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Entrepreneurship in Africa and Media Education in Higher Education

Imprenditorialità in Africa ed educazione ai media nell'istruzione superiore

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ABSTRACT

This article discusses two separate topics. The first one is about a media education study on robotics conducted by Italian and Congolese researchers. The study analyzed qualitative data collected from 50 Italian and 70 Congolese students to identify cultural factors that affect the strengths, weaknesses, opportunities, and threats in robotics education. The second topic is about the rise of entrepreneurship among young Africans. The article describes the growth of technology centers in African cities and the development of innovative startups. The author emphasizes the importance of implementing strategies that promote entrepreneurship among young Africans, identify strengths, weaknesses, opportunities and threats, and provide realistic and achievable goals.

SINTESI

Questo articolo discute due argomenti separati. Il primo riguarda uno studio di *media education* sulla robotica condotto da ricercatori italiani e congolesi. Lo studio ha analizzato i dati qualitativi raccolti da 50 studenti italiani e 70 congolesi per identificare i fattori culturali che influenzano i punti di forza, le debolezze, le opportunità e le minacce nell'educazione alla robotica. Il secondo argomento riguarda lo sviluppo dell'imprenditorialità tra i giovani africani. L'articolo descrive la crescita dei centri tecnologici nelle città africane e lo sviluppo di startup innovative. L'autore sottolinea l'importanza di attuare strategie che promuovano l'imprenditorialità tra i giovani africani, identifichino punti di forza, debolezze, opportunità e minacce e forniscano obiettivi realistici e raggiungibili.

KEYWORDS: media educator, robotics, Artificial Intelligence, entrepreneurship

PAROLE CHIAVE: media educator, robotica, intelligenza artificiale, imprenditorialità

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Introduction

Luciano Floridi in 2019 wrote that «AI is revolutionizing everyone's life, and it is crucial that it does so in the right way. AI's profound and far-reaching potential for transformation concerns the engineering of systems that have some degree of autonomous agency. This is epochal and requires establishing a new, ethical balance between human and artificial autonomy». Italy and Congo as well have been working on this issue, to guide future applications of Artificial Intelligence to renegotiate how useful it can be in education, to capitalize on the media educator's difficult work concerning awareness of technologies, and put their personal and professional resources to work in interacting with young students to improve those Artificial Intelligence systems that are unfortunately very "insubstantial" or "questionable" from an ethical and educational point of view.

To highlight the problems and find solutions the interaction between educators and teachers was carried out through questionnaires and studies that were anonymous and to be able to enter their digital world and understand how as a group then they could elaborate their ideas and see a partly linear view of cause and effect: from digital to real and contextualize it appropriately, indeed «as a new kind of autonomous, smart agency, AI could bring enormous benefits – individually, socially and environmentally. It could represent a force for good in a world that is increasingly complex and requires sophisticated solutions to deal with large-scale and interrelated issues» (Floridi, 2019).

Therefore, the media educator to a broader duty, and the confrontation with students aged 16–25 must be more incisive, but through dialogue and confrontation and finding shared strategies – and no one can be the sole proxy for the truth – we must find a real environment in which the technological structure (which includes Artificial Intelligences) must be a support and not the central element that determines the world around us.

«The fundamental rights upon which the EU is founded are directed towards ensuring respect for the freedom and autonomy of human beings. Humans interacting with AI systems must be able to keep full and effective self-determination over themselves, and be able to partake in the democratic process.

AI systems should not unjustifiably subordinate, coerce, deceive, manipulate, condition or herd humans. Instead, they should be designed to augment, complement and empower human cognitive, social and cultural skills.

The allocation of functions between humans and AI systems should follow human-centric design principles and leave meaningful opportunity for human choice. This means securing human oversight over work processes in AI systems. AI systems may also fundamentally change the work sphere. It should support humans in the working environment, and aim for the creation of meaningful work» (p. 12).

1. Entrepreneurship in Africa and Media Education in Higher Education

Since academic year 2017/2018, Italian and Congolese researchers have proceeded in parallel to collect new data on a total of 50 Italian students and 70 Congolese students (Todino, De Simone, Kidiamboko & Di Tore, 2020). These data will be analyzed in a qualitative way, because SWOT analysis already divided them in information categories and shows a variety of concepts grouped through data collection. Moreover, data will be analyzed according to some research questions:

- Italians and Congolese have common parameters to evaluate strengths, weaknesses, opportunities and threats on robotics?
- Are there cultural factors that homologate or not previous considerations?

