ideas. (Brewer, 2013) Working effectively with colleagues who have different skill sets, personalities and work styles. Understanding diverse motivation levels in order to deliver efficient and effective results.

4. European Commission. **EntreComp conceptual Model.**
https://ec.europa.eu/jrc/sites/jrcsh/files/EntreCompConceptualModel_16.pdf

Team up, collaborate and network

- Work together and co-operate with others to develop ideas and turn them into action
- Network
- Solve conflicts and face up to competition positively when necessary

- **Proposal for a definition:**

Teamwork is being able to act as part of a group composed of individual team members who have different skill sets, personalities and work styles. It requires to operate and communicate smoothly and efficiently within a group, interacting with others on the team, monitoring or evaluating progress, urging the team on when needed, contributing innovative new ideas in order to deliver efficient and effective results.

- **Existing grids:**

1. European Erasmus + Programme. [2016-2019]. **RECTEC - Handbook Identifying transversal skills for employability and certifications.**
<http://rectec.ac-versailles.fr/>

SKILLS DESCRIPTORS	AUTONOMY AND RESPONSIBILITY	GENERIC INDICATORS
CIRCLE 1 Identifies the operating modes of a team.	Their participation in a group or a team is decided by the supervisor.	Attendance and potential participation happen according to given instructions.
CIRCLE 2 Identifies the role of each team member and their own position in a group.	The team leader is in charge of the designation of roles and positions in the group. One is in charge of the management of interpersonal relationships.	Group participation corresponds to their role and position in the group.
CIRCLE 3 Makes proposals and takes other team members' opinions into account.	Contribution to group exchanges and work is done autonomously.	Contributions take multiple variables into account, including other members' opinions.
CIRCLE 4 Leads and develops collective work, is able to change position and role.	One takes responsibility for the collective work.	One is responsible for the definition of operation modes and role designation in the team.

NB: Circle 1 corresponds to a "novice" level while circle 4 refers to an advanced level.

2. Association of American Colleges & Universities (AAC&U). [2009]. **Teamwork VALUE Rubric.**

https://teaching.berkeley.edu/sites/default/files/value_rubric_packet.pdf

	Capstone 4	3	Milestones 2	Benchmark 1
Contributes to Team Meetings	Helps the team move forward by articulating the merits of alternative ideas or proposals.	Offers alternative solutions or courses of action that build on the ideas of others.	Offers new suggestions to advance the work of the group.	Shares ideas but does not advance the work of the group.
Facilitates the Contributions of Team Members	Engages team members in ways that facilitate their contributions to meetings by both constructively building upon or synthesizing the contributions of others as well as noticing when someone is not participating and inviting them to engage.	Engages team members in ways that facilitate their contributions to meetings by constructively building upon or synthesizing the contributions of others.	Engages team members in ways that facilitate their contributions to meetings by restating the views of other team members and/or asking questions for clarification.	Engages team members by taking turns and listening to others without interrupting.
Individual Contributions Outside of Team Meetings	Completes all assigned tasks by deadline; work accomplished is thorough, comprehensive, and advances the project. Proactively helps other team members complete their assigned tasks to a similar level of excellence.	Completes all assigned tasks by deadline; work accomplished is thorough, comprehensive, and advances the project.	Completes all assigned tasks by deadline; work accomplished advances the project.	Completes all assigned tasks by deadline.
Fosters Constructive Team Climate	Supports a constructive team climate by doing all of the following: <ul style="list-style-type: none"> • Treats team members respectfully by being polite and constructive in communication. • Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work. • Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it. • Provides assistance and/or encouragement to team members. 	Supports a constructive team climate by doing any three of the following: <ul style="list-style-type: none"> • Treats team members respectfully by being polite and constructive in communication. • Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work. • Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it. • Provides assistance and/or encouragement to team members. 	Supports a constructive team climate by doing any two of the following: <ul style="list-style-type: none"> • Treats team members respectfully by being polite and constructive in communication. • Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work. • Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it. • Provides assistance and/or encouragement to team members. 	Supports a constructive team climate by doing any one of the following: <ul style="list-style-type: none"> • Treats team members respectfully by being polite and constructive in communication. • Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work. • Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it. • Provides assistance and/or encouragement to team members.
Responds to Conflict	Addresses destructive conflict directly and constructively, helping to manage/resolve it in a way that strengthens overall team cohesiveness and future effectiveness.	Identifies and acknowledges conflict and stays engaged with it.	Redirecting focus toward common ground, toward task at hand (away from conflict).	Passively accepts alternate viewpoints/ideas/opinions.

