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Faculty experience and digital platforms in education

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Abstract

Purpose – Digital platforms have enabled the emergence of new business models by transforming the competitive scenario, labour, traditional management activities and strategies of the organisations regarding a number of productive sectors. The objective of this study is to analyse these changes in the educational sector from the view of professors who produce content in digital platforms, such as the massive open online courses (MOOCs).
Design/methodology/approach – In-depth interviews were conducted with 10 Brazilian professors using MOOC. The methodology proposed by Bardin (2011) and the board's guidelines (2013) were used for content analysis.
Findings – Positive aspects such as autonomy, higher financial gains, geographic coverage, quality of life and cheaper and quicker courses were identified in the present study, whereas negative aspects were disclosure and sales performed by faculty members, problems with technical support, demand for new skills (e.g. digital marketing), new teaching methods and opportunities perceived by the professors.
Research limitations/implications – The results found cannot be generalised to different publics and contexts.
Originality/value – The results contribute to a better understanding of the new business models on digital platforms as they show evidence of how these techniques are contributing to digital transformation of traditional sectors. This model can be used to connect professors who produce content to those who want to learn as well as to enable remote operations in educational institutions. Additionally, managers, CEOs and entrepreneurs of the sector can use MOOC as a reference when formulating their strategies.

Keywords Future of labour, Digital platform, Education, Faculty, MOOC

Paper type Research paper

1. Introduction

The evolution of technologies of information and communication (TICs) has visible effects on the occupational structure of the labour market at all levels (de Amorim, 2020). In 2020, the World Economic Forum estimated the extinction of 85 million jobs and the emergence of 97 million new functions until 2025. These changes are the result of labour adaptation to the new work division among humans, machines and algorithms, which will demand requalification of about 40% of the workers (WEF, 2020). And this scenario affects education directly (see Figure 1).

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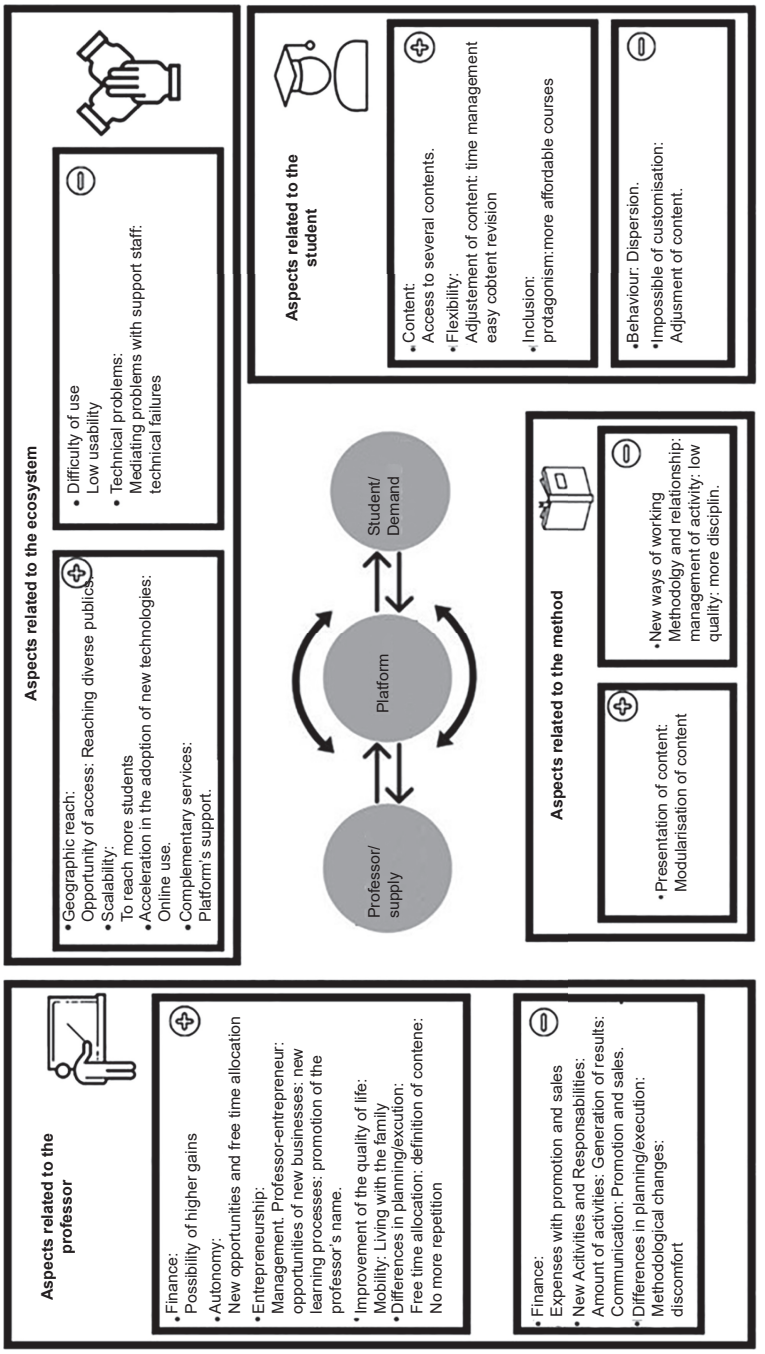