Obviously, due to the limited number of total students involved, this research doesn't have a quantitative approach to data, it just tries to introduce a topic: a media education study on robotics that however needs to be explored in deep. This work simply wants to describe activities carried out by researchers and show their preliminaries results, propose a new perspective for introducing robotics in the fifth-grade classes of high school, from the point of view of media education, and show an experience that can contribute to the advancement of theoretical knowledge in educational robotics and its effect of contemporary society that students should learn at school. In the startup competition, the African continent has not stood idly by. Traditionally, the African entrepreneurial landscape has been characterized by trade that is from the exchange of goods (Sumani, 2019).

For Sumani, the advent of colonialism has seen an increase in goods and services imported from the West, to the detriment of the African creative spirit. For decades, Africans have been content to summarize their relationship with the developed world in the export of raw materials and the importation of finished products (*ibidem*). Still, in Africa, more and more young people are pouring into the streets every day to sell all sorts of imported goods. For example, in Nairobi, the capital of Kenya, space has become one of the coveted assets, given the flow of street vendors who occupy any free centimeter, even pavements reserved for pedestrians (*ibidem*).

This trend has reduced Africa to a large open market of products manufactured elsewhere. Many Africans prefer trade because it promises quick rewards. Unfortunately, however, trade, understood as a mere exchange of goods and services, does not contribute much to the value chain. In addition, the economies based on displacement (the pillar of African trade), i.e., those in which one only purchases the goods at point A and resells them with some advantage in point B (taking advantage of what is called the "Discard between prices"), do not increase productivity; instead, they push up the prices of raw materials, due to the multiplication of intermediaries (*ibidem*). The saturation of the market, caused by too many people selling the same product to the same range of customers, not only reduces profitability, but also leads to what has been called "brain waste," as the people who should be putting more effort into productive activities end up hanging

out on the street, waiting for some customer to go and buy their products. Things, however, African, especially, has been changing him. In the last 10 years, among the young, the seed of entrepreneurship has taken hold, translating into a series of innovations that are gradually changing the economic landscape of the Continent (*ibidem*).

Following the Sumani point of view, to put it in the words of the prophet Joel, the young Africans have begun to have visions on the untapped opportunities of their home. Technology centers are sprouting up in every corner of the major African cities, which are notoriously nurseries of innovation. For example, BongoHive, in Zambia, has created about 60 startups, just as the Kenyan iHub has over 150 startups, mostly in the software industry. Taking advantage of the exponential growth of mobile phone subscriptions on their continent, young Africans are creating business solutions in this field, that not only generate revenue, but also enrich communities with new skills. E-commerce platforms, such as the Ugandan Xente Tech, are changing the way people shop in Africa.

The M-weighs company in Kenya has provided banks without a number of financial services. The Nigerian startup Paystack Payments, founded by Shola Akinlade and Ezra Olubi in the field of financial technologies, has attracted global investors such as Y Combinator, Tencent Holdings, Singularity Investments and Tokyo Founders Fund. University movements, such as the Next Einstein Forum (Nef), are coordinating innovative initiatives. If this trend continues, in the next decade Africa will become a worldwide university for students of the global ferment of entrepreneurship animated by the spirit of creativity (*ibidem*).

According to Sumani, the promotion of entrepreneurship among young Africans, even with the expectation of potential failures, holds significant importance. Consequently, it becomes imperative to promptly implement specialized strategies that facilitate the expansion of their entrepreneurial ventures. The strategies help to identify the strengths on which to build, the weak ones to face, the opportunities to exploit and the threats to be avoided (*ibidem*). Realistic and clear goals will guide and motivate entrepreneurial action. Since the strategies tend to be wide-ranging, and many African cultures seem to have difficulty working on long-term projects, the latter must be divided into short-term stages, in order to facilitate observation and control of progress. Here are some potential initiatives targeted at the youth: student enterprises. As a countermeasure against the lack of entrepreneurial theoretical training opportunities in numerous African higher education institutions, establishing companies managed by students themselves, both within and outside the university, could serve as a viable strategic incentive for promoting entrepreneurship. Although instances of such enterprises already exist in various African nations, such as South Africa, further efforts to stimulate and support entrepreneurial students are necessary.