3. KeyStart2Work. **Catalogue of Transversal Competences Key for Employability.**

http://www.keystart2work.eu/images/docs/o2-catalogue/O2_Catalogue_EN.pdf Consulted on January 2020.

Teamwork

Definition: Being able to feel yourself as part of the group and to operate and communicate smoothly and efficiently within a group.(...) monitoring or evaluating progress, urging the team on when needed; contributing innovative new ideas. (Brewer, 2013)Working effectively with colleagues who have different skill sets, personalities and work styles. Understanding diverse motivation levels in order to deliver efficient and effective results.		
Knowledge	Skills (behaviours)	Attitudes
Has factual and theoretical knowledge on the following topics: <ul style="list-style-type: none"> • Basic concepts in psychology, especially work styles, group dynamics • Communication techniques • Communication technologies • Methods of teamwork, e.g. brainstorming • Conflict resolution techniques 	<ul style="list-style-type: none"> • Communicate his own ideas in order to convince team members to his own ideas • Receive and accept feedback • Give feedback to other members of the team on their ideas • Resolve conflict 	<ul style="list-style-type: none"> • The willingness to work with other people • Openness to other people's ideas • Responsibility

4. AEFA. [2017]. **Evaluer les compétences transversales.**
http://www.agence-erasmus.fr/docs/2496_2496_aefa-guide-competences-juin-2017.pdf

#08 TRAVAILLER EN GROUPE ET EN ÉQUIPE

Identifie les personnes et adopte une posture pour apprendre

Adopte une attitude attentive pour travailler, peut aider les autres et accepte d'être aidé

Fait des propositions et accepte de les négocier

Participe activement au travail collectif en variant sa place et son rôle dans le groupe

- **Teamwork rubrics: A proposal of a grid for analyzing the 10 flagship initiatives:**

During the teaching and learning activity, students learn to work in a team according to one of the following levels:

Novice Awareness of Base Level Knowledge Explain	Intermediate Apply the concept somewhat Analyze	Advanced Intentional and Effective Application Transfer to a new situation
Identify the operating modes of a team. Share ideas. Engage team members by taking turns and listening to others without interrupting.	Identify the role of each team member and their own position in a group. Offer new suggestions to advance the work of the group. Engage team members in ways that facilitate their contributions to meetings by constructively building upon or synthesizing the contributions of others.	Is able to change position and role. Lead and develop collective work. Help the team move forward by articulating the merits of alternative ideas or proposals. Engage team members in ways that facilitate their contributions to meetings by constructively building upon or synthesizing the contributions of others as well as noticing when someone is not participating and inviting them to engage.

<p>Complete all assigned tasks by deadline.</p> <p>Support a constructive team climate by doing any one of the following:</p> <ul style="list-style-type: none"> - treat team members respectfully by being polite and constructive in communication. - stay positive to convey a positive attitude about the team and its work - motivate teammates by expressing confidence about the importance of the task and the team’s ability to accomplish it. - provide assistance and/or encouragement to team members. <p>Accept alternate viewpoints/ideas/opinions.</p>	<p>Plan and complete all assigned tasks by deadline; can explain why and how work accomplished advances the project.</p> <p>Support a constructive team climate by doing any one of the following:</p> <ul style="list-style-type: none"> - treat team members respectfully by being polite and constructive in communication. - stay positive to convey a positive attitude about the team and its work - motivate teammates by expressing confidence about the importance of the task and the team’s ability to accomplish it. - provide assistance and/or encouragement to team members. <p>Identify and acknowledge conflict and stay engaged with it.</p>	<p>Plan and complete all assigned tasks by deadline; can draw lessons about why and how work accomplished advances the project.</p> <p>Proactively helps other team members complete their assigned tasks to a similar level of excellence.</p> <p>Support a constructive team climate by doing any one of the following:</p> <ul style="list-style-type: none"> - treat team members respectfully by being polite and constructive in communication. - stay positive to convey a positive attitude about the team and its work - motivate teammates by expressing confidence about the importance of the task and the team’s ability to accomplish it. - provide assistance and/or encouragement to team members. <p>Address destructive conflict directly and constructively, helping to manage/resolve it in a way that strengthens overall team cohesiveness and future effectiveness.</p>
<p>Is able to describe on own contribution.</p>	<p>Reflect on own contribution.</p>	<p>Reflect and adjust on own contribution.</p>