Figure 1.
Ecosystem and its positive and negative aspects

UNESCO (2021) shows that education transforms lives, as it accounts for economic growth, sustainable development, citizenship and gender equality. However, the focus of this work is on the continuing education only, particularly the massive open online course (MOOC). MOOC is a course in which there is usually no restriction for participation, being limited to the number of participants who study on an independent basis without following a specific schedule at different time and space (Kaplan & Haenlein, 2016). These courses are an option for the development of specific competencies of professionals and the promotion of lifelong learning, which is part of the Sustainable Development Goals set by the United Nations (SDG4).

According to Sharma (2020), education needs to be continuous and adaptable. For 77% of the CEOs of companies, there is a lack of qualified professionals with behavioural, digital or updated skills and they consider this shortage a threat to their businesses (PWC, 2017). This is evidenced by the fact that some companies have been investing in the qualification of professionals, as is the case of Google, which advances in the provision of courses promising to replace the traditional certificates for employability (Sena, 2020). Similarly, several initiatives have emerged in other teaching modalities in an attempt to fill this qualification gap, such as complementary online courses or investment initiatives in corporate trainings by means of digital platforms (Horn, 2020).

The entry of digital platforms into the educational sectors has facilitated the expansion of MOOCs, which allowed the provision of complementary services. Although this event initially took place with new players like Udemy, Coursera and edX, it boosted renowned educational institutions such as Harvard, Princeton and Stanford to seek partnerships in order to provide some online courses and to avoid being seen as outdated (Parker, Van Alstyne, & Choudary, 2019). Overall, educational institutions recognise that digital transformation (DT) is simultaneously boosting and creating opportunities for new business models (Yanckello, 2021).

Additionally, more than 1.6 billion students were affected due to the COVID-19 pandemic, representing about 91% of them in the world (UNESCO, 2020). The changes in the educational activities imposed by the pandemic affected the expectations of students and faculty, including their relationship with digital technologies (Yanckello, 2021). During this period, millions of people studied at home by using MOOCs. For instance, Coursera recorded 10.3 million enrollments in just one month of pandemic, an increase by 644% compared to the same period in the earlier year (DeVaney, Shimshon, Rascoff, & Maggioncalda, 2020). Following this same trend, the Google search for Hotmart, the main platform used in Latin America on Google, increased by 322% between March and April 2020 (Google, 2020).

Although digital platforms are the subjects of debate in the literature on strategy (Parker *et al.*, 2019; McIntyre & Srinivasan, 2017; Täuscher & Laudien, 2018), there are still a few studies focusing on educational platforms for management (Belleflamme & Jacqmin, 2016; Ospina-Delgado, Zorio-Grima, & Garcia-Bernau, 2016; Vera & Gosling, 2019). This becomes even more sensitive when one evaluates the few studies on the Brazilian reality (Goto, 2015; De Moura & de Souza, 2017). On the other hand, studies on MOOC have focused on drop-out, completion and retention of students as well as on the North American scenario (Rasheed, Kamsin, Abdullah, Zakari, & Haruna, 2019). Moreover, Meet and Kala (2021) suggest studying the faculty perception on MOOCs as a source of insights for developers and executors of educational policies.

Therefore, the objective of this study was to investigate the perceptions of Brazilian professors on the use of MOOC for the production of content, including positive and negative aspects, new skills acquired and opportunities related to the platform model in the provision of educational services. From the faculty experience, relevant aspects were analysed regarding educators and other players of the ecosystem, namely greater geographic reach, possibility of higher gains compared to the traditional models, autonomy on the content

given, more freedom of initiative, need for adaptation to a higher amount of new activities and responsibilities, possibility for students to study in free time and access to low-cost courses, and problems of usability and technical support of the platforms, among others.

