CHAPTER TEN

ENHANCING CREATIVITY AND OTHER 21ST CENTURY COMPETENCIES AMONG YOUTH BY SOLVING GLOBAL CHALLENGES THROUGH AN ONLINE INTERCULTURAL PROGRAM

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Online learning and intercultural exchange

International organisations (UNICEF, 2020; World Economic Forum, 2021), agreed, that because of the health crisis developed by the covid-19 pandemic, our world needs effective online learning solutions that can be achieved entirely remotely. According to Aitizi and Bozkurt (2014), the world is experiencing an e-learning revolution where online learning (or e-learning) can be defined as the use of new information and communication technologies (or more simply of electronic solutions, means and tools) for the purpose of learning or training. Song and Bonk (2016) explained that because of the rapid advancement of technology, a multitude of online tools have fostered learning through informal ways, letting students and informal learners to study, learn, or enrol on demand and only when they believe is necessary. In other words, the fast expansion of online learning tools has had a dramatic influence on the concepts and attitudes that surround learning. For example, people may study from internet resources while travelling, using the transportation time to learn something new. Virtual educational settings, such as schools and online colleges are becoming popular among students, either to follow a whole degree online, or in order to take one or two online classes as a learning experiment (Song & Bonk, 2016). Tools, apps, and platforms have been developed to provide and facilitate learning in the most innovative ways in order to adapt to the learner. In several cases, we observe how they support active learning actions like visiting a museum, going on a holiday, riding a bike, etc. Online learning has provided people with internet access a range of learning possibilities wherever their computer or mobile devices may access learning materials. This poses an ethical question regarding access to learning in remote places, but it appears to be that the rapid expanding market of online tools will provide such connectivity in rural and underserved parts of the world (Song, Karimi, & Kim, 2015).

These online solutions can not only facilitate the access to learning content from people who live in remote areas, but also it can be a powerful

tool to promote intercultural exchange, as people from different cultures and countries could be put together to interact towards a common learning goal. According to Lewis and O'dowd (2016) the concept of online intercultural exchange (OIE) can be traced back to the 90's when, virtual engagement was utilized by educational actors to connect their classrooms with partner classes that were in remote places, allowing real dialogue, meaningful cooperation, and first-hand experience working and learning with colleagues from diverse cultural backgrounds. Such online transaction programs can help to build learner autonomy, language correctness, intercultural sensitivity, intercultural competence, and digital literacies. OIE has progressed beyond individual classroom activities to become a key instrument for internationalisation, intercultural development, and virtual mobility at institutions throughout the world.

Competencies for the 21st century

Besides online learning and the intercultural exchange that can be enhanced thanks to it, the 21st century requires other non-technical skills and competencies to be developed among youth. These skills and competencies can be gathered under the concept of "soft skills", although no real consensus exists towards a definition of "21st-century skills" or which are the specific group of competencies that are concerned. Voogt and Roblin (2010) explained that this lack of consensus regarding the concept and its definitions can be explained because of the multiple ways in which such skills are been taught. According to Jyones, Rossignoli, and Fenyiwa Amonoo-Kuofi (2019) '21st-Century Skills' is a concept that underlies all the knowledge, competencies and traits that people need to be able to contribute to the society. Our globalized society requires a diverse set of competencies adapted to the 21st century to increase innovation, adaptability and the ability from people to meet complex global challenges (Ananiadou & Claro, 2009; Cimatti, 2016; Kyllonen, Lipnevich, Burrus, & Roberts, 2014; OECD, 2018; Trilling & Fadel, 2009).

