

The need for the inclusion of entrepreneurial and business skill in architectural education

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1. Abstract

There is an urgent need to bridge the gap in the course of architecture and urbanism between architectural practice and education. There is a major problem that architects face in the business environment. It is based on the assumption that recently graduated architects finish the university with little or no business knowledge and skills. This research aims to establish the importance of implementation in the curriculum of Architecture and Urbanism courses, disciplines that involve the field of entrepreneurship. Intended that the inclusion of disciplines that involve the field of entrepreneurship in the curriculum of architecture and urbanism, may influence the increase of professionals seeking to undertake, and improve skills that can help the professional future even if you do not want to be an entrepreneur. Interviews were carried out using qualitative research, with 12 participants, composed of 5 professors from 4 private universities, 3 architects who own their own business, and 4 students (state and private universities). The results generated were discussed and compared with the literature review, confirming that there is still a lack in architecture universities in preparing students with subjects that involve business and entrepreneurial skills.

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3. Introduction

Newly graduated architects face challenges when entering the job market because according to AIA (2013), what happens in the academic environment is different from what is found in the companies' environment. During the university period, students are encouraged to look for internships in offices to be able to understand how the day-to-day of an architecture office works. However, the internship alone does not help to improve business skills, as many do not have contact with this area in the internships and focus only on developing the architectural project.

It is cited by The American Institute of Architects (AIA) (2013) that architects need to develop some skills such as analytics, communication, creativity, critical, organizational, technical and visual thinking. Such skills can be acquired or improved, making future architects more prepared for the job market and can also be applied in their personal lives as mentioned in AIA (2013) by Albert Shapero.

“Students spend four or more years learning how to dig data out of the library and other sources, but it rarely occurs to them that they should also apply some of the same new-found research skill to their own benefit.” (p. 84)

This research aims to bring inquiries and recommendations to interested parties who can put these actions into practice or bring the subject to the discussion so that the teaching related to business skills to students of Architecture and Urbanism can be improved.

According to Vosloo, Vosloo and Antonites (2018), it is necessary that students of architecture be prepared to be able to act as entrepreneurial architects, and that the architect's practice manual published by AIA states that 21st-century architects have to develop business management skills to work in the current market. Vosloo *et al.* (2018) further state that according to the Royal Institute of British Architects (RIBA) there is a need for architects to be aware of the commercial side of the profession. The authors mention that according to Tobias Maescher, there is a deficiency in the curriculum of Architecture and Urbanism at German universities and that subjects such as business orientation courses, soft skills courses and entrepreneurship courses could be added.

This research aims to highlight the need to implement in the curriculum of architecture and urbanism, subjects that cover the subject of entrepreneurial skills and business. The research will seek to understand the role of the architect in the market and how business knowledge can improve their performance in the market. The research also seeks to explore opportunities beyond architecture because according to AIA (2013) the professional who graduated in architecture can work in several other careers besides architecture. Half of the

graduates seek their degree; therefore, the research seeks to address how knowledge and business skills can be explored and applied by recent graduates, being able to act in other areas besides architecture. Thereby the basis of the study is to find out if architecture students need to be taught business/entrepreneurial skills. containing three sub-questions, which the research will investigate and point out the need for discussion on the theme.

1. Are business/entrepreneurial skills a necessary skill for architects?
2. What skills should be taught to architecture students?
3. What benefit would teaching business/entrepreneurial skills provide to architectural students?

4. Literature Review

The research seeks to understand the work of the architect and entrepreneurship, and how business skills can contribute to a professional in the area of architecture and urbanism. These fields will be reviewed separately, and then what skills a trainee in architecture and urbanism should acquire during the course to have better chances in the job market will be reviewed.

4.1 Entrepreneurship

According to the Cambridge Dictionary (2020), the definition of entrepreneurship is: “skill in starting new businesses, especially when this involves seeing new opportunities”. Mbhele, P. (2012) also states that entrepreneurship is the action of exploring new opportunities that can produce new goods and services.

As stated by Hamburg and David (2017), entrepreneurship can be interpreted as an art that has the power to transform ideas into action. The authors also claim that some skills apply to entrepreneurship such as innovation, risk-taking and the competence to plan and manage projects. In this scope of entrepreneurship, such knowledge is not only relevant for those who want to open their own businesses but for all those who want changes in the economic and social environment, being able to improve their personal skills and ideas. As reported by EU Skills Panorama (2014), such skills in the business environment are vital for economic growth, as it promotes innovation and competitiveness. As mentioned by Hamburg and David (2017) and EU Skills Panorama (2014), such skills can provide benefits to the independent individual, whether they will have a business of their own or not, as it encompasses creativity, initiative, tenacity, teamwork, understanding of risk and sense of responsibility and provides both professional and personal benefits to those who acquire such skills.

