

Technologies for Entrepreneurship at Basic Education: the UKids project lesson for the after COVID-19

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ABSTRACT

Since the computer and robotics revolution at the end of the 20th century, it is assumed that the way of working, or the time dedicated to leisure would change. And changes took place, albeit sequentially and following globalization and the respective capitalist demands. However, workers now have email and other platforms in their electronic systems that make them contactable 24 hours a day. Thus, instead of the expected increase in time dedicated to leisure and family, it decreases. Recently, this situation has undergone the first reversal, although forced, when the world is invaded, by surprise, with a pandemic called COVID-19. In two days, the globe economy is forced to slow down and parents in telecommuting, start to accompany more their children at school. Teaching undergoes an evolution from 19th century methodologies to 21st century methodologies. In other words, from work in the classroom they move to synchronous and asynchronous lessons. Also citizenship topics such as sustainable development together with Social and Educational Entrepreneurship are promoted in School programs. Simultaneously, two documents stand out and guide human behaviors until 2030 and 2063, respectively the UN Sustainable Development Goals and the 2063 Agenda for Africa. The present work presents the new teaching strategies followed and the support technologies used in the implementation of the UKIDS pilot project. To implement it a 3rd year classroom from a primary school nearby Porto was used as the case study and the entrepreneurship culture dimension/"trash value" challenge were selected. Reusing things, helping their parents to separate the garbage, keeping all egg carton and make objects from them was compulsory. At the end, a questionnaire was implemented, and the 3rd year children reported to have learned more about the Development Goals with the UKids project than in the classroom.

Keywords: Entrepreneurship in Education, COVID, Basic Education, UKIDS Technologies, Sustainable Development Goals.

INTRODUCTION

Individuals accredited for Education have long argued that it is not possible to continue teaching as was done in their time. In this sense, a revolution in Education is advocated for all levels, namely for the 1st cycle.

One of the differences lies in the use of technologies. In this work, the concept of technologies should not be seen only as everything that concerns hardware, software, machines, among others, but rather with "knowing how to do", "knowing how to be" and "knowing how to stay".

Also, the idea of "job for life" ended. The young adult of the future knows that, regardless of the area in which he/she works, he/she will have to internalize entrepreneurial behaviors, either

by creating his own job, or by taking on intrapreneurial attitudes.

Likewise, he/she will have a permanent concern to update himself/herself, adopting lifelong training behaviors, where technologies will be a constant.

The project presented in this work is called Youth Start Social Entrepreneurship Program For Kids (UKIDS) and is the result of the application, in 2017, to the European program Erasmus + KA2 Strategic partnerships for School Education-Cooperation for Innovation and Exchange of Good Practices, sub-measure KA201 – Strategic Partnership for School Education, with a view to development and innovation (skills in Entrepreneurship and Mindfulness in Education).

Its goal is ambitious. In other words, while looking for ways to work with the concept of Entrepreneurship in Education, it strengthens the quality of citizenship in children. This is how it seeks to combine Entrepreneurship in Education techniques with the Sustainable Development Goals proposed by the United Nations, leaving as clues for future work the application of that concept to Agenda 2063, what we want for Africa.

To this end, the work developed below begins by addressing the concepts of Entrepreneurship, Social Entrepreneurship and Entrepreneurship in Education, followed by a first observation of the recent phenomenon of COVID-19 and the consequences for Education; the introduction of technologies in the 1st cycle; presentation of the Sustainable Development Goals/Africa 2063 Agenda and its application to entrepreneurship in Education from the Ukids project, ending with the conclusions and clues for future research.

LITERATURE REVIEW

Concepts of Entrepreneurship, Social Entrepreneurship and Entrepreneurship in Education

Currently, organizations are looking for multi-skilled professionals who help to work with a systemic vision, acting and interacting between teams from different sectors. For this, the professional needs to be: "creative, innovative, instigator, original, persistent, communicative, good listener, flexible, balanced, intuitive and who has the self-confidence to seek innovations, or rather, who is an entrepreneur or who has an entrepreneur behavior" (Silva et al., 2013, p.170).

The term entrepreneurship has been used for almost 300 years. In fact, Cantillon (1775) already defined entrepreneur as the individual who takes risks. Later Smith (1776), Mill (1848) and Knight (1928) refer to entrepreneurs, respectively, as agents who transform demand into supply; the person who takes risks and makes decisions, who generates limited resources for launching new businesses.

As for the concept of entrepreneurship, it is defined by Schumpeter (1942) as consisting in the creation of new businesses, but also in the innovation of existing businesses. The same author refers to the definition as a process of "creative destruction", through which existing products or production methods are destroyed and replaced by new ones. In this sense, entrepreneurship results in the annihilation of old ideas that, because they are not new, no longer can surprise and delight. Here, it is understood that the essence of entrepreneurship lies in change and innovation.

In another perspective, Bagagio and Bagagio (2020) define entrepreneurship as assuming a proactive behavior in the face of issues that need to be resolved. Entrepreneurship is the awakening of the individual to the full use of his rational and intuitive potential. It is the search for self-knowledge in a process of permanent learning or in an attitude of openness to new experiences and new paradigms.

For these reasons the entrepreneur sees the world with new eyes, with new concepts, with new attitudes and purposes. The entrepreneur is an innovator of contexts. Entrepreneurial attitudes are constructive. He/she has enthusiasm and good humor. For him/her there are not only problems, but problems and solutions.

Authors such as Bacigalupo et al. (2016), defend entrepreneurship as a competence that applies to all spheres of life. It allows citizens to nurture their personal development, actively contribute to social development, enter the labor market as employees or as self-employed, and start or expand enterprises that may have a cultural, social, or commercial motive.