According to (Fadel, Bialik, & Trilling, 2015) the Four-Dimension Educational model or CCR framework (from the Center for Curriculum Redesign) summarizes a set of competencies fundamental for the education of youth for the 21st century. The model is focused on twelve competencies for the 21st century divided in three main axes: Skills, Character, and Metalearning. As observed in the figure below (Figure 1), it gathers four skills, six character traits, and two meta-learning processes.
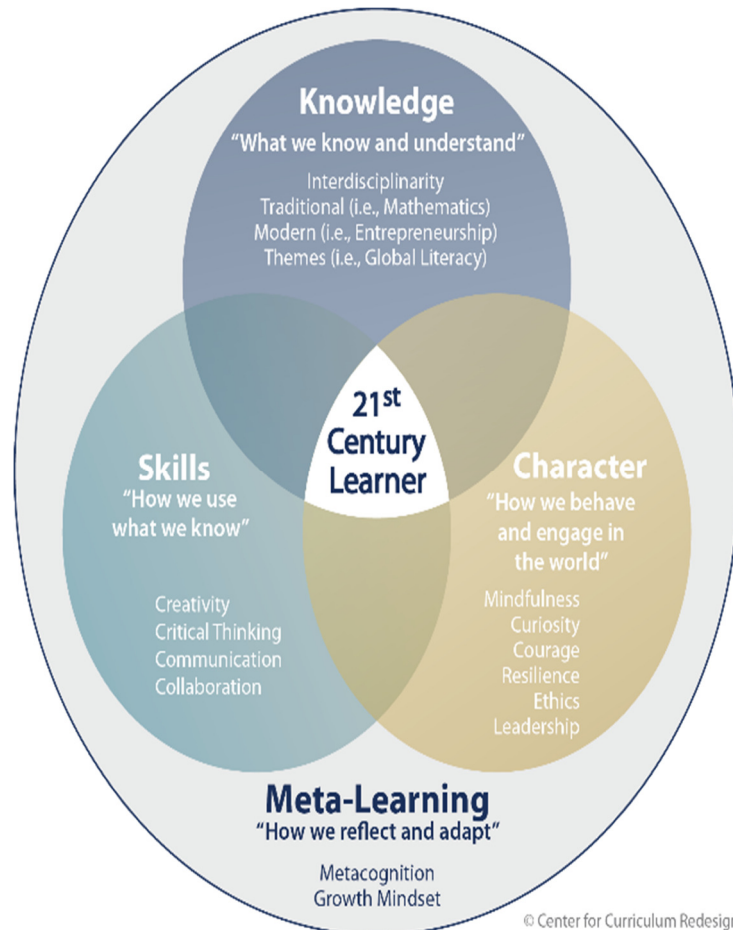
Figure 1: *The Four Dimensional Education Model from The Center for Curriculum Redesign. Image retrieved from Fadel, Bialik, & Trilling (2015).*

A skill can be defined broadly as a disposition or competency attained through practicing and training, which related to social interaction can be defined as a set of learnt skills that allow a person to behave properly and responsibly in a particular social setting (VandenBos, 2007). The way a person employs what he or she has learnt is referred to as his or her skills (Bialik, Martin, Mayo, & Trilling, 2016). These skills are referred to in the CCR frameworks as social skills, because they gather four key competences said to be fundamental for social interactions: Critical Thinking, Communication, Collaboration, and Creativity. The "4Cs" commonly used in 21st century educational discourses that has its origins in the works of Dewey (e.g. 1966).

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Character and character attribute are frequently mistaken, jumbled, and used in place of terms such as personality, temperament, or mood. It will be more broadly understood as the set of personality traits and features that include, among other things, the set of social, moral, belief, and ethical aspects of persons (Allport & Allport, 1921; VandenBos, 2007). It encompasses twelve of the CCR framework competencies: Mindfulness, Curiosity, Courage, Resilience, Ethics and Leadership.

Meta-learning is concerned with self-reflection and the idea that a person is always adapting, growing and learning, and achieving one's objectives and purpose (Bialik & Fadel, 2015). It gathers the two final competencies of the framework: Metacognition and Growth-Mindset.

To tackle the challenges faced by youth during the covid-19 pandemic, and in order to develop this set of competencies online, a group of researchers and educational actors created a set of online programs in order to develop these 21st century competencies among youth. The first program developed was called *BE a Global Citizen*, and it was split into an individual and a group pathway. The individual pathway let participants explore their own global citizen competencies and put them into practice in their environment through individual activities. For the group pathway, the program proposed youth to interact with other young people from different cultural backgrounds in order to solve a global challenge.

The following chapter will focus on the outcomes of this first program, and will review some of the results presented in the study of (Celume & Maoulida, 2022a), adding further analyses and results, pointing out the relation of these findings, with interculturality.