Written communication



- **Definition from the literature**

1. Knezevic, D. **21st Century Skills: 6 C's of Education in Your Classroom.** <http://blog.awwapp.com/6-cs-of-education-classroom/> Consulted on January 2020.

Communication is a skill of presenting information in a clear, concise and meaningful way. It also designates careful listening and articulating thoughts. Communication has various purposes: informing, instructing, motivating, and persuading.

2. Association of American Colleges and Universities (AAC&U). [2009]. **Written Communication VALUE Rubric.** https://teaching.berkeley.edu/sites/default/files/value_rubric_packet.pdf

Written communication is the development and expression of ideas in writing. Written communication involves learning to work in many genres and styles. It can involve working with many different writing technologies, and mixing texts, data, and images. Written communication abilities develop through iterative experiences across the curriculum.

3. European Erasmus + Programme. [2016-2019]. **RECTEC - Handbook Identifying transversal skills for employability and certifications.** <http://rectec.ac-versailles.fr/>

USING WRITTEN COMMUNICATION

- Array of discourses mastered and variety in the recipients of the written productions (close or distant, known or unknown).
- Level of acceptability in form and content in each piece of writing depending on the recipients.

- **Proposal for a definition:**

Communication is a skill of presenting information in a clear, concise and meaningful way. Articulate thoughts, ideas or messages in order to inform, educate, influence, motivate or persuade.

Written communication is the development and expression of ideas in writing. Written communication involves learning to work in many genres and styles. It can involve working with many different writing technologies, and mixing texts, data, and images.

• **Existing grids/ rubrics :**

1. Association of American Colleges and Universities (AAC&U). [2009]. Written **Communication VALUE Rubric.**
https://teaching.berkeley.edu/sites/default/files/value_rubric_packet.pdf

	Capstone 4	Milestones		Benchmark 1
		3	2	
Context of and Purpose for Writing <i>Includes considerations of audience, purpose, and the circumstances surrounding the writing task(s).</i>	Demonstrates a thorough understanding of context, audience, and purpose that is responsive to the assigned task(s) and focuses all elements of the work.	Demonstrates adequate consideration of context, audience, and purpose and a clear focus on the assigned task(s) (e.g., the task aligns with audience, purpose, and context).	Demonstrates awareness of context, audience, purpose, and to the assigned tasks(s) (e.g., begins to show awareness of audience's perceptions and assumptions).	Demonstrates minimal attention to context, audience, purpose, and to the assigned tasks(s) (e.g., expectation of instructor or self as audience).
Content Development	Uses appropriate, relevant, and compelling content to illustrate mastery of the subject, conveying the writer's understanding, and shaping the whole work.	Uses appropriate, relevant, and compelling content to explore ideas within the context of the discipline and shape the whole work.	Uses appropriate and relevant content to develop and explore ideas through most of the work.	Uses appropriate and relevant content to develop simple ideas in some parts of the work.
Genre and Disciplinary Conventions <i>Formal and informal rules inherent in the expectations for writing in particular forms and/or academic fields (please see glossary).</i>	Demonstrates detailed attention to and successful execution of a wide range of conventions particular to a specific discipline and/or writing task (s) including organization, content, presentation, formatting, and stylistic choices	Demonstrates consistent use of important conventions particular to a specific discipline and/or writing task(s), including organization, content, presentation, and stylistic choices	Follows expectations appropriate to a specific discipline and/or writing task(s) for basic organization, content, and presentation	Attempts to use a consistent system for basic organization and presentation.
Sources and Evidence	Demonstrates skillful use of high-quality, credible, relevant sources to develop ideas that are appropriate for the discipline and genre of the writing	Demonstrates consistent use of credible, relevant sources to support ideas that are situated within the discipline and genre of the writing.	Demonstrates an attempt to use credible and/or relevant sources to support ideas that are appropriate for the discipline and genre of the writing.	Demonstrates an attempt to use sources to support ideas in the writing.
Control of Syntax and Mechanics	Uses graceful language that skillfully communicates meaning to readers with clarity and fluency, and is virtually error-free.	Uses straightforward language that generally conveys meaning to readers. The language in the portfolio has few errors.	Uses language that generally conveys meaning to readers with clarity, although writing may include some errors.	Uses language that sometimes impedes meaning because of errors in usage.