Since Schumpeter, the concept has undergone changes and has been extended to other areas of knowledge such as Cultural Entrepreneurship (Hagoort, 2007) or Strategic Entrepreneurship (Pinho, 2019, Pinho, 2018a), (Pinho, 2018b), (Pinho, 2014, Hitt et al., 2011). More recently, it is mentioned Entrepreneurship applied to Education (Pinho et al., 2019).

For Yueh et al. (2020) entrepreneurship education is different from business entrepreneurship at several levels, namely:

- Business school students do not learn entrepreneurship properly, despite being well prepared in specialized professional skills, knowledge and skills related to administrative and corporate functions.
- Entrepreneurship education, in turn, goes beyond general business education, as it is linked to education for innovation and is also related to global, social, political, and technological environments.

In other words, Omer Attali and Yemini (2017) see the concept of Entrepreneurship in Education as a process by which the vision of the entrepreneur is based on the identification of a need or problem within the educational system, together with an opportunity to solve it in an innovative approach. This leads to the formulation and execution of goals in a way that creates value, thus immediately influencing the environment and the education system in the broadest sense.

Likewise, Entrepreneurship in Education is understood by Grivokostopoulou et al. (2019) as the process of equipping students with the ability to generate ideas and skills to implement them. Thus, the student acquires additional knowledge, attributes and skills required in the context of a new business.

In another perspective, Lindner (2019) considers entrepreneurship in education as an important and distinctive part of a good education at school. And it is in this sense that the idea of creating the Ukids project arises.

As a response to the challenges described above, it is considered that it is time for educational institutions to be concerned with the meaning of entrepreneurial education, from the early years of schooling. An entrepreneurial education that mobilizes for social transformation, with a vision that creates opportunities, enhances diverse psychological and emotional characteristics, to get involved in social, ethical and citizen projects (Favaligna and Silva, 2020).

Entrepreneurship in education can be of 3 types:

- teaching entrepreneurship (which teaches basic concepts related to entrepreneurship) (Van der Kuip and Verheul, 2003).
- to teach entrepreneurship (theoretical and practical approach to provide entrepreneurial knowledge and skills) (Heinoken and Hytti, 2010).
- teaching through entrepreneurship (action-based) (method based on the experimental process, in which potential entrepreneurs learn directly, through entrepreneurial experiences) (Kyro, 2005).

The concept of Entrepreneurship in Education is constituted as a branch of a larger concept: Social Entrepreneurship. Social Entrepreneurship aims to inspire students to work, in groups or individually, with society's problems in a practical way. It also makes students more aware of their social, economic, and natural environment.

According to Roberts and Woods (2005) social entrepreneurs are people with similar behaviors to conventional entrepreneurs, but with the difference that "they operate in the community and are more concerned with caring and helping than with making money".

In this way, teaching from entrepreneurship in education means working on the knowledge of students in workshops, where their knowledge about the world and individual talents, so necessary for the society of 2030, are developed.

It is however important that students are involved in their own learning process. This creates engagement, offering freedom and space for independence in a safe learning environment.

Starting from the principles of citizenship, students learn to respect others and to respect people with different opinions from their own.

In summary, children from their class and school learn:

- they take part of a society;
- they are responsible for the common interests of citizens; and
- they must get involved in society's problems and take the initiative in helping to solve them.

Regarding this conception, Manic and Trajkovic (2019) defend a set of values, norms and behaviors that should be disseminated in an Entrepreneurial Education. These are summarized in Table 1:

Table 1. Values, norms, and behaviors to be disseminated in an Entrepreneurial Education.

Values to be passed in an entrepreneurial education	Norms and behaviors to be passed in an entrepreneurial education
Natural and environmental resources	Responsible and planned protection of the environment and nature; responsible management of natural resources, conservation of biodiversity, use of renewable energy sources and energy efficiency, waste management among others.
Human Rights and Democracy	Build a democratic society with respect for non-violence, peace and tolerance. Respect for human rights and equality, safety, ethical standards, global, national and local responsibilities, civic dialogue between others.
Social Cohesion	Social service, better quality of life, social responsibility and solidarity.
Health	Information and education on disease prevention, healthy lifestyles, high quality and affordable public health among others.
Culture and Traditional Heritage	Development of cultural identity, understanding and protection of intangible and material cultural assets beside others.
Sustainable production and consumption	Socially responsible business, sustainable production and consumption, transparency in business, information and consumer rights, principle of efficient use of resources, principle of limited use and substitution, principle of green public procurement, issuing certificates, organic production among others.
Encouraging and planning development sustainable	Local, regional, rural and urban development besides others.

Source: Adapted from Manic and Trajkovic, 2019, p.67.

Therefore, Education for Entrepreneurship is a practice-oriented towards education that engages the community of the School's external environment, supports creativity and encourages initiative and action. The student is active in the learning process, interacting with others, and the teacher acts as a consultant and model. In this process of entrepreneurship education, students acquire knowledge about entrepreneurship and entrepreneurial thinking and develop skills to act in an entrepreneurial way. And this is what the Ukids project tries to do.

Talking about entrepreneurship education implies considering several aspects such as the content of the project that implies:

- provide the student with mastery over the subjects of the project idea; or
- use pedagogical and didactic methods that develop and strengthen entrepreneurship in students' behavior.

In summary, it can be said that both can be taught about

Entrepreneurship and can be taught through Entrepreneurship. Teaching about Entrepreneurship means resorting to the traditional teaching of textbooks, where it is about acquiring knowledge on the subject. Teaching through Entrepreneurship means resorting to more practice-oriented teaching, that is, pedagogical and didactic teaching that uses methods in which students act, feel, and do, while gaining knowledge and experience, and based on these acquired knowledge and experience.