Method

Participants

Ninety-six participants between 14 and 21 years old were recruited from schools in different countries of Europe (e.g., Portugal, Slovakia), Latin America (e.g., Colombia), and Africa (e.g., South Africa). All of them were english speakers and started the program at the same moment. The final cohort was constituted of 23 students (M = 16.88 years SD = 1.58), mostly girls.

Variables and Instruments
21st Century Competencies' development:
CCI-36 (Celume & Maoulida, 2022b)

In order to measure the development of 21st century competencies it was used the Compound Competencies Inventory for the 21st Century, 36 items version (CCI-36). The CCI-36 is a self-reported measure that brings together twelve competencies identified as fundamental for the 21st century. In this line, it gives a specific score on each of the twelve competencies measured, as well as an overall score on 21st century competencies development. The overall score is calculated by the interaction of scores for each of the twelve skills, providing a mean score that can be understood as the average level of participants regarding their set of competencies for the 21st century.

Motivations and Learnings:
In order to gather information concerning the elements of the program that motivated students and their learnings, a satisfaction questionnaire and an interview grid were created.

a) Satisfaction Questionnaire
At the end of the program, a set of questions related to their satisfaction (or dissatisfaction) with the program were proposed to the students. They responded with three elements that motivated them to stay in the program, and three elements they believe the program could improve. Then, students were asked to write three main learning points.

b) Interview
After finishing the satisfaction questionnaire, semi-directive interviews were carried out and recorded asking them about their experiences in the program. There were 2 first introductory questions to ask them about technical aspects of the platform, followed by two main questions regarding learning, motivation and things to be modified. It is important to note that only 7 short interviews were carried out.

Procedure
Students enrolled in the program and one week before starting the program, they responded to the CCI-36 test in a platform dedicated for the program. After finishing the program, between the first day after finishing the program and until one week after finishing, students were invited to respond to a post-test where the CCI-36 was conducted again, as well as a satisfaction questionnaire. During this time, some students were randomly selected to participate in an interview to gather deep information about their experience in the program.

Results

Analyses
Quantitative analyses were carried out through JASP and JAMOVI open source software and were analysed in terms of difference of means of pre-post tests.

     For the qualitative analyses, a thematic analysis was carried out, and the chapter will focus particularly on the responses of students' motivation and learnings, as things to be revisited or to be modified were focused only on technical issues they encountered, such as internet access and platform bugs.

     As the interviews were carried out with a limited sample and responses to our questions of interest were extremely succinct, results will be presented only to illustrate a trend but will not be part of the final discussion, and thus should be considered carefully.

Competencies development
The CCI-36 was applied at the beginning and at the end of the program. The original final sample was composed of 26 students. After testing for social

desirability, we proceeded to the evaluation of the data from the 23 students who presented scores below the threshold of 10 points. According to (Celume & Maoulida, 2022a) six competencies were significantly developed: creativity ($t_{(22)} = -2.508$, $p = 0.002$, $d = -0.523$), critical thinking ($t_{(22)} = -3.210$, $p = 0.004$, $d = -0.669$), communication ($t_{(22)} = -2.421$, $p = 0.024$, $d = -0.505$), collaboration ($t_{(22)} = -2.675$, $p = 0.014$, $d = -0.558$), curiosity ($t_{(22)} = -2.232$, $p = 0.036$, $d = -0.465$), and leadership ($t_{(22)} = -3.826$, $p < 0.001$, $d = -0.798$).

Motivation and Learning

As explained above, questionnaires and interviews were carried out in order to gather information concerning the motivative elements of the program and its key learnings.

Motivation and Learning: Questionnaires

The double question we analysed for this chapter concerned what had motivated them the most, and which learnings were related to it, both within the program. We analysed the content following a collaborative coding (Guest & MacQueen, 2008; Saldaña, 2009) through a thematic analysis procedure (Braun & Clarke, 2006) in order to avoid inter-judge agreement scores. This means that a lead researcher proposed a codebook that was later modified after feedback from two lead researchers and two student interns, who coded part of the content at the same time, agreeing later on every code in order to create themes.