The rest of this work is structured as follows: Sections 2 and 3 present the theoretical ground for DT as well as platforms, new business models, MOOC and faculty's perception, whereas Section 4 describes the research method and Section 5 the results found from interviews. Lastly, Section 6 presents a discussion on the results and Section 7 the conclusions, study limitations, theoretical contribution and routes for future studies.

2. Digital transformation, platforms and new business models

As the society is influenced by advances in computational technologies, sectors and companies are urged to change by incorporating digital aspects inherent to these advances. The so-called DT was summarised by Vial (2019) as a "*process aimed at improving an entity, unleashing significant changes in its properties by means of combinations of information technologies, computing, communication and connectivity*".

According to Westerman, Bonnet, and McAffe (2016), it is not only necessary to begin or increase the use of technology for an effective DT but also that this technology adds value to products, services and processes to enable creating competitive advantages in terms of both cost and differentiation by improving the customer's experience from the outside in, making processes more reliable and faster and creating new business models.

A study by Vial (2019) proposes an eight-building block model in which DT plays a central role in creating value. For this to occur, organisations should implement structural changes and overcome barriers which hinder such a transformation. However, these changes cause positive and/or negative impacts on organisations and other players in the ecosystem.

This development of TIC in combination with the popularisation of Internet, especially since the late 1990s, allowed the e-commerce sector to grow significantly. This enabled online platforms to develop, such as Amazon, Mercado Livre and iFood (example of Brazilian case). These platforms have developed and become more important in this era of e-commerce (Jiang, Jerath, & Srinivasan, 2011; Zhu & Liu, 2018), bringing digital infrastructure and traffic to sellers as well as security, payment forms and other facilities for buyers.

Digital platforms have enabled millions of people, organisations and resources to connect to each other in interactive ecosystems, in addition to allowing the emergence of new business models and bringing innovative forms of creation, delivery and capture of values. This has transformed the competitive scenario, labour, traditional management activities and strategies of the organisations regarding a number of productive sectors, such as agriculture, finance, logistics and delivery, education and transportation, among others (Parker *et al.*, 2019).

These platforms serve as a basis for third parties to develop complementary products or services (Tiwana, 2013). Therefore, we can understand the platforms as systems based on extensible software providing primary functionality to be shared by all applications operating with interfaces and between themselves (Baldwin & Woodard, 2009). These applications are complementary goods for digital platforms, which are functionally more desirable when there is a wide variety of complements available (Tiwana, 2013).

The introduction of this business model opens new pathways towards radical changes in the organisation of economic activities (Parker *et al.*, 2019), thus allowing and supporting transactions between independent supply and participants on the demand side (McIntyre & Srinivasan, 2017). Also seen as transaction platforms (Evans & Gawer, 2016), they are characterised by their open business models which depend inherently on independent participants for the co-creation of value (Täuscher & Laudien, 2018). As the network effects of demand and supply are unleashed, these models are associated with rapid growth and

market dominance potential due to the "winner-takes-it-all" dynamics (Hagiu & Wright, 2015).

Still in this context, Li and Chan (2019) state that companies need a dynamic resource structure to cope with the rapid changes and launches demanded by businesses. Digital platforms appear as a key component because their dynamic capabilities enable integration, functionalities and flexibility of infrastructure, thus promoting access to external resources, greater value creation and operational efficacy. Moreover, incredible amounts of value can be created and exchanged on these platforms (Parker *et al.*, 2019).

3. Changes in the educational sector: MOOC and faculty

Educational services have been influenced by the adoption and growth of digital platforms. In education, the platforms broadened the ecosystem beyond the traditional players (i.e. schools, publishers, students, professors and companies) and enhanced the initiative of new participants, who in turn amplify, reinvent or create new products (Campos, Tavares, de Souza, & Marques, 2021).

The adoption of MOOC, since its introduction in 2008 (Kaplan & Haenlein, 2016), has contributed to the expansion of this ecosystem by means of open access courses and scalability, thus also providing an opportunity to think about new business models which include open education elements (Yuan & Powell, 2013). This course format is unlimited in size and includes students separated by space and time so that they can learn at their own pace on an independent basis and without a specific schedule (Kaplan & Haenlein, 2016).

Several platforms have emerged with the aim to connect students and content producers at any place or time. Some of them, such as 2U, Udacity, Udemy and Coursera, are markedly characterised by the possibility of combining MOOCs provided by the major business schools in the United States (e.g. Harvard, Yale, MIT and Wharton) into a curriculum equivalent to that of a full MBA programme at a more affordable cost than the traditional programmes (Kaplan & Haenlein, 2016). These platforms also explore courses in which people seek to quickly learn a given type of skill by means of virtual meetings. Here, the focus is not on certificates and more structured knowledge but on practical learning through short-duration courses (Iizuka, 2019).