The entrepreneur must-have skills that can build strategies for a new business include being aware of the threats that the enterprise may suffer (Pahuja and Sanjeev, 2015). Still, the authors affirm that entrepreneurship involves time, effort, and risk, with the expectation of receiving something in return, which may be monetary or personal satisfaction. Also, according to Ernest *et al.* (2015) these skills can be acquired through training.

Pombo (2019) says that economist Joseph A. Schumpeter makes an association of the entrepreneur to economic development and that capitalism has as its characteristic and inherent strength the process of “creative destruction”; in short, it is the destruction of the old for the creation of the new. It can be presupposed by the view of Pombo (2019) that the entrepreneur is the one who sees what no one can see, who can move from the dream or imagination and put it into practice. They are the one who imagines, develops and realizes visions. Pombo (2019) also states that the entrepreneur is someone who lives in the future, and manages to transform and see opportunities during the crisis, having the power to influence people, to follow their ideas; in this context, the author defines six entrepreneurial skills such as imagination, determination, self-assessment, ability to organize, ability to lead people, ability to technically know stages and processes. Pombo (2019) and Vosloo *et al.* (2018) believe that such skills are not born with the individual, but are acquired over time, in addition to being amenable to teaching. "Entrepreneurial leaders are made, not born" (Ernst & Young, 2011).

4.2 The Role of the Architect

AIA (2013) defines the role of the architect as “to protect the health, safety and well-being of the public”, following the statutes and regulations according to each region where it will operate. It is said that the architect's career can be planned as well as architectural projects. To be able to build a career you have to go through a process that includes, evaluation, exploration, decision making and planning.

“The whole creative process of making decisions that aim to satisfy the human needs that we call ‘design’. Simply put, design is the art of making decisions” (Malec, 2017).

Malec (2017) states that the architect, besides designing houses and buildings, can develop projects such as landscape, clothing, cars, aeroplanes, graphic design and promotional campaigns among other functions. All decisions in project development can be understood as a decision-making process, which seeks to accompany the development of the project until its delivery. The development of a project, according to Malec (2017), is the fulfilment of a client's wishes and desires. However, the project must be developed in a way that cannot compromise the space where it is being inserted, having a functional aesthetic. At the same time, the project must follow the laws of the region where the construction will be carried out. The architect has

the function of keeping the client up to date in the event that something should be changed in the project due to some legislation to prevent future harm to the client and the location. The architect's clients are not only private individuals but can also be public or private institutions among other organizations. Norouzi (2015) and Palea *et al.* (2012) says that communication is essential to be able to have a good relationship with customers, and also states that the ability to communicate can help when explaining the concept of the project, which the author says there are many complaints on the part of clients for not understanding what the architect tried to express.

According to Farrelly (2007), a project involves a large team, and that each member has different skills. For the success of the project, it is necessary that the team works in line with the information and guidelines of the project, and that all information is delivered clearly to each member involved in the development of the project. As well as having the ability to estimate how much the work will cost.

McIntyre (2006) states that architecture can impact many aspects of society, both positive and negative. It may have an environmental, economic and social effect. This contribution can occur through the design of urban environments, as mentioned by Zammit (2013), and can directly influence the formation of the community. Zammit (2013) also states that facing urban challenges is a way of contributing to society, through the project because such solutions can affect the economic, sociocultural, infrastructure, technological and environmental view. Such actions are proven through several projects carried out in several cities, like projects that create mixed-use neighbourhoods, sustainable rehabilitation, urban subdivisions within the city. The architect is seen as a problem solver as reported by the authors Callway, Farrelly and Samuel (2019). In short, the function of the architect is to change a space or environment, in which he assumes responsibility for both the client and society.

4.2.1 Beyond Architecture

In AIA (2013) it is stated that one in five architects works in areas outside the architecture office which may include companies and institutions, government and public bodies, education and research. According to AIA (2013), the architecture course prepares the architect for many other professions, and that only half of the graduates seek licensing to act as architects. Within architecture, the architect can specialize in several areas as listed by Zilliagus (2019): landscaping, urban planning, restoration, research, lighting design, political architecture, extreme architecture. Zilliagus (2019) states that architecture is art and design and that this facilitates professional performance in this area as well as in the following professions: artist, industrial design, furniture design, textile design, graphic design, video game design, photography and production design.

*“As a profession, architecture offers a myriad of possibilities for rewarding careers.”
Irene Dumas Tyson” (AIA., p. 89. 2013).*

According to AIA (2013), the possibilities for an architect are endless, although most of the areas they work in are somehow linked to design. This possibility occurs due to the wide range of studies and subjects in the architecture course. The course provides activities where the student can improve their way of thinking and seeing tasks as well as collecting information and being able to apply it to projects. These activities provide the student with the opportunity to solve problems, thus seeking various possibilities to develop the project in the best way, meeting all needs, providing good acoustics, lighting, ventilation and meeting the laws between other problematic issues. The profession of the architect has changed; with that, opportunities are being created and expanding the profession beyond what it is today.