There were found 10 themes around motivating elements of the program. Themes will be presented below from the most referenced one, to the less referenced one. The number of references will appear between parentheses, right next to the theme title. As presents in the figure below (Figure 2), themes were divided in three main categories: "Most referred" ones, which gathers themes with more than 20 references, thus correspond to the main outcomes; "Fairly referred" ones, which includes themes with references between 4 and 8, thus correspond to outcomes to consider carefully; and "Less referred", with themes with 3 or less references, which can be considered as themes out of the scope of the sample. Examples of each category will be presented below in the discussion part.
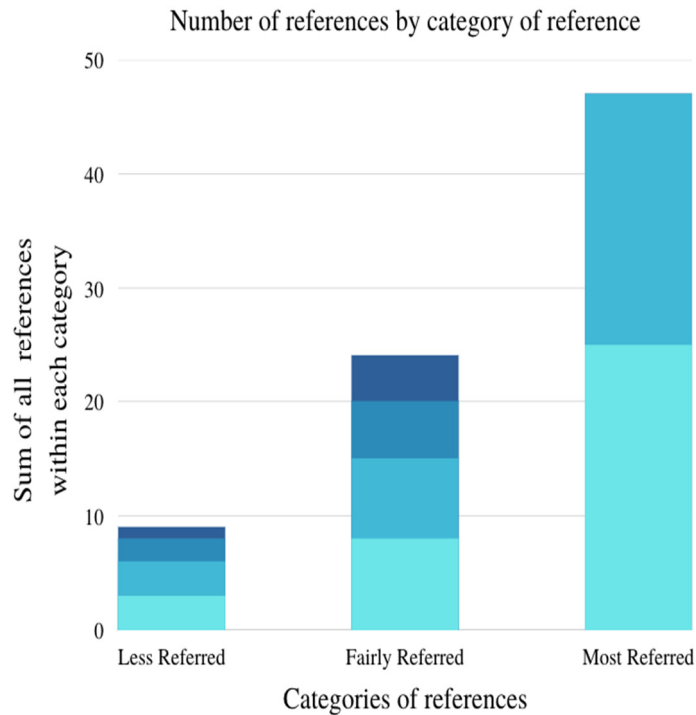
Number of references by category of reference

Figure 2: *Bar plot of the number of references stated by participants according to its category of reference.*

Most referred:
- **Collective international aspect** (25). It describes the fact of working together with other people around the world and trying to solve an issue collaboratively. This theme is related to the fact of being part of a team and feeling the support from other teams and teammates. It is also related to the fact of having the opportunity to meet people from other countries, and make new friends.
- **Foster competencies** (22). It describes the appreciation of learning competencies to boost their self-development as well as to help others through their competency gain.

Fairly referred:
- **Curiosity and Novelty** (13)
  - **Novel learning** (8). This topic is related to the fact of learning new things they haven't learnt before that was unique and never seen at school.
  - **Curiosity** (5). When students spoke about an inner curiosity to see what would happen in the following session, or curiosity about other people's perspectives.

- **Certificate or award** (7). It is related to the motivation linked to having a reward after the program. Some of them mention an award, and some explicitly speak about peer competition.
- **External motivation** (4). It describes when family or peers keep motivating the student to complete the program.

Less referred:

Other themes that appeared with less references were learning english (3), fun (3), intrinsic existent perseverance (2), and working on miro board (1). The cloud of words below shows better the words that were mentioned the most by participants regarding the appreciated aspects of the program.

A semantic observation was also carried out in order to see which were the most frequent words regarding participants responses to open-ended questions. In the figure below (Figure 3) we can observe that the most frequent words are related to community (people, members, group, team), with global and world as highly frequent words as well.

Figure 3: *Word cloud representing student principal motivation to stay in the program*

Motivation and Learning: Interviews

The few interviews highlighted three main themes concerning the program:
- **Community support**: either them giving support, either the community giving them support.
- **Self-discipline or self-purpose**: students explaining that their already present traits are related to be self-disciplined.
- **Teambuilding:** Within the group activities, the type of activities proposed fostered teambuilding and were helpful for their group challenges.

Discussion

One fundamental part of the data presented in this chapter was focused on motivation and learning of students. The interest of this research was to understand what motivates youth to follow a program of this kind and which 21st century competencies they can develop while participating in the activities. In this line, we crossed the results of the CCI-36 regarding competencies' development with the thematic categories we created when analysing their declarations regarding motivation and learning within the program.