In summary, and according to the Danish Foundation for Entrepreneurship (2012) and Wang et al. (2022) Entrepreneurship Education is practice-oriented teaching that engages the outside world, supports creativity, and encourages initiative and action. The students are who actively participate in the learning process, which occurs by interacting with others. The teacher will act as a mentor and role model.

COVID-19 and consequences for Education

For a few weeks, the Covid-19 pandemic overwhelmed many national health systems. Uncertainty about its degree of mortality and knowledge of its high level of contagion has led many governments around the world to impose lockdowns and reduce economic activity. Among the key measures to limit the risk of contagion are the reduction of tourist activity, the containment of commerce except for pharmacies, supermarkets and other establishments selling essential goods and the closure of schools/universities (Rosenberg, 2020).

Covid-19 was thus precipitating an educational crisis, fueled by the deep and multiple inequalities discussed in this subchapter. According to UNESCO (2020) these inequalities have existed for a long time, but they were obscured in classrooms. With the need, from one day to the next, to close schools and adopt distance learning systems or start teaching synchronous and asynchronous classes, it was found that many students/teachers had no possibility of or in a state of emergency, or in a state of calamity or in confinement or quarantine to have access to the teaching/learning relationship.

The Covid-19 crisis also showed that not all countries are on an equal footing when it was necessary to reorganize an Educational System immediately.

The issue is not just about technical solutions to combat the digital divide between countries, but rather about the possibility of access to new technologies, a computer or internet networks by their direct stakeholders: students and teachers (Maatuk et al., 2022).

Although distance learning has conquered many, only a minority of countries have the basic infrastructure to focus on solving the new pedagogical challenges of teaching/learning on Internet-based approaches UNESCO (2020). Thus, most children and young people suffered, in the short term, a direct loss in learning, which is expected to be temporary. Concern remains about more lasting effects, likely to be indirectly caused by a predictable recession, which will push millions of people back into poverty. For these reasons, governments need to

address the new challenges of inclusion or sustainable development to rebuild better and accessible education systems for all students. And this is the proposal of the Ukids project.

The COVID-19 pandemic is a health crisis that requires students and faculty to be separated from each other and from the campus, just as researchers are separated from laboratories, libraries, or fieldwork, preventing all aspects of the work of a university or a school. All these changes have increased costs and reduced revenues, because of students who claim to pay tuition fees to attend face-to-face classes. At the time of writing this paper, universities and schools around the world were studying the best way to operate safely in this context, starting in the fall of 2020, and within their communities, with different resources.

The big question is “how to teach?” and the main decision of all universities, polytechnics and schools lies in:

- whether to continue with non-face-to-face teaching at the end of summer 2020;
- whether remote instructions can be trusted (improved with offers made under the March 2020 duress);
- whether to use mixed education systems (a percentage in person and a percentage not); or
- whether to adopt an altered timetable and program.

Another equally important question is “who will apply?”

University and high-ranking schools are not worried, given the tight selection criteria they adopt. However, the other educational institutions fear having lower acceptance rates than expected; have resistance to enrollment if classes are given 100% online (and consequently to the payment of full tuition, if any), in addition to normal health concerns. In addition to this, additional costs with extra tutoring classes must be considered; the reduction of research support; the directing of indebtedness and philanthropic actions towards research questions in the search for a vaccine, instead of education expenses or the increase of total expenses in the works of adaptation of spaces to receive new and old students in a school/university/polytechnic insurance for health.

As of June 8, 2020, the African continent had more than 88,000 confirmed cases of COVID-19, with 2832 confirmed deaths and 33898 recoveries (Adotey, 2020). On June 20, 287385 cases were already registered with 7708 confirmed deaths and 132959 recoveries (Darkwa, 2020).

In response to the coronavirus outbreak, many African governments have taken the decision to close educational institutions to contain the disease. Egypt was the first African country to report a case of COVID19 recoveries (Adotey, 2020).

Despite the relatively lower number of COVID-19 cases in Africa compared to Europe and other parts of the world, the virus has been spreading, becoming a major threat to the continent's health systems.

Almost all African countries have responded by implementing lockdowns and public health measures to promote physical distancing, namely: wearing a mask, good hand hygiene, isolating patients, and testing/tracking for

COVID-19. While these measures helped to slow the spread of the pandemic in Africa, it affected every aspect of life and changed the world as we know it.

At the school level, COVID-19 has exposed some of its weaknesses. In response to the pandemic, almost all African governments have decided to close educational institutions to help minimize the spread of the disease.

To ensure academic continuity, most of these institutions were mandated to transition from face-to-face teaching to the virtual environment. This decision was abrupt, hurried, and quick, with no contingency plans. This exposed several challenges for most institutions that lacked the ability to move to the virtual environment / that lacked technological infrastructures and whose internet connectivity was a challenge. In addition, there was a lack of adequate faculty preparation, inadequate technical support, and most students did not have access to connected devices, as well as reliable Internet connectivity.

According to UNESCO, 9.8 million African students suffered interruptions in their studies due to the closure of their schools (Darkwa, 2020).

The fact is that the long-term impact of COVID-19 on schools cannot yet be predicted, but it has been learned that the gap between African schools and the rest of the world or between rural and urban African schools is large and that these students face many challenges in trying to make the transition to the online environment.

Technologies in Primary Education

Until the Covid crisis, technology was merely essential to a part of the educational experience. In fact, only a few students and teachers, especially high school students, felt the need to resort to it (Frailon et al., 2019).