4.3 Architect + Entrepreneur

According to Dornelas (cited in Fritzen, 2009), the word “entrepreneur” appeared in France and that means the one who takes risks and starts something new. Fritzen (2009) states that entrepreneurs are those who seek innovation, create business opportunities, set up and coordinate strategies and resources that can extract benefits in an uncertain environment. For Lackéus (2015) entrepreneurs are people who create innovative companies or ideas, which mature and create value with or without profit. Richardson (2019) says that architects are able to create value since in their profession “they add unique combinations of resources through a construction” and that architecture alone is a form of entrepreneurship. Also, Ghobril et al. (2020) states that entrepreneurship helps economic growth, so universities have the role of preparing the new generation for this practice.

As Richardson (2019) reports, construction, project, design and the professionals who carry them out are extremely important, but it is not the only area where architects and designers can make contributions to society, such as the very conception of the profession and the relationship with entrepreneurship. He goes on to say that the entrepreneurial process involves "recognizing opportunities, generating ideas, testing feasibility, developing an effective business model/plan, analyzing the industry, the competition and financial viability, assembling a team and obtaining financing." Richardson (2019) further states that the architect's curricular program has been expanding and adapting, causing them to have a deeper relationship with real estate, business and entrepreneurship. In reality, the business field is no less important than the work of the architect and designer producing and developing drawings, as mentioned by Vosloo (2015).

According to Vosloo (2015), having knowledge in business management can increase the probability of making a profit and staying in the market and he goes on to state that the

AIA recognizes the need that architects should have knowledge that involves administration and business. Vosloo (2015) also states that architects who have an entrepreneurial mindset will analyze the opportunities that are related to business ventures and may find opportunities to be explored. He states that having such knowledge is no guarantee that you will have a successful career, however, without such knowledge it makes running a business a difficult task. This shows how necessary it is for architects and designers to acquire such knowledge and skills.

Vosloo *et al.* (2018) believe that it is of great importance, that architecture students and designers are prepared to act like entrepreneurs. The authors mention that according to Choi and Klein, entrepreneurship and architecture are already part of the same area or have been practising for a long time. Vosloo *et al.* (2018) state that with the passage of time and the adaptation of the profession, it is necessary to have commercial and managerial knowledge, as a willingness to take risks, and be able to have the vision to identify and explore opportunities is important. This reinforces once again the need to implement the curriculum of architecture courses that involves entrepreneurial skills. Newly graduated architects will face many decisions and with that, it requires that they have a strategic thought process, because choices that will be made in this stage can have long-term results. Vosloo *et al.* (2018) cite skills such as “socio-emotional, such as leadership, risk-taking, self-confidence, creativity, resilience, motivation and self-efficacy”. It is cited by Decq (Archipreneur, 2017a) that universities should provide the means to prepare students with skills that help them in autonomy in the practice of architecture, that architecture goes beyond being just a profession, which is a discipline and a culture. Decq (cited in Archipreneur, 2017a) also states that architects should be taught not only to design buildings but also to be able to act as entrepreneurs and to help the world. Decq (cited in Archipreneur, 2017a) says the school slogan she created is “Taking risks - collaborating - making mistakes - learning from one's mistakes - persevering - discovering new concepts and succeeding.” Following the same thought, Rosenzweig (Archipreneur, 2017b) says that these are the core elements of a business startup. According to Eich and Mehner (Archipreneur, 2015a), architects who are already on the market do not have a strategy for themselves and that in architecture schools, in general, it is not taught how to manage a business. Eich and Mehner (Archipreneur, 2015a) affirm that students must be taught in addition to designing buildings, and they must also learn how to design their careers. With the same thought Eric Reinholdt, author of the book *Architect + Entrepreneur*, says in his interview with Archipreneur that what is taught in architecture schools has little to do with the daily life of an architecture firm (Archipreneur, 2015b). Buchanan (2012) also agrees that business skills are fundamental for an architect because

architecture is also a form of business, which requires such knowledge for good management for architects.