In this line, students declared two main elements: 1) the aim to foster their competencies; and 2) the intercultural collective relationships. Both categories were related in most of the cases to the group challenge part of the program. The focus of the group challenge was on solving a global issue in teams using the help of the Design Thinking (DT) methodology, where students were proposed to live their group challenges by experiencing different roles, such as: coordinator (in charge of scheduling group meetings); spokesperson (in charge of communicating on behalf of the team); moderator (in charge of moderating the speaking); rules keeper (in charge of time/instructions) respect; facilitator (in charge of reminding the team to focus on the task); following the idea of a collective problem solving process within an intercultural context.

The first element described above as a motivation (the aim to foster own competencies) can be directly linked with a predisposition of students towards the objectives of the program. The program was presented to students as a means to foster competencies concerning global citizenship, and this could have already influenced some of the significant results. In another words, establishing the objective of developing competencies as a motivating factor, speaks about a population that is intrinsically motivated and thus it could have helped with the significant development of competencies that was observed in the study. In this line, our findings are consistent with literature on intrinsic motivation and the self-determination theory (Deci & Ryan, 2008), as they showed that when people have an inner motivation towards a task, they are more willing to foster social and emotional competencies within such task (Ryan & Deci, 2000; Ryan, Kuhl, & Deci, 1997).

Within the second element (generate intercultural collective relationships), students mentioned "building international relationships", "to make friends from different parts of the world", or even "contacting with people outside my community" as motivating factors of the program that fostered learning. We observe a desire from students to establish international relationships and to communicate with students from other countries, as a sort of intrinsic motivation (Ryan & Deci, 2000) to communicate internationally. According to Bialik et al. (2015), communication is the ability to listen to and understand information and ideas as well as to pass along or give information though different methods. In other words, competent communicators can actively listen, comprehend others, and communicate information and ideas effectively and precisely by changing their communication style to the audience and communicate their message in a variety of ways. Students in the program needed to able to listen, understand, and pass along information

adapting to the audience as they were asked to tackle global issues with participants all over the world to solve a group challenge. These groups, were in purpose constituted with students that came from different parts of the world, with the objective of communicating and collaborating with people from different cultural backgrounds and perspectives. In this line, students who participated in the program expressed that they were able to "develop communication [skills] with people from different parts of the world" and that they understood others' perspectives, explaining that they "learnt to look at things in different way [...] learnt a lot about human's mind and the relationships between people" as "everyone [no matter their cultural background] has different values and responsibilities and therefore their thinking is different" and "[...] even though *their* opinion might differ from others' opinion [...] that doesn't mean they are wrong!". These declarations could also argue in favour of critical thinking, which will be discussed further on.

This kind of declarations where students made links with communicating with others and understanding others ideas, can be linked with the significant results of the *communication* and *collaboration* competencies in the CCI-36 (Celume & Maoulida, 2022b). This inner motivation to develop an intercultural communication probably allowed them to be more receptive regarding cultural openness (Bruneau & Saxe, 2012) and international collaboration (O'Dowd, 2006) preparing the pathway to work on collective problem solving within intercultural contexts. In this line, collaboration can be described as a coordinated, synchronous action (Bialik et al., 2015) that occurs thanks to communication. In other words, through the development and maintain of a shared understanding of a situation (Fadel, et al., 2015), a result of an ongoing effort to fully communicate can be understood as collaboration, which could explain the strong relation between these two concepts and how they might have impacted each other.

In any case, it appears to be that motivation towards collective intercultural relationships might had an impact in the development of both **communication** and **collaboration** skills, facilitating the intercultural collective problem solving that was proposed to the students as part of their group work. According to (Guazzini, Vilone, Donati, Nardi, & Levnajiæ, 2015) any action that is essentially social in nature necessitates a high level of collaboration among the interacting subjects. Meaning that social interactions, in this case towards solving a global challenge, would necessarily use collaboration as a main strength. In this sense, a student claimed that both main motivations were indeed: "The driven force of collaboration and the focus for transforming the globe". Moreover, Lewis & O'Dowd (2016) explain that online intercultural exchanges are opportunities for social interaction between international members through a reciprocal interaction. This means, that participants do not only observe and ask questions, but should also express their own opinions, with the means of permitting collaborative tasks or collective inquiry. In this sense, the online international collective problem-solving process is intrinsically linked to collaboration.