When the state of emergency sets in, all over the world, most teachers and school administrators had to switch, in less than two days, to new tools that would allow them to deliver lessons, distribute content, correct homework, and communicate with students and their parents. Closer to the end of the school year, they still had to carry out distance assessments.

Working from home has become almost mandatory and simultaneously impossible for anyone who takes care of children or other family members. This situation is even worse when it is found that most teachers do not have the technical and pedagogical skills to integrate digital devices while teaching. Soon teachers, using online platforms, had to learn much more during the crisis than just a few technical skills, namely:

- had to redefine the less expository way of teaching and without having the receiver physically present; and
- they had to look for ways/platforms/software to carry out online assessments at a distance, where the use of plagiarism or other less honest modalities would be avoided.

During this period, it was also found that low- and middle-income countries are much less favored for an effective transition to online learning platforms, as they lack essential goods such as electricity or internet access (Arnhold et al., 2020). In fact, it appears that, in these countries, households that have internet do so via telephone, which means that mobile internet data is paid according to consumption.

Even low-tech approaches offer little chance of ensuring continuity of learning. For example, in African countries such as Kenya, the Republic of Congo, Madagascar or Ethiopia, the poorest households do not have television and the rate of radios in these households varies between 7% and 30% (DHS Statcompiler, 2020).

The solution that the governments of these countries resorted to was to try to provide education materials in the homes of these students. But even when distance learning modalities were available, the problem of the opportunity for disadvantaged students to learn continued to be negatively affected, as it presupposed that they had the support of parents or family members. And what according to Mirza (2020) verified is that these parents have low levels of education, that children/young people do not have a good environment at home and must support household chores or help take care of younger siblings or children or other family members (Asanov et al., 2020). In the specific case of girls and young women, spending more time at home exposed them to household chores, sexual violence, or the risks of teenage pregnancy (Elston et al., 2016). The greatest danger of exclusion is however in students with disabilities. Examples include blind or deaf students for whom their own technology is not always affordable, or children with attention deficit hyperactivity disorder, whose independent work on a computer can be difficult.

For these students, regardless of the marginalized group in which they find themselves, the school represented a haven or a place where they guaranteed vital goods and services such as school meals and access to toilets. Aware of this situation, governments continued, during the pandemic period, to deliver school meals.

Therefore, and in a nutshell, by increasing social isolation, the pandemic has also increased the risk that marginalized students will be further separated from education and leave school earlier.

With the reopening of schools scheduled between May and September 2020, following strategies for implementing projects such as Ukids could be a chance to alleviate the problem, while working with students towards the citizenship objectives of sustainable development 2030 /2063. This aspect makes even more sense if one considers that objective 4 of the Sustainable Development Goals concerns "ensuring inclusive, equitable and quality education, and promoting lifelong learning opportunities for all" (UNESCO, 2020, p.10).

The impact of the pandemic has had a profound effect on schools and has forced institutions to rethink their operating models, strategies and fundamentally how education will be

delivered. In other words, learning will no longer be limited by traditional 1st, 2nd, and 3rd periods, nor will students/teachers have to spend hours traveling to attend/teach a class, wasting time. We are now in an era where anything is possible due to technology.

According to Mirza (2020) schools should look for Artificial Intelligence to:

- do the heavy lifting for the faculty, freeing up their time to focus on the real work of teaching and research.
- changing the way teachers teach and students learn, helping to maximize student success and prepare them for the future.
- save the time that teachers waste in bureaucratic administrative tasks so that they can spend more time with the students.
- help identify struggling students through behavioral cues and give them a nudge in the right direction.

In summary, Artificial Intelligence has the power to become a great equalizer in education and an important differential for the institutions that adopt it. Similarly, technology can and should support teachers to allow them to focus on changing lives through their interactions with students, but the way these interactions play out in the future may well be very different from the past.

To monitor the progress of education towards achieving the Sustainable Development goals by 2030 and to report on the implementation of national policies and international education strategies, holding partners accountable for their commitments, the international community developed, in 2015, a tool, with the form of report, called "Global Education Monitoring" (GEM). To better fulfill its mandate, this GEM tool has developed an online resource called SCOPE (2020) which allows for interactive data visualizations, comparing data across countries or regional and global averages.

SCOPE content is organized into five themes, respectively: access, equality, learning, quality, and finance. Access is related to the number of tickets at the respective level of education. Thus, according to this SCOPE (2020) between 1990 and 2017 the number of students who accessed basic education doubled. As for equality, it refers to the similarity of opportunities for access to education between boys and girls. Regarding learning, it shows the low level of reading and math skills in many countries. Quality, on the other hand, evidences the existence of appropriate environments for learning, including adequate water and sanitation, electricity, internet, and the absence of practices of violence and bullying. Finally, finances show how much governments, patrons/donors and families spend on education, highlighting how little the poorest countries receive.

In terms of sustainable development goals and in terms of access, it is intended that, by 2030, 100% of young people will have completed high school. At the time of delivery of this work (July 2020) the world time series show that only 88% of children complete primary education, 72% of adolescent's complete secondary education and 53% of young people complete secondary education (in <https://www.education-progress.org/en/articles/access/>, accessed July 5, 2020).

Before being designated as the Sustainable Development Goals, the UN will have defined fewer demanding goals, called the "8 Millennium Goals" and which should be met in 2020. In 2015, it is observed that the world has failed in its promise that all children attend primary school by this year. And this is how the UN reformulates the project for Sustainable Development Goals, defining the new educational objective, designated as objective 4, and raises the bar of demand in the fulfillment of educational goals. To this end, it asks young people to complete secondary education by the deadline of 2030. However, to achieve this, all school-age children should have started school in 2018, but, for example, in low-income countries income, only 70% did. Similarly, in low-income countries, about one in sixty children will never study or girls will continue to be more likely than boys to never go to school, as they must care for children and carry out other household responsibilities.