Student companies push students to be creative, responsible, and proactive in dealing with problems. Through them, they can translate their hobbies and passions into startups. African universities' policy recognizes that certain ICT companies are widely recognized among retired academics, such as Google and Facebook, which

are among the most renowned (*ibidem*). African universities can become something more than institutions in which young people passively assimilate information, with the hope of obtaining business start-ups in the period and in the university context a job post-graduation with many advantages. First, the information is also helpful in the library of valuable advice. In the second, it easily uses companies (*ibidem*).

The establishment of an agricultural school where students can utilize available resources and teachers can facilitate a conducive learning environment. University facilities can be gestation spaces for new Ugandans, for example, not only in classrooms, but one as it allows incubators to manage their own businesses in the field of poultry farming. Thirdly, as the consequences of the experimental failure of such enterprises, the labor market becomes increasingly competitive, giving unethical practices in the recruitment process (*ibidem*). Those who ever find themselves on the losing side face the specter of despair.

Political pressure has led some African governments to introduce fallback measures so as to absorb as many young people as possible. The federal government of Nigeria, for example, has decided to hire many teachers, however, some of them end up being occasionally engaged during the week, even if they receive their full state salary. Clearly, measures like this are financially unsustainable, leading to underemployment (*ibidem*). If we follow the principle of Kurzarbeit (reduced work) that some German companies adopted during the economic crisis after 11 September 2001, we still have to identify the way to hijack excess labor towards uses (*ibidem*). This article claims that for young people, in Africa, entrepreneurship is the most viable solution to the problem of unemployment. Thanks to it, the windows of opportunities to exploit their knowledge, competency, creating startups that can expand to become new companies. In fact, following the logic of "creative destruction", some of the new companies created by young people can lead to new and more efficient ways of working in Africa, thus making many seriously inefficient and unproductive business models obsolete; young people can open new sets and exist on the Continent (*ibidem*).

2. Education, Artificial Intelligence, and entrepreneurship in Africa

In the Democratic Republic of Congo, every year the education system provides a huge number of students that have graduated but, unfortunately, they usually struggle to get a job, so as a result, some of them try to create a couple of startups to avoid employment issues. For example, a Congolese startup has developed "Taxmwinda", which is a software platform for fees payment, in a white-box point of view, this later includes 3 subsets (database, SMS handler, mobile payment layer). In the same trend, another Congolese startup, "AgroMwinda", launched a web platform to support small farmers and local organizations in providing innovative solutions and attractive services, to make them more accessible. Last but not least, a Congolese startup, Women's technology, led by Thérèse Izay, an engineer from ISTA Kinshasa, designed a traffic robot that controls traffic lights in

order to replace some policemen in the streets: the government will help by providing funds to produce more robots like the one depicted in Figure 1.

FIGURE 1 – A CONGOLESE TRAFFIC LIGHTS ROBOT

The following is useful information to better understand the situation in the African nation under consideration here, information that is useful for readers from European backgrounds, The answers were given directly from the Mechatronic Lab in the ISTA Kinshasa:

- "Is robotics in Congo regulated by laws? No, till now there is no regulation about robotics in Congo even though robotics is being used for day-to-day life in Congo";
- "Is robotics in Congo taught in high schools? Yes, robotics is being taught in the universities in Congo";
- "Do you agree that the white-box approach can be useful in Congo as well? Yes, the white-box approach will be useful in Congo, because it will help students to better understand complex systems based on Artificial Intelligence software";
- "Would it be useful to read the pure European recommendations in a higher technical class in Congo as was done in Italy and then compare them? Yes, it is important to publish and share the European parliament recommendations on robotics in the Congolese Universities and discuss them, like it has been done in Italy so that students can be aware of them";
- "When will you plan the reading? Where, with how many students? We will be discussing the European parliament recommendations on robotics with twenty students and researchers, during this academic year (2022/2023) in Mecatronic Lab in the ISTA Kinshasa".

In conclusion, applications based on Artificial Intelligence (robotics and expert systems) are popular trends; thus, people who are not in touch with them seem to be illiterate. Even thought, there is no regulation for the time being about Artificial Intelligence in Congo, everyone tends to apply it when needed. At this point we created an Artificial Intelligence work group in DR Congo (IARDC) as our contribution to push forward this field in the country.

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