According to the international scenario, MOOCs began operating in Brazil through Udemy, Coursera and Udacity in the early 2010s (Santos, 2013). Later, the Brazilian Hotmart platform strengthened in this market and became one of the most valued edtechs nationwide (Samor, 2019) by connecting content producers and students in the monetisation of virtual content.

It is worth highlighting that Brazil has a restrictive educational legislation regarding higher education, which makes it difficult to establish platforms combining contents from multiple universities for validation of *lato sensu* postgraduate courses, for instance. Even so, many higher education institutions have adopted courses from these platforms into their curriculum on a complementary basis (De Moura & de Souza, 2017).

As for professors, the possibility of remuneration is attractive for them to participate in these platforms. Overall, the financial compensation is based on the percentage of gross revenue obtained with the courses or on the payments from the educational institutions involved. For some professors who can escalate the sales and promote their courses, the possibility of high gains is very real. Only in 2017, the ten professors of Udemy with the highest number of students gained something around 17 million dollars altogether (Barclays, 2019).

However, although not all courses have visibility, professors have intrinsic motivations in using MOOC, such as interest to use new teaching technologies, contribution to the student's learning, desire to promote a topic or subject of interest and personal development, as well as

extrinsic motivations such as financial incentives, release of course content, research purpose and institutional objectives (Doo, Tang, Bonk, & Zhu, 2020). Complementing this list of motivations, there are the personal ones, institutional incentive and altruism (Sari, Bonk, & Zhu, 2020). In addition, there is greater freedom to exercise autonomy and perform customisation thanks to the low-cost adaptation of the content to be provided to the students and the capacity of using data available on the platform (Belleflamme & Jacqmin, 2016; Hong, Wei, & Yang, 2019).

Some points of frustration can also be identified, such as lack of interaction or communication, instructional training, difficulties with technology, time spent for the preparation of courses and feedback from the students (Doo *et al.*, 2020).

When one observes the other side of the ecosystem, there are considerable advantages for those who seek these courses. Due to the above-cited ease of creation, the supply of courses is very extensive and usually without restrictions. Moreover, the student can learn according to his or her pace, time and place (Kaplan & Haenlein, 2016). On the other hand, there are important issues in the pedagogical construction, such as teacher-centred approach (Dai, Teo, & Rappa, 2020; Yuan & Powell, 2013) and high rate of drop-out (Reparaz, Aznárez-Sanado, & Mendoza, 2020; BIS, 2013).

4. Methodology

In this study, we conducted a qualitative survey with Brazilian professors who work or worked at schools, colleges, universities and/or other educational institutions by using the traditional education model (i.e. on-site) and who currently use MOOC and added it to their portfolio.

After determining their profiles, the professors were remotely interviewed during August 2020 in videoconference rooms (due to pandemic), recorded and transcribed. More than six hours of interview was recorded, in which the shortest one lasted 35 minutes and the longest lasted one hour. Moreover, it was opted to maintain the anonymity of the interviewees and institutions where they work, but the platforms were listed.

The search for professors to be interviewed was performed in three ways: five known professors were directly invited; invitation was sent to a WhatsApp group used for the study of educational methodologies, with three of them reporting to have the expected profile and two responding back; and information on educational platforms was previously matched with LinkedIn for a correct identification of the profile, in which ten professors were invited and three responded back.

It is worth emphasising that this sample consisted of professors with a very specific profile, that is, they are Brazilians working in the traditional education institutions, paid with a percentage of gross revenue obtained with the courses and active dissemination (both in-house and outsourced). Also, considering such a profile, the sample was saturated with eight interviews. According to Creswell & Báez (2020), saturation is achieved when data are repeated and there is no new information, thus determining the adequate size of the sample.

The methodology proposed by Bardin (2011) and the board's guidelines (2013) were used for content analysis, with the latter resulting from a discussion on theory and practice in research applied to organisations. Content analysis, as defined in 1977 by Bardin (2011), would be a set of techniques of communication analysis using systematic and objective procedures to describe the content of messages and indicators which allow inference. This is divided into three steps as follows: Pre-analysis; material exploration; and treatment of results, inference and interpretation. Therefore, these guidelines were used to determine thematic classes for aspects of the introduction of educational platform services from the perspective of faculty members.