Ebong, Basse and Oguike (2019) say that teaching about entrepreneurship, in addition to creating a positive disposition about it, can also improve skills that will aim to start or manage a business and that applying this teaching in universities will increase the chances of a recent graduate to establish himself in the market. According to Ebong *et al.* (2019), entrepreneurial education has not been a central subject in the curricula of architecture courses; they state that it is necessary to apply such materials to architects, as it would train architects to be more prepared for the business environment and the rapid changes that are taking place in the world. Learning should not be based only on the conventional elements of a project, as the market today needs knowledge in management techniques. Ebong *et al.* (2019) comment that according to Alvarez, it is necessary to revise the curriculum including business and management training; as the authors report, themes that involve administration, humanities, entrepreneurial and behavioural sciences are not found in many architecture courses. The absence of these themes from courses can lead architects to be unprepared to deal with areas of management in the architectural workplace. The French architect Decq has been teaching architecture for over 25 years; in her interview with Archipreneur (2017a), she says that today's architecture has to be rethought in its way of teaching new architects. She states that the current courses are mainly based on teaching how to design or build buildings, however, she considers this a very restricted form in what architecture is and that colleges today only train architects basically to enter an architecture firm. Decq questions how universities prepare students for the future, and that more than half do not want to be employees in a company but want to be able to work for themselves (Archipreneur, 2017a). Rosenzweig (Archipreneur, 2017b) and Thakur (2009) believes that there is a lack of two very important components to be taught in universities, which are business skills and an openness to entrepreneurial inventiveness that is not focused on singular design. Eich and Mehner (Archipreneur, 2015a) cite that working as an architect is dealing with a large number of competitors today.

Thammanuban (2016) says that architects must have the ability to lead and manage people because in an architectural construction it involves several areas of cooperation, which the architect will be leading from the beginning of the project to completion. Thammanuban (2016) states that according to Sthapitanonda, leadership is one of the skills that must be taught in universities, due to the current complexity in the rapidly growing urban society and advanced construction technology. According to AIAS's Issue Brief on Architectural Education quoted by Thammanuban (2016), leadership is one of the emergency skills to be taught in schools of architecture. Thammanuban (2016) points out that she sees an insufficiency concerning the

support of professional practice; and that there is a lack of teaching in providing management training, leadership, among other skills that are fundamental to the work of the architect; Thammanuban (2016) goes on to say that Quirk suggests that such skills should be taught to architects while at university, being more effective and that such teachings should be introduced in academic curricula. Ebong *et al.* (2019) claim that architects can explore new areas of design, going to the construction industry and the general economic environment. According to Ebong *et al.* (2019), companies must be connected with consumers and look for capitalization opportunities to be successful; they mention some entrepreneurial areas that architects can work with - design-build practice, architectural journalism, academic firms, architectural management and building information modelling.

Fabrício (2007) states that according to Tapie, the work of the architect is less and less autonomous and it is necessary to expand knowledge in skills management. Fabricio (2007) states that according to Fontenelle, the management of a project involves several activities from planning to the construction process. Following the same line of reasoning, Fabricio (2007) says that there are three types of activities that involve a project, "making strategic decisions and planning; the management and control of information and the progress of the design process; and coordination and compatibility between solutions". For this, the person in charge of the project must have skills such as management and leadership, planning, control and process management, being able to have control of the project on the job. Fabricio (2007) states that such skills are often acquired during day-to-day work and that the formation of architecture contributed little to these functions. According to Fabrício (2007), the schools of architecture focus on project aspects such as technical-cognitive, emphasizing creativity and associated techniques, with little or no emphasis related to managerial, communication and leadership skills, authors as Adewale and Adhuze (2014) and Khodeir and Nessim (2019) also report that many employers complain about the recent graduates' lack of preparation and inadequate knowledge for the job market.. Fabricio (2007) also states that according to Lana and Andery, the academic curricula in architecture based on the current market, recently graduated architects are unprepared concerning the production process of work without skills to be able to manage a project. He goes on to say that because many architects lack these skills, they enlist in specialization courses and postgraduate courses among others to acquire this knowledge and skills that were not guaranteed in their graduation.

Second, according to AIA (2013), companies must take into account aspects such as "marketing, finance, human resources and project management". In short, as much as architecture can be understood as entrepreneurship by itself, according to some authors this area is not fully explicit in architecture education and that having a greater understanding of

entrepreneurship can make future architects more effective in their work and personal environment.

Chengdong and Shuang (2019) say that universities should adapt the curriculum of architecture schools by combining the needs of the market with the training of these students, forming more qualified professionals. These skills that must be acquired according to Geraint (2017) are increasingly demanded by employers, showing that there is a need to improve the curriculum of schools of architecture. Nnaemeka-Okeke, Ugwu and Okafor (2019) also draw attention to this need in architecture courses, saying that young architects must be prepared for these market trends and that the current structure is inadequate for the job market. Nnaemeka-Okeke *et al.* (2019) state that the architecture course is a multidisciplinary course that prioritizes individual creativity and problem-solving skills, however, the authors state that universities do not prepare or minimally prepare architects to deal with negotiations, multidisciplinary teamwork, and leadership that is fundamental for the architecture professional.

There are many concepts in teaching entrepreneurship, but Nnaemeka-Okeke *et al.* (2019) cite six concepts that would be fundamental for architects, which are: risk, innovation, managerial skills, leadership and professional and business guidance. Knight (1921) believes that entrepreneurship is