In practice, access presents, in 2020, the following problems:

- in low-income countries only 77% of children attend Early Childhood Education;
- students attending basic education are older than normal. Thus, it is possible to observe adolescents attending this level of education;
- there are still 258 million children without access to basic education. Essentially children who are in conflict zones;
- the number of students who complete the proposed level of education is lower than the number of admissions (55%).

Thus, issues such as when children enroll, at what age and whether they finish tertiary education are crucial political concerns of the access issue.

As for equality, it is known that only 2 out of 3 countries have achieved gender equality in Basic Education. This effort has resulted in a greater number of girls than boys attending different levels of secondary and higher education and completing it. Overall, the SCOPE investigation helps to reveal that education differences between girls and boys are not as great as between rural and urban areas and between the rich and the poor. By 2030, it is therefore a goal to have 100% equality at the secondary level.

In terms of learning, more than 50% of countries do not report levels of reading or acquisition of knowledge in mathematics. In the poorest countries, even if the individual has 6 years of schooling, it does not mean that he has acquired the corresponding skills. In this sense, it is a goal for 2030 that 100% of children in basic education have reached minimum proficiency in reading.

When interpreting the quality indicator, it cannot be said that good quality in Education is only related to learning outcomes. Indeed, in many countries of the world, children who access primary education have teachers who are not trained, do not have good school infrastructure, or do not have a learning environment that is safe and non-violent. Having training as a Basic Education teacher means having pedagogical knowledge, knowledge of the profession and knowledge of the contents. Thus, it is a goal for 2030 that 100% of teachers have training in

the area.

Finally, the finance theme advocates that by 2030 national governments spend at least 4% to 6% of GNP or 15% to 20% of Public Spending on Education.

UKIDS SOCIAL ENTREPRENEURSHIP CASE STUDY AND SUSTAINABLE DEVELOPMENT GOALS

Sustainable Development Goals and Agenda Africa

The problems of extreme poverty, hunger, aids, and the non-attendance of the 1st cycle by all children in the world, led the members of the United Nations (UN) to define, in 2008, the 8 Millennium Development Goals. In 2015, it was found that the goals outlined in that document would no longer be achieved on the scheduled date (2020), so it was decided to review them. This is how, in that same year, a new document appeared, with a longer deadline (2030), and a more ambitious structure, since the 8 goals would be converted into 17 goals, as shown in Figure 1, and in 169 goals to be achieved by the 193 countries that signed it. This document became known as the Sustainable Development Goals.

Basically, the aim was to stop the harmful effects of globalization and radical technological change, working on fundamental areas for humanity such as people (poverty and hunger), the planet (degradation, climate change, production, and sustainable management), prosperity (progress economic, social, and technological), peace (peaceful societies without violence) and partnership (solidarity among all peoples and participation of all countries).

In addition to this document, the African Union

Commission produced, also in 2015, a declaration thinking about the African continent that it intends to have in 2063 (African Union Commission, 2015). This document would be called "Agenda 2063- The Africa we want" and includes the aspirations summarized in the following table:

Table 2. Aspirations for the Africa we want

<ol style="list-style-type: none"> 1. A prosperous Africa based on inclusive growth and sustainable development. 2. An integrated continent, politically united and based on the ideals of Pan-Africanism and the vision of Africa's Renaissance. 3. An Africa of good governance, democracy, respect for human rights, justice and the rule of law. 4. A peaceful and secure Africa. 5. An Africa with a strong cultural identity, common heritage, shared values and ethics. 6. An Africa whose development is people-driven, relying on the potential of African people, especially its women and youth, and caring for children. 7. Africa as a strong, united, and influential global player and partner.

Source: African Union Commission, p. 2

The two documents are part of the democratic values that, with exceptions, still resist in the world. The recent temptation to move to extreme right or totalitarian regimes, on the one hand, and the need to train individuals with entrepreneurial attitudes, on the other, lead the school to appeal to teaching practices for citizenship and for Entrepreneurial Education. The Ukids project is a practical example of this.



Figure 1. Sustainable Development Goals.

Source: In UN (2015). 17 Sustainable Development Goals. Obtained in 30th of June of 2020, from <http://www.unric.org/pt/objetivos-de-desenvolvimento-sustentavel>.

Ukids project presentation

The Ukids project is the result of a joint application by 10 educational institutions from 6 European countries (respectively, University of Krems in Austria (and also leader of the project), IFTE in Austria (organization to encourage youth entrepreneurship), the 1st cycle school Klostermarksskolen in Denmark, the University College of Zealand in Denmark, the Ritaharju 1st cycle school in Finland, the University of Oulu in Finland, the Eötvös Loránd university in Budapest in Hungary, the University of Marnix in the Netherlands and the Higher School of Education of the Polytechnic Institute of Porto, as well as the 1st cycle school Mundos de Vida, both in Portugal) to the Erasmus+ programme, measure KA2 and sub-measure KA201 (strategic partnership development of innovation).

Its mission is to promote Entrepreneurship in Education as a permanent element in teaching and learning, in the initial and continuing training of teachers with a view to their integration into working life. As for its goals, look for to:

- Develop an Entrepreneurship in Education program with a view to promote entrepreneurial skills in primary education students and their teachers;
- Encourage citizenship practices;
- Compare different approaches in different countries;
- Manage project quality based on impact assessment;
- Promote Entrepreneurship in Education among stakeholders.