According to Guazzani, et al. (2015) collective problem-solving advocates for the fact that someone that is alone confronted with a problem-solving task has a far lower likelihood of finding a solution by him/herself than if she/he was in a group. They employ the term *crowdsourcing* to ex-

plain the *collective intelligence system* of engaging citizens in gathering constructive ideas, practices, and solutions where all participants will feel free to contribute with their independent suggestions and share their own ideas.

The process of sharing ideas in order to find a collective solution or make decisions, needs a specific set of strategies and mental processes that will permit to critically assess ideas and general information (Bialik et al., 2015 ; Fadel, et al., 2015), and this can be understood as **critical thinking**. In this line, students expressed being motivated by "the concept of global citizenship and how we will be critical thinkers and problem solvers", highlighting learning around differences in thought: "everyone has different values and responsibilities and therefore their thinking is different". The group challenges presented to students the possibility to confront their own ideas to other participants within their own group in order to choose the best possible solution, but also, present and test the acceptance to their solutions to other groups. In this line, a student added: "Thanks to texting with other students I found out interesting facts about their countries… Now I consider others' points of view more. Seeking out new perspectives helps me in my day-to-day life because I am aware that even though my opinion might differ from others' opinion [...] that doesn't mean they are wrong. It helps me especially in understanding conflicts or arguments". As part of the DT process, students were asked to give feedback to others' solutions, which could have influenced to be more aware of the flops of their own solutions and thus contribute to develop critical thinking. According to (Celume & Maoulida, 2022b), people who use critical thinking are able to consider alternative and even contrasting views identifying values and fragilities of solutions or decisions taken. Nevertheless, not all literature agrees on this line, as some authors (e.g. Stasser & Stewart, 1992) explain that members of a team may see the challenge only as an issue that should be solved and therefore believe that there is a vital collection of knowledge that will permit them to find the single right answer and to defend it through logical thinking. In this line, during the process of finding a solution, such a problem-solving set would encourage the search for a definitive collection of knowledge instead of multiplying the ideas. This might explain why some students shared a certain level of dissatisfaction with the level of their solution (M = 7.3 out of 10; Be a Global Citizen unpublished report).

Decision making, besides of involving a certain level of critical thinking, needs a mechanism to guide the decision-making process in order manage everybody's ideas to achieve the collective goal. According to Guazzini, Vilone, Donati, Nardi, & Levnajiæ (2015), if an operational mechanism for managing these ideas is established, *crowdsourcing* (as explained above) can reach outstanding results in terms of collective problem solving. This "mechanism", understood as collective intelligence, might need someone to facilitate the process of ideas sharing, or guiding the team towards a solution. This facilitator can be also found in literature as a "leader". According to Fadel et al. (2015) **leadership** can be defined as a social and ethical process where individuals can set and pursue objectives while inspiring other people to follow them in order to achieve a positive change. In this line, when students were confronted to make decisions in order to find solutions to their chosen global issue, they were pushed to accomplish a solution together, and

to try "leading" roles proposed by the Design Thinking methodology, which could have influenced the significant results of leadership competency within the CCI-36 test. During the collective sessions where students discussed their group challenges, the proposed roles were focused on ethically guiding the discussion, or as Fadel et al. (2015) explained, ethically managing all resources. In this regard a student clarifies: "Teamwork really matters. It's the way our motions can be acknowledged and can be worked on global issues and solutions". This is aligned with (Chemers, 2000) work on leadership within groups, where he explains that leaders have been identified in literature as people that express concern regarding team's emotions considering everybody's points of view, or at least making sure that everyone gives his/her opinion.

In this line, the international collective aspect of solving challenges together, was not only highlighted by the fact of being able to freely share opinions, but also in regards to **creativity** and the level of creative solutions that could be found thanks to this intercultural exchange. In this line, a student shared that she learned that "Understanding and respecting the perspective of others [from different cultures] is essential for the creation of new ideas : you can combine ideas and turn them into a much better solution." This student's reflection is aligned with the original definition of divergent production or divergent thinking (Acar & Runco, 2019; Guilford, 1950, 1968) where fluency, the number of ideas produced, is one of the three main indicators of creative divergent thinking. These ideas combined, as the student outlined, turned the ideas into a better solution, meaning that the interaction of ideas helped them found a new solution that was better adjusted to solve the issue they had to tackle. In this line, working together towards finding an adapted solution, is consistent with the general definition of creativity and creative thinking (Lubart & Sternberg, 1995; Runco & Jaeger, 2012) which explains that creativity is involved in the development of a creative work that is both novel and useful as defined within a specific context. The context here being an adapted solution to their group global challenge.