Therefore, an empirical theoretical study was conducted to investigate the positive and negative aspects as well as new skills and opportunities from the perspective of professors

who have worked with educational platforms, but who have previous experience with the traditional education models. According to Démuth (2013), perception involves acquisition and processing of information and in the case of this study we are addressing the top-down perception, in which the professor is asked to describe his or her experience.

The empirical study was conducted by means of semi-structured interviews with open questions, in which the interviewees answered questions on their profile. Among the ten interviewees, three were women and seven were men. The mean age was 42.5 years old, in which the youngest was 31 and the oldest was 58 years old. The study included six participants from the Southeast region (four from São Paulo, one from Rio de Janeiro and one from Minas Gerais) and four from the Northeast region (two from Pernambuco, one from Ceará and one from Bahia). The mean teaching time was 14.9 years, in which the 5-year span was the shortest and the 28-year span was the longest. As for the use of platforms, the mean time was 2.2 years, with the shortest time being 5 months and the longest being 6 years. The platforms cited were: Udemy, Coursera, Hotmart, Aprenda, Sympla, Descola, LeadLovers, Projetou and Kajabi.

5. Presentation of the results

The professors interviewed and listed the positive and negative aspects from their own perspectives. Each of these aspects was assigned to four groups depending on the subject in question, namely: ecosystem, professor, student and method.

5.1 Ecosystem

The interviewees reported aspects which affect all the players involved, some were positive such as geographic reach, scalability, acceleration in the adoption of technology and supply of complementary services, whereas others were negative such as difficult to use and technical problems. Geographic reach, scalability and supply of complementary services are positive aspects corroborated by Tiwana (2013), Westerman *et al.* (2016) and Parker *et al.* (2019), whereas acceleration in the adoption of technology by the platforms is positively corroborated by DeVaney *et al.* (2020) and Yanckello (2021).

Geographic reach, reported by six interviewees, is related to a diverse public the courses can reach and to the accessibility to those who live out of great cities and do not always have access to some content. Moreover, professors and students do not need to move from where they are.

Another advantage highlighted is scalability. This business model allows a given content to be scalable, that is, the professor prepares the course and makes the class available on the platform so that the students can access it a number of times after payment, thus increasing the gains of the professor.

According to the professors, there has been an acceleration in the adoption of new technologies and recorded content since the onset of the pandemic, and consequently both professors and students had to adhere to remote classes, the so-called emergency learning, during this period to continue working and studying, which reduced the resistance to this type of learning.

The interviewees reported some advantages related to complementary services which extend the functionalities of the platforms, thus being differential ones. These are the following: video hosting to allow all the material to be concentrated in only one place; variety of pedagogical tools; efficient technical support; curatorship service; class preparation assistance; feedback and mentoring on the material; promotion and selling of courses; faculty ranking as indicative of quality; awards for professors who stand out in sales; and guarantee of money devolution to the unsatisfied student without the intervention of the professor.

Finally, it was also reported that the use of platforms gives a professional and organised aspect to the course.

However, among the disadvantages of the platform, one can highlight the following: platforms difficult to use, excess of tools, low usability, difference in resources between platforms; and lack of technical support. Still regarding the platform, there were comments on the ownership of the material used as in some contracts the platform becomes the owner of it. Moreover, general technical difficulties were listed such as loss of Internet connection, interruption of electrical energy and need for redundant hardware.

5.2 Professor

Among the interviewees, eight highlighted positive aspects directly related to the professor, such as financial gains, autonomy and entrepreneurship, whereas the same number also reported on negative aspects, such as financial issues, further activities and new responsibilities. Westerman *et al.* (2016) addressed the aspects of autonomy and entrepreneurship in the literature. In a review study, on the other hand, Vial (2019) points out that the new roles and responsibilities are the effects of using digital technologies, such as the platforms. However, the financial issue is contradictory and depends on the conditions of sales and the amounts of courses being sold (Doo *et al.*, 2020).

Six professors highlighted that this business model has a positive financial aspect as it provides good financial perspectives, since the gains are higher than those of the traditional teaching model and the initial investment is low. For instance, one can start recording a class by only using a smartphone and the remaining infrastructure tasks are performed by the platforms.

The second most cited aspect was the professor's autonomy, which is the condition of not depending on the educational institution to approve a course or offer an opportunity. Many professors were not able to give some classes because all the seats were already occupied by colleagues. In this model, the professor can launch courses on his or her themes of interest, regardless of the number of similar courses existing in the market. Moreover, autonomy to determine class content, course load, target public, price, modularity and use of creativity was highlighted.