To implement them, a tripartite model of social entrepreneurship in the form of entrepreneurship in education is used.

This Tripartite Model consists of a holistic education system, comprising three dimensions:

- “Education for Entrepreneurship” which encompasses core competencies for entrepreneurial thinking and action, namely the ability to develop and implement ideas.
- The “Culture of Entrepreneurship” that promotes the development of personal skills in a social context, translating a culture of open-mindedness, empathy, teamwork, creativity, awareness and risk-taking.
- “Education for Entrepreneurial Citizenship” which aims to develop social skills and empower students as citizens, helping them, through democratic thinking and self-reflection, to express their opinions and be responsible for themselves, for the others and the environment.

Each dimension includes challenges to be worked with basic education teachers and their students in the classroom. **Table 3** presents these entrepreneurial challenges by dimension:

Table 3. Entrepreneurial challenges by Entrepreneurial Dimension

Entrepreneurial Dimension	Challenge
Core Entrepreneurial Education	Idea Challenge
	My personal Challenge
	Real Market Challenge
	Hero Challenge
	Lemonade Stand Challenge
	Start your project Challenge
Entrepreneurial Culture	Empathy challenge
	Perspectives Challenges
	Extreme Challenge
	Storytelling Challenge
	Trash Value Challenge
	Be a Yes Challenge
	Buddy Challenge
	Open Door Challenge
	Expert Challenge
Entrepreneurial Civic Education	My community Challenge
	Volunteer Challenge
	Debate Challenge

Source: Adapted from <http://www.youthstart.eu/en/challenges/> consulted in 22nd of May 2022

With this model, it is believed to be able to integrate an entrepreneurial education while preparing today's children and future adults for the society that, in the light of the goals of sustainable development, it is intended to have in 2030.

As seen in subchapter “Sustainable Development Goals and Agenda Africa”, the United Nations understands the importance of economic empowerment to achieve the Sustainable Development Goals (SDG).

It has also been shown that entrepreneurship contributes to social advancement and to the areas of environment sustainable development with positive impacts in the areas of financial inclusion, women's empowerment, sustainable agriculture, among many others. Therefore, entrepreneurship has direct positive impacts, specifically on poverty alleviation (SDG1), economic development and unemployment reduction (SDG 8), infrastructure improvement and innovation (SDG 9), equality and social inclusion (SDG 5 and 10) and sustainable production and consumption (SDG 12).

Likewise, the European Commission proposed, in 2013, a path to promote entrepreneurship in Europe and emphasize the importance of teaching and practicing it from kindergarten to university. The plan focuses on promoting entrepreneurship in education to develop an entrepreneurial culture conducive to economic development and sustainability (Al-Qudah, et al. 2022), (European Commission, 2020), (Grivoskostopoulou et al., 2019).

From the report developed in subchapter 3.2, the Ukids project seeks to introduce changes in basic education and to meet these two regulations.

To this end, the different partners chose two challenges to implement in each country's case study school. In the Portuguese case, due to the stoppage imposed by COVID-19, it was only possible to implement the “trash value” challenge belonging to

the "Entrepreneurship Culture" dimension. Here the students received a series of notes on how and why to separate the garbage at home and what are the possibilities of reusing things before they throw it away. The students were invited to keep egg cartons and make objects from them, thus stimulating their creativity and capacity for innovation, while at the same time developing an entrepreneurial culture and values of citizenship. In a Christmas event, they also had the opportunity to share them with the project's stakeholders (for example, parents, school directors, school grouping, parents and/or students' association or local community).

A mini questionnaire was also carried out with the 4th year students about the perception of the concept of entrepreneurship, the results of which are now being discussed. So, facing the question: What is an entrepreneurial person to you? the answers in **Table 4**, were obtained.

Table 4. What is an entrepreneurial person to you?

Variable Categories	Frequency	Percentage
Know how to learn	26	54%
Know how to do	6	12%
Know how to be	9	19%
Others	7	15%
Total	48	100%

Source: Adapted from Pinho et al., 2019, p.38.

Therefore, the idea that children had about entrepreneurs is that they know how to learn (26%), how to be (19%) and only then how to do (6%).

Regarding the question of: What skills am I expecting to develop a lot, will develop, will develop a little or will not develop with the project, students answered they expect to greatly develop the skills of respect (33 or 70%), curiosity (32 or 68%), responsibility (31 or 66%) and cooperation (30 or 64%). They expected to develop a lot the skills of argumentation (15 or 32%), persistence and self-confidence (14 or 30%) and autonomy (13 or 28%). They expected to develop little argumentation skills (14 or 30%), be attentive to the social environment (14 or 30%) and autonomy (12 or 26%). Finally, between 10 and 11% of the students expected not to develop any of the competences with the project.

Finally, and in relation to the opportunities and threats that the project represented for themselves, the students reported having learned more (49%) and having had the chance to work on other methodologies to increase knowledge (27%). As threats, they mentioned being aware of difficulties without identifying them (47%) and having to solve problems (28%).

CONCLUSIONS

The present work addressed some concepts about the technological revolution, the characterization of a new digital generation that is demanded by the job market, as well as the way in which Digital Information and Communication

Technologies (DICT) can mobilize entrepreneurial skills.