These exchanges, permitted students identify peers that had same objectives and thus were able to produce quality creative ideas. In this line a student said: "I learnt that there are many young people in the world that are thinking more global, they are the same as we are (normal students), they are interested in global issues and are creative and have very good ideas", implying a validation for other's ideas within the collective, permitting collective innovation in finding solutions, which could have influenced the development of creativity among participants. According to (Reiter-Palmon, 2011) both **innovation and creativity** are intrinsically linked, although sometimes defined separately: creativity can be understood as the primary steps of problem solving (identifying the problem and idea-generation), while innovation is commonly defined regarding the implementation of the idea generated through problem solving, and the acceptance of this idea by several stakeholders (Mumford, 2001; West, 2003). In this line, the process of finding an innovative solution to a global issue might have influenced both elements, as they appear to be intrinsically involved. In this line, Fadel, Bialik, & Trilling (2015) and Bialik, Martin, Mayo, & Trilling, (2016) explain that creative people are able to propose and accept multiple solutions, adjusting previous ones

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in order to achieve a goal (finding a solution to their challenge). Similarly, Mercer (2000) explained that the fact of thinking together, might impact the objective of collectively finding sense to an experience and collectively solving problems. In this line, this interthinking (Vass, Littleton, Jones, & Miell, 2014) provided by these kind of dialogic spaces (Celume, Besançon, & Zenasni, 2019) could have an impact in significantly developing students creativity.
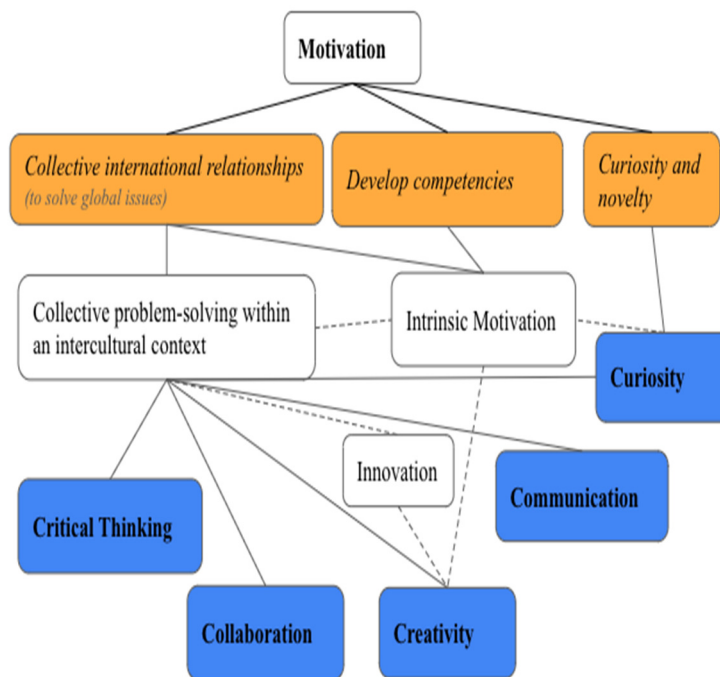
Students were mostly motivated by the fact of finding innovative solutions together, focused highly on the fact of being able to make an impact in the world. Regarding this, students shared that they learnt about "the power of having different opinions [from different countries] and how they better society" insisting that their main motivation was "solving issues with people around the world" because they "really want to make an impact in the world". In this sense, an intrinsic motivation is observed towards finding this solution as they are focused on leaving a mark in the world. Regarding this another student added: "Participating in this program means that you would like to do something more than just things you have to do. It means that you are wondering about global issues like climate change or social problems. And this was motivating me - that I am doing something which can have some impact." In this line, the significant development of creativity, through innovating in finding a solution for their challenge might been influenced by their intrinsic motivation. According to (Ryan & Deci, 2000), when people whose motivation is authentic or intrinsic are compared to people whose motivation is merely externally, intrinsic motivation people typically have more interest, excitement, and confidence, which is manifested both as improved performance, persistence, and creativity (Deci & Ryan, 1991; Sheldon, Ryan, Rawsthorne, & Ilardi, 1977).