Becoming an entrepreneur was a controversial issue as professors considered this aspect as being either an advantage or a disadvantage. In this sense, they highlighted the management of their own business and valorisation of their own name (i.e. creation of a personal brand, greater visibility), thus enabling the generation of opportunities through the dissemination of didactic experience and visibility resulting from the promotion of the courses.

Other positive aspects cited were the following: learning, mainly digital marketing, business management and other areas of knowledge for the preparation of courses; improvement in quality of life, as it is possible to work anytime and anywhere without having to move; less time spent to plan classes as there are no predetermined limitations set by the institution and the class content is limited to the student's profile rather than to the course load; and no more repetition of the same class because it is recorded.

Negative financial aspects were also listed in four interviews. Although the professors indicate that gains are higher, they report new expenses with services and investments, such as need to hire agencies/affiliates for sales; investment in digital marketing (e.g. network boosting); and need of working capital for payment of marketing actions and service contracting. The professors also perceived that competitiveness increased with the pandemic, which led to more discounts in the prices of the courses and consequently to lower gains.

The higher amount of new activities was pointed out by the interviewees, as scalability can generate a high volume of doubts among the students regarding the content at any time, which demands rapid responses. Moreover, the professor becomes responsible for other activities, such as marketing and selling the courses. Other responsibilities are related to the quality control of the content, generation of results for the students, clarification of doubts on the platform functioning, provision of feedback to the students, sales and promotion, and

interaction with the technical staff. Such an interaction is seen as a challenge because although the professor is only supposed to mediate the contact with the platform's technical staff, this causes stress and problems for the students.

Other negative aspects listed were the following: preparation of classes, which demands more time and dedication of the professor; more tiring classes, as the professor needs to seek ways to keep the focus and attention of the students; need to learn how to handle the camera; and how to cope with the discomfort caused by the online work.

5.3 Student

Among the points highlighted by the interviewees, some can be identified as being positively related to the student. The professors stated that a great variety of courses are offered, all providing new contents more quickly than the traditional education. Moreover, they point to the possibility of buying only modules of the student's interest. In this format, there is no limit on participants, dates or schedules for providing the course, which allows the student to create his or her own learning pace. It was also reported a greater protagonism of the student, since the courses are more affordable for lower income people. Kaplan and Haenlein (2016) and Parker *et al.* (2019) described in their studies the main features of the courses being provided through MOOC platforms, which corroborate the information given by the professors.

Two negative aspects were highlighted as well. First, the dispersion of students involved in other activities, which is perceived by the professors by means of feedback and surveys on the amount of non-completed courses. They state that some students need to be approached and called on. Second, the lack of personalisation or impossibility of customising the content, differently from the traditional model, in which professors can adjust or highlight themes of major interest to the class, or recommend further materials. Rasheed *et al.* (2019) point out that the low number of completed courses through digital platforms is due to issues such as dispersion.

5.4 Method

Some positive aspects of the method were listed, such as the content, which is recorded and presented quickly and efficiently. Moreover, the virtual class can be recorded again if any information has to be added or updated. According to the professors, the course is also continuously improved through questions raised or feedback received, and the content can be viewed more than one time, differently from on-site classes in which the student cannot view it again. Another advantage is the access to contents in other languages and from internationally renowned professors, with these platforms providing the students with legends so that the contents could be understood.

Among the negative aspects, the interviewees highlighted the need for further planning the classes and for adjusting the teaching style. The professors reported the following: impossibility of performing dynamics; need for adjusting presentations, guidelines and dynamics; existence of some poor quality contents in the market; massification of content, which does not meet individual needs; and greater need for discipline among all players involved. Doo *et al.* (2020) describe in detail both positive and negative perceptions in their article.

5.5 New skills

During the interviews, the professors identified skills which became necessary for carrying out the courses. Vial (2019) cites the need to develop new skills as a result of the use of technology, in which the players of the ecosystem have to play new roles and responsibilities. These skills were grouped as follows: communication and sales; new teaching methods; entrepreneurship and management; and technical skills.

As for communication and sales, *digital marketing* was the most mentioned term by the interviewees. This skill refers to the professor's need to promote the courses. Other terms related are the following: communication to create and sustain the public; attraction of and

assistance to the students; use of social networks, which is a new mode of relationship with students/clients; communication, argumentation and persuasion. In addition, strategies of selling or simply sales were also highlighted.

As for the new teaching methods, the professors emphasised the need for learning new didactic practices/dynamics. Issues were cited regarding this aspect, namely use of teaching strategies different from those used in the traditional model; new ways of communicating content; knowledge on instructional design; preparation of more enjoyable classes by using gamification for engaging the students; greater creativity and more organisation; greater planning and better time management.