Faced with the profile of this new generation (where the exacerbated dynamism promises a turnaround in the job market) and the moment experienced by the great changes in the market due to globalization, companies are constantly looking for multi-skilled professionals who help to work with a systemic vision, acting and interacting between teams from different sectors. For this, young people need to be creative, innovative, instigator, original, persistent, communicative, good listener, flexible, balanced, intuitive and have the self-confidence to seek new innovations, or rather, be an individual, above all, entrepreneur or who has an entrepreneurial behavior, who knows how to use the power of creativity and innovation at the service of the company where he works, seeking to treat it as if it were his own business, always aiming for the best results; to be proactive and concerned with the productivity and quality of products and services; and, above all, that they have motivation and know how to take calculated risks.

In this way, from the perspective of the professional profile required by companies (competition and individualism) young graduates are faced with numerous questions about their future, such as: Will I be able to exercise my profession? Is there room in the market for me? Now that I have graduated or completed my master's and have therefore gained knowledge, can I be promoted in my work? Is it time to open my own business? Am I able to develop entrepreneurial skills in the professional environment? These, among others, are the questions that any person responsible for the course coordination must bear in mind.

In addition, all the degrees coordination must be aware of the need for the courses to prepare students for the transition to the world of work.

Here, it was understood what has been defended throughout this work, that is, education for the entrepreneurial sense must be present from the initial stages of schooling, which is the same as saying from basic education level. The school, in turn, needs to promote alternatives that enable and facilitate the teaching-learning process to transform its reality into a multicultural, technological, and entrepreneurial space. As for the teacher, he/she must make use of an entrepreneurial pedagogy that provides the educational success of his students. But how to do that, if the conditions of many schools today are still those of the 19th century, with 20th century teachers and 21st century students?

This is what the Ukids project sought to demonstrate when trying to train students in the competence of entrepreneurship, while at the same time developing in them the quality of Citizenship. The short duration of the project (about 3 years) as well as its objectives only allowed it to be implemented in European countries. However, at the time of writing this paper, Europe continued to have low birth rates and an increasingly aging population, while Africa had the youngest population in the world, with an average age of 18 years. Furthermore, Europe oscillated between democratic and extreme right-wing governments, while Africa struggled to eradicate hunger, poor living conditions, lack of security or war, thinking about values such as democracy, gender equality, the rights of the child or even considering: the urgent need to intervene on climate and

environmental changes, the almost 2/3 of oceans it dominates, to promote access to education and to all levels of schooling, to modernize agro-economy -business and the mining industry and to improve transport and energy infrastructure.

From this reasoning, the idea is extracted whether it would not make sense to try to apply the project in African countries. Indeed, it will be these that, in 2030 and 2063, will have more young adults. Thus, and as a conclusion, this proposal is left as a clue for future investigations.

REFERENCES

- Adotey, S.K., 2020, June. What will higher education in Africa look like after COVID-19. In World Economic Forum.
- African Union Commission, 2015. Agenda 2063 Report of the Commission on the African Union Agenda 2063 The Africa We Want in 2063, pp. 1-21.
- Al-Qudah, A.A., Al-Okaily, M. and Alqudah, H., 2022. The relationship between social entrepreneurship and sustainable development from economic growth perspective: 15 'RCEP' countries. *Journal of Sustainable Finance & Investment*, 12(1), pp.44-61.
- Asanov, I., Flores, F., McKenzie, D., Mensmann, M. and Schulte, M., 2021. Remote-learning, time-use, and mental health of Ecuadorian high-school students during the COVID-19 quarantine. *World development*, 138, p.105225.
- Baggio, A.F. and Baggio, D.K., 2015. Empreendedorismo: Conceitos e definições. *Revista de empreendedorismo, inovação e tecnologia*, 1(1), pp.25-38.
- Bacigalupo, M. and Kamylyis, P., Punie, Y., Brande, & G. Van den. (2016). *EntreComp: The Entrepreneurship Competence Framework*.
- Arnhold, N., Ziegele, F. and Kivistö, J., 2020. Under Pressure: COVID-19 and the Funding of European Higher Education, *World Bank Blogs*. In <https://blogs.worldbank.org/education/under-pressure-covid-19-and-funding-european-higher-education>
- Cantillon, R. (1755). *Essai sur la nature du commerce en général (the nature of trade in general)*: Paris: Institut National D'études Démographiques.
- Darkwa, N.O. (Dr.), 2020, President Of Ghana Technology University African Virtual Campus, Africa: Impact of COVID-19 On Higher Education in Africa - the Transition to Online Teaching and Learning Paper all africa, *Ganaian Times*, 22 de junho 2020.
- DHS StatCompiler, 2020, consultado em 30 de junho de 2020 em <https://www.statcompiler.com/en/>.
- Elston, J.W.T., Moosa, A.J., Moses, F., Walker, G., Dotta, N., Waldman, R.J. and Wright, J., 2016. Impact of the Ebola outbreak on health systems and population health in Sierra Leone. *Journal of Public Health*, 38(4), pp.673-678.
- European Commission, 2020, ANNEXES 1 to 2, Adjusted Commission Work Programme 2020, Brussels.
- Falavigna, G. and Silva, B.D.D., 2017. Educar para o empreendedorismo: projeto piloto "Educação Coempreendedor@" em escolas da rede do ensino básico do Estado do Rio Grande do Sul.
- Frailon, J., Ainley, J., Schulz, W., Duckworth, D. and Friedman, T., 2019. IEA international computer and information literacy study 2018 assessment framework (p. 74). Springer Nature.
- Grivokostopoulou, F., Kovas, K. and Perikos, I., 2019. Examining the impact of a gamified entrepreneurship education framework in higher education. *Sustainability*, 11(20), p.5623.
- Hagoort, G. (2007). *Cultural entrepreneurship, freedom to create art and the freedom of enterprise, inaugural lecture, Summary version*: Utrecht: Utrecht School of Arts, Research Group Art and Economics.
- Heinonen, J. and Hytti, U., 2010. Back to basics: the role of teaching in developing the entrepreneurial university. *The International Journal of Entrepreneurship and Innovation*, 11(4), pp.283-292.
- Hitt, M.A., Ireland, R.D., Sirmon, D.G. and Trahms, C.A., 2011. Strategic entrepreneurship: creating value for individuals, organizations, and society. *Academy of management perspectives*, 25(2), pp.57-75.
- Keinänen, M.M. and Kairisto-Mertanen, L., 2019. Researching learning environments and students' innovation competences. *Education+ Training*, 61, pp.17-30.
- Kyrö P., 2005. Introduction. In Fayolle A, Kyrö P and Uljin J. (eds.) *Entrepreneurship Research in Europe: Perspectives and Outcomes*. Cheltenham: Edward Elgar.
- Leyen, Ursula von der, 2020, a union that strives for more my agenda for europe: political guidelines for the next european commission 2019-2024 in https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission_en.pdf consultado a 15 de junho 2020
- Lindner, J., 2019. Entrepreneurial spirit for the whole school ways to become an ee-si entrepreneurship school. *Discourse and Communication for Sustainable Education*, 10(2), pp.5-12.
- Knight, F. 1921. *Risk, uncertainty, and profit*. Chicago: University of Chicago Press.
- Maatuk, A.M., Elberkawi, E.K., Aljawarneh, S., Rashaideh, H. and Alharbi, H., 2022. The COVID-19 pandemic and E-learning: challenges and opportunities from the perspective of students and instructors. *Journal of Computing in Higher Education*, 34(1), pp.21-38.
- Manić, A. and Trajković, S.P., 2019. The role and importance of