This **intrinsic motivation** was shared by students in several forms, mainly when talking about the collective international aspect of the program. In this sense, a student highlighted: "My main motivation was curiosity - how others feel about global issues/how other nations think about it/their perspectives…" This is in line with Fadel et al. (2015) definition of a curious person, where they explained that these people present a love of learning and understanding things that they don't know, permitting them to develop an open and playful mindset. With reference to the educational issues of the twenty-first century, understanding the mechanics of curiosity and which elements of educational activities might make them "interesting" and generate motivation is critical (Oudeyer, Gottlieb, & Lopes, 2016). In this line, a student explained: " Thinking and talking about global issues can be fun when you are talking about this topic with young people and in a funny way." (Oudeyer et al., 2016) continue in this line, explaining that curiosity is an innate motivational factor or a *form of intrinsic motivation* that promotes active learning and spontaneous inquiry. This could have permitted students to enjoy the fact of finding global solutions by being curious of their environment and others, and make an impact through it. This, can be observed in another student's declaration where he explained "I was really motivated because I knew I can learn a lot and those competencies won't only help ME but also others around me as I hope they make me a better global citizen :D". These motivating factors seem to be aligned with the fact of finding global issues solutions within an

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international context, which, as mentioned at the beginning of the discussion, could have put the participant in the mood for competencies' development, which could have had an influence in students competencies' development.

In order to clarify all the ideas presented above, the following model (Figure 4) summarises the main findings proposing a nexus among motivation, culture, innovation-creativity and other competencies.

Figure 4: *Model of the nexus (intrinsic)motivation > (inter)culture > innovation + creativity.*

Although the results presented above on motivation themes seem promising for the development of 21st century competencies, there is a special awareness that several points need more attention.

First, it is important to mention that, even though motivation towards international problem solving was mentioned by students, their motivation could also have been enhanced by the competition game that was proposed for the teams, where the best solutions would be awarded. In this line, some authors argue for the potential of intergroup competition for enhancing group

member task motivation (Erev, Bornstein, & Galili, 1993; Kerr & Tindale, 2004), which could have influenced students' motivation beyond the intrinsic motivation to interact with youth from another countries. This could be addressed in future research.

Also, it is believed that a more systematic approach could be used in further research, replicating the study with a control group to compare quantitative results, enlarging the sample of study, and adding other instruments that could help cross the data collected by Celume and Maoulida's (2022b) tool.

Finally, the study should be replicated enhancing the questionnaire grid to be more precise regarding the objectives of it. This exploratory procedure has several points that need to be addressed in this regard, particularly establishing the hypotheses behind the questions, analysing data separately, and a deeper work in the production of the codebook. It is understood the seriousness of qualitative research establishing codes to generate categories and themes, and thus, approaching data from the perspective of collaborative coding (Weston et al., 2001) could help develop this work further and present more significant results.

Nevertheless, data analysed presented a good pathway to continue exploring this subject. We presume that competencies were significantly developed because they were necessary and useful during the group sessions allowing their significant increase during the program. The elements of this model show how the fact of working collaboratively with people from different cultural backgrounds had a positive impact on the motivation participants showed towards innovation in solving global challenges, proposing a relation between interculturality and the increase of creativity and other related competencies.

Conclusion

BE a Global Citizen program showed a significant improvement of creativity and leadership (among others), and qualitative analyses presented a link between interculturality and the motivation to innovate by solving global issues. Youth within the program showed increased levels of creativity, among other 21st century competencies, and mentioned a high motivation related to the intercultural implications attached to the program. It appears to be that the fact of working collaboratively with people from different cultural backgrounds might had a positive impact on the motivation participants showed towards innovation to solve global challenges, and that this might be related to an increase of creativity and other competencies, such as leadership, critical thinking, collaboration and communication. Future research could explore more in depth the relationship between youth motivation and intercultural problem solving, as youth seem to be an important and fundamental clue to tackle the global issues that our *global* societies are still waiting to be solved.

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