2. European Erasmus + Programme. [2016-2019]. **RECTEC - Handbook Identifying transversal skills for employability and certifications.**
<http://rectec.ac-versailles.fr/>

SKILLS DESCRIPTORS	AUTONOMY AND RESPONSIBILITY	GENERIC INDICATORS
<p>CIRCLE 1</p> <p>Identifies the key elements in very short informative written pieces.</p> <p>Writes a couple of words related to their environment.</p>	<p>Reading and writing are done using help and resources available in context.</p>	<p>The spatial and typographical organization in the main documents found in one’s environment allows identification of these written pieces’ nature and function.</p> <p>Recurring documents in one’s environment and lists of words about daily activity are written.</p>
<p>CIRCLE 2</p> <p>Identifies relevant information in short texts from their environment.</p> <p>Writes short informative pieces related to their environment.</p>	<p>Reading and writing depend on how familiar and predictable the text is.</p>	<p>Communication situation and object of the message are understood when reading short informative texts about daily activities.</p> <p>Written documents are about one’s daily activities.</p>
<p>CIRCLE 3</p> <p>Uses most written sources needed for their activity.</p> <p>Writes documents related to their activity and context.</p>	<p>Texts on various subjects can be read.</p> <p>The form given to a text is appropriate to the situation.</p>	<p>The documents used allows one to describe and inform about one’s activity.</p> <p>Discernment and transmission between messages are done with known recipients.</p>
<p>CIRCLE 4</p> <p>Manages and processes complex and varied texts.</p> <p>Writes elaborate pieces.</p>	<p>Complex writings are critically examined. Responsibility is taken for one’s understanding.</p>	<p>The implications of all types of documents in one’s context are known and understood.</p> <p>A wide array of written pieces is produced with various aims: explanation, argumentation, activity development... They cover both the activity’s organization and its environment.</p>

NB: Circle 1 corresponds to a “novice” level while circle 4 refers to an advanced level.

3. Montfort College of Business. **Written Communication Rubric.**
<https://mcb.unco.edu/pdf/communications-rubrics/Writing-Rubric.pdf>