- formal elementary education for the development of entrepreneurial abilities in accordance with the ethical principle. *Journal of process management and new technologies*, 7(2).
- Mill, J. S. 1848. *The principles of political economy: with some of her application to social philosophy*. Polytechnic.
- Mirza, C. 2020. How COVID- 19 Can Reinvent Higher Education, *Globe*, 5 de maio 2020.
- OCDE (2020) in <https://www.oecd.org/coronavirus/en/> consultado em 30.06.2020.
- Omer Attali, M. and Yemini, M., 2017. Initiating consensus: Stakeholders define entrepreneurship in education. *Educational review*, 69(2), pp.140-157.
- Pinho, M.I. 2014. *Portugalense University, Phd thesis "O Empreendedorismo Estratégico como Fator de Melhoria de Desempenho Organizacional. Estudo de Caso Casa da Música"*.
- Pinho, M.I. a). 2018. Strategic entrepreneurship: model proposal for sustainable cultural organizations in the post troika. *WASET, ICACM*.
- Pinho, M. I. b), 2018, October. Strategic Entrepreneurship as an incentive for the current Economy of Culture. II Gijon Conference on the Economics of Leisure, Culture and Sport, Facultad de Comercio, Turismo y Ciencias Sociales Jovellanos, Gijón, Espanha.
- Pinho, M. I. 2019, June. Strategic Entrepreneurship and PWYW in Value Creation of Cultural Organizations. *AIMAC 2019: 15th International Conference on Arts and Cultural management*, Veneza, Itália.
- Pinho, M.I., Fernandes, D., Serrão, C. and Mascarenhas, D., 2019. Youth start social entrepreneurship program for kids: Portuguese UKIDS-case study. *Discourse and Communication for Sustainable Education*, 10(2), pp.33-48.
- Rashid, L., 2019. Entrepreneurship education and sustainable development goals: A literature review and a closer look at fragile states and technology-enabled approaches. *Sustainability*, 11(19), p.5343.
- Roberts, D. and Woods, C., 2005. Changing the world on a shoestring: The concept of social entrepreneurship. *University of Auckland business review*, 7(1), pp.45-51.
- Rosenberg, J.S., 2020, The Corona Virus Campus: the factors influencing the fall semester and beyond, *Jonh Harvard journal*, consultado em <https://www.harvardmagazine.com/2020/07/jhj-coronavirus-campus> em 30 de junho de 2020.
- Schumpeter, J. A. 1942. *Capitalism, socialism, and democracy*. New York: Harper and Row.
- SCOPE, Scoping Progress in Education, 2020, in <https://www.education-progress.org/en/>.
- Silva, B.D.D., Duarte, E.C.D.V.G. and Souza, K.P.D., 2013. *Tecnologias digitais de informação e comunicação: artefatos que potencializam o empreendedorismo da geração digital*.
- Smith, A. (1776). *An enquiry into the nature and causes of the wealth of nations*. London: Methen Edwin Cannan.
- UN 2015. 17 Sustainable Development Goals. Obtained in 30th of June of 2020, from <http://www.unric.org/pt/objetivos-de-desenvolvimento-sustentavel>.
- UNESCO. 2020. *Global Education Monitoring Report 2020: Inclusion and education: All means all*. Paris, UNESCO.
- Van der Kuip, I. and Verheul, I., 2003. Early development of entrepreneurial qualities: the role of initial education (No. N200311). *EIM Business and Policy Research*.
- Wang, C., Mundorf, N. and Salzarulo-McGuigan, A., 2022. Entrepreneurship education enhances entrepreneurial creativity: The mediating role of entrepreneurial inspiration. *The International Journal of Management Education*, 20(2), p.100570.
- Yueh, H.P., Wu, Y.J. and Chen, W.F., 2020. The Psychology and Education of Entrepreneurial Development. *Frontiers in Psychology*, 11, p.27.