Entrepreneurship and management were highlighted with the recognition of the importance of learning about management, administration, finances, accounting, preparation of sales reports, and recovery of abandoned shopping carts, among others.

New technical skills were also listed, such as video edition, video recording, audio treatment, lighting and scenario preparation, in addition to the selection of the digital platform to be used.

5.6 Opportunities

The interviewees listed some opportunities arising from this business model. They include market growth, in part due to the pandemic, which made this model more known and increased the demand for quality courses; need to reach other markets and publics out of great cities or who have difficulty moving from where they are; extension to the corporate market training; urgent necessity for new courses, new and updated contents, on a quicker basis; use of new technologies in education (e.g. virtual reality, augmented reality, 360-degree video, simultaneous translation, and artificial intelligence, among others); and new generation of users preferring quicker and connected models.

In addition, another aspect highlighted by the professors is related to higher financial gains. As for the platforms, the interviewees pointed to the importance of aggregating new services to professors and students (Tiwana, 2013; Westerman *et al.*, 2016, Parker *et al.*, 2019).

5.7 Time of using and selection of platform

The interviewees reported for how long they have been using a digital platform, which was grouped as follows: 1) for less than one year (four professors); 2) for one year (two professors) and 3) for more than three years (for professors). Based on this aspect, one can highlight some additional information.

Professors using digital platforms for more than three years were the only ones to perceive an acceleration in the adoption of technology as a result of the pandemic. Moreover, this group of interviewees gave more emphasis on pedagogical issues and advantages for the students. On the other hand, professors using digital platforms for less than one year highlighted autonomy and entrepreneurship. They also pointed to problems with technical support and mediation of technical issues between platform and student.

With respect to the selection of a platform, it is possible to observe that some professors prefer niche platforms, as is the case of Aprenda (Law) and Projetou (Architecture). Another important aspect is related to the promotion and selling of courses, since some professors choose a given platform considering whether it provides promotion and selling. This happens because some professors prefer accounting for the sales and thus obtain a higher percentage with this activity, whereas others prefer outsourcing it.

6. Discussion

This study shows the result of interviews with professors who use digital platforms to provide their courses. They presented positive and negative aspects regarding the use of this model for several players in the ecosystem.

The professors showed satisfaction with the model when they were asked about which one they preferred to use for providing a new course, as 80% indicated the digital platform. The reasons were clear in the presentation of the results as the interviewees cited higher financial gain, more autonomy and possibility of becoming an entrepreneur and manager.

Some positive aspects are also considered negative as not all professors have marketing skills to promote and sell their courses, and by outsourcing these activities, they have additional costs which do not occur in the traditional model.

Autonomy was highly valued by the interviewees. In fact, in the traditional model, professors not always managed to teach the desired subject either because there already existed another professional doing so or because they had to follow content guidelines set by their institutions or regulatory agencies. In such a model, the professor chooses the theme of interest and contents, determines the course load and dynamics to be used in the classroom, and sometimes, even the price to be charged and possible discounts. The studies by Belleflamme and Jacqmin (2016) and Hong *et al.* (2019) support this idea of autonomy and customisation allowed for professors who use digital platforms.

However, as these new activities cause overload, some professors even prefer outsourcing tasks or hiring assistants. For them, one of the aspects contributing to this overload is the assistance to students, mainly regarding clarification of doubts. The professors also report that questions arise every day and at any time, and in order to keep selling their courses, they need to answer them as quickly as possible. One of the good practices pointed out by the interviewees is the revision of content when a doubt is recurrent, which reduces the access to the platform by the students.

Another negative aspect is the relationship of the professor with the platform's technical staff because of the resulting stress. In general, the professor is informed by the students about technical problems and he or she has to mediate a solution despite the lack of practical action.

According to some professors, geographic reach was a highly mentioned aspect for them to have entered this market as they received a great demand from students and/or institutions for courses, but due to the distance, it was not financially feasible. Moreover, there are many reports on students who can only have access to contents thanks to digital platforms.

From the point of view of the professors, students have other advantages with the use of this model as the market demands constantly updated professionals and the traditional education has been shown to be slow in this issue. In addition, these online courses are more affordable and can be seen in the free time.

An aspect drawing attention is the dispersion of students. According to the professors, the number of completed courses is low and this is one of the most investigated issues in the literature (Rasheed *et al.*, 2019).

Digital platforms need to be aware of the issue of usability and technical support, which were the main complaints reported by the professors. Additional services (complementarities), which were listed without indicating the platform, seem to aggregate value as they were cited as advantages by 40% of the interviewees and as opportunities by others as well.

Like any other new activity, the professors need to develop new skills for using this model. In this sense, the aspect of promotion and selling courses was highlighted by the interviewees, which is not needed in the traditional model. Some professors stated that they preferred outsourcing this activity rather than accounting for it, whereas others see opportunities of promoting their own name by creating a personal brand and new opportunities for work. New teaching skills were cited only in a second moment, and apparently this aspect is not the main cause of concern among the professors.

Market growth is a consensus among the interviewees and although this means an increase in competitiveness, they are optimistic about the future. In addition, they count on new technologies and on the new generation of users who are increasingly more connected, which ends up propelling this market. Still in this context, some professors highlighted that the pandemic actually boosted the adoption of new technologies in the educational section and reduced the resistance of students to online courses. The continuous adoption of new technologies by digital platforms is cited as an opportunity for improvement. This issue is addressed in the literature by DeVaney *et al.* (2020) and Yanckello (2021).

The use of platforms allowed not only the traditional institutions to widen their reach but also to explore other business models in this segment. After all, the access to information has made learning something much less bureaucratic, thanks to the advance of Internet technologies. Following this trend, many companies have begun exploring the direct connection between professors and students interested in learning a new ability anywhere.

In view of the above-mentioned, it is possible to observe that the introduction of digital platforms brought significant changes in the educational scenario. Not only these platforms can be used as a model to join several remote operations of educational institutions, including their potential students, but also they can directly connect faculty members to those individuals who want to learn new skills, as is the case of MOOC. In view of the fact that the development of TIC moves towards increasing the access to digital platforms, it becomes relevant to understand the perceptions of certain players in this ecosystem.

It is also important to emphasise that many of the aspects cited by the professors corroborate the literature, such as geographic reach, scalability, supply of complementary services, flexibility, financial issues (Tiwana, 2013; Westerman *et al.*, 2016; Parker *et al.*, 2019), acceleration in the adoption of new technologies, new activities and responsibilities, new ways of working (Vial, 2019), and entrepreneurship and autonomy (Westerman *et al.*, 2016).

In addition, this study allows us to suggest actions for improvement for several players and for mapping opportunities for the sector.

Box 1. Actions for improvement and opportunities

Actions for Improvement
Professor: Development of new skills such as communication and sales; new teaching methods; entrepreneurship and management; technical skills; focus on quality and updating of courses and contents
Platform: Curatorship; faculty training; technical support; investments in new technologies; supply of new services; higher financial gains for professors
Student: Focus and dedication
Opportunities
To reach other markets and publics, mainly out of the great cities; expansion into corporate market; agility of the business model; more connected individuals

7. Conclusion

DT has enabled the emergence of new business models based on digital platforms. These models transformed the competitive scenario, labour, traditional management activities and organisational strategies, thus affecting several productive sectors such as agriculture, finances, logistics and delivery, education, transportation and others. This study has addressed the educational platforms and investigated the perception of faculty members on several players of the ecosystem regarding their use.

In this work, the following were identified: a) positive aspects, such as higher financial gains for professors; autonomy; wider geographic reach, quicker and more affordable courses for the students; b) negative aspects, such as promotion and sales activities to be performed by the own professors, problems with the platform's technical support and need to answer questions on a daily basis and anytime; c) new skills the professors need to develop, such as digital marketing and new teaching methods and d) opportunities perceived by the professors as a result of the market growth boosted by pandemic and new technologies.

The findings of this work were limited to a literature review and based on interviews with professors who use MOOCs in the Brazilian market and who had used the traditional education model. These results, however, should not be generalised to different publics and contexts, meaning that they should be viewed as exploratory and require further studies.

Nevertheless, this study brings important contributions. Academically, our results contribute to a better understanding of the new business models operated on digital platforms. Also, they showed evidence of how these technologies are contributing to the DT of traditional sectors and to the creation, delivery and capture of values in education by using MOOC.

By means of this study, managers, CEOs and entrepreneurs of the education sector can pay attention to other indicators when formulating their strategies and take into consideration the answers given by the professors. In this analysis, one can observe how the model of digital platform brought significant changes to the educational market and how it can be used to join several remote operations of educational institutions and their potential students as well as to directly connect professors to those who want to learn.

Future studies might deepen the research on this theme by using a quantitative approach and analysing multiple variables, including the players. Finally, it would be also relevant to carry out studies on the several business models used by educational companies and on the creation of value as a result of the platform's characteristics.

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