Written Communication Rubric

TRAIT	Unacceptable - 0	Marginal - 1	Good - 2	Excellent - 3
Introduction	<ul style="list-style-type: none"> no introduction or the topic of the paper is not at all clear 	<ul style="list-style-type: none"> an introductory sentence but no transition 	<ul style="list-style-type: none"> announces the topic and transitions to the body but doesn't quite set the scene 	<ul style="list-style-type: none"> announces and topic sets the scene provides overview of the document and smooth transition to the body
Body	<ul style="list-style-type: none"> ideas are not all relevant to the topic 	<ul style="list-style-type: none"> ideas are sketchy with no clear relationships and transitions 	<ul style="list-style-type: none"> ideas are there but not presented in a logical manner or presented with inadequate transitions 	<ul style="list-style-type: none"> organizes ideas logically with paragraphs and connects them with transitional expressions
Closing/ conclusion	<ul style="list-style-type: none"> no clear closing section 	<ul style="list-style-type: none"> inadequate summary 	<ul style="list-style-type: none"> summarizes main points but lacks a closing statement 	<ul style="list-style-type: none"> summarizes main points logically to lead to a conclusion and ends with a clear closing statement
Spelling, grammar, and punctuation	<ul style="list-style-type: none"> writing contains numerous errors in spelling, grammar, and/or sentence structure that interfere with comprehension no use of punctuation style and/or format are inappropriate for the assignment 	<ul style="list-style-type: none"> frequent errors in spelling, grammar (such as subject/verb agreement and tense) sentence structure and/or other writing elements distract the reader some punctuation errors does not consistently follow appropriate style and/or format. 	<ul style="list-style-type: none"> while there may be minor errors, the writing follows normal conventions of spelling and grammar throughout a few missing punctuation or wrong use of punctuation 	<ul style="list-style-type: none"> the writing is essentially error-free in terms of spelling and grammar correct punctuation
Purpose, style, content	<ul style="list-style-type: none"> the purpose and focus of the writing are not clear to the reader no attention to appropriate rhetorical style for the audience irrelevant or outdated information or data no news value (no citations) 	<ul style="list-style-type: none"> the writer's decisions about focus, organization, style/tone and/or content sometimes interfere with clear, effective communication some attention to the rhetorical style for the audience some useful information or data the purpose of the writing is not fully achieved. (Some citations correct, many not) 	<ul style="list-style-type: none"> the writer has made good decisions about focus, organization, style, and content so as to achieve the purpose of the writing some minor adjustment needed to make the style appropriate for the audience mostly relevant and current information or data some news value (Most citations correct) 	<ul style="list-style-type: none"> the writer's decision about focus, organization, style, and content fully elucidate the purpose and keep the purpose at the center of the piece appropriate rhetorical style for the purpose and audience sufficient relevant information or data highly topical (all citations correct)
Overall Coherence	<ul style="list-style-type: none"> makes very little sense many irrelevant statements 	<ul style="list-style-type: none"> parts of it do not make sense at all trouble following the paper 	<ul style="list-style-type: none"> mostly clear, logical, and understandable with a few vague areas 	<ul style="list-style-type: none"> clear, logical, and understandable makes sense easily
Overall Cohesion	<ul style="list-style-type: none"> the paper is not organized at all 	<ul style="list-style-type: none"> some parts do not tie in together 	<ul style="list-style-type: none"> mostly well-put together with a few parts that don't flow naturally 	<ul style="list-style-type: none"> entire paper is organized and put together well. flows nicely to the next section
Reader's interest	<ul style="list-style-type: none"> no effort to make the paper relevant and interesting for the reader 	<ul style="list-style-type: none"> does not hold readers' attention for very long 	<ul style="list-style-type: none"> readers find it mostly interesting 	<ul style="list-style-type: none"> keeps and guides readers' attention throughout the paper

- **Written communication rubrics: A proposal of a grid for analyzing the 10 flagship initiatives:**

During the teaching and learning activity, students learn to practice written communication according to one of the following levels:

<p style="text-align: center;">Novice</p> <p style="text-align: center;">Awareness of Base Level Knowledge Explain</p>	<p style="text-align: center;">Intermediate</p> <p style="text-align: center;">Apply the concept somewhat Analyze</p>	<p style="text-align: center;">Advanced</p> <p style="text-align: center;">Intentional and Effective Application Transfer to a new situation</p>
<p>Demonstrate awareness of context, audience, purpose, and to the assigned task(s).</p> <p>Demonstrate an attempt to use credible and/or relevant sources to support ideas that are appropriate for the discipline or genre of the writing.</p> <p>Uses language that generally conveys meaning to readers with clarity, although writing may include some errors.</p> <p>Text is mostly descriptive of the event or fact.</p> <p>Ideas are sketchy with no clear relationships and transitions.</p> <p>Do not hold readers' attention for very long.</p>	<p>Demonstrate adequate consideration of context, audience, and purpose, and a clear focus on the assigned task(s).</p> <p>Demonstrate consistent use of credible, relevant sources to support ideas that are situated within the discipline and genre of the writing.</p> <p>Use straightforward language that generally conveys meaning to readers. The language has few errors.</p> <p>Present the information in a structured and contextualized way.</p> <p>Ideas are there but not presented in a logical manner or presented with inadequate transitions.</p> <p>Readers find it mostly interesting.</p>	<p>Demonstrate a thorough understanding of context, audience, and purpose that is responsive to the assigned task(s) and focuses all elements of the work.</p> <p>Demonstrate skillful use of highquality, credible, relevant sources to develop ideas that are appropriate for the discipline and genre of the writing.</p> <p>Use graceful language that skillfully communicates meaning to readers with clarity and fluency, and is virtually error free.</p> <p>Present a coherent and argued analysis.</p> <p>Organize ideas logically with paragraphs and connects them with transitional expressions.</p> <p>Keep and guides readers' attention throughout the paper.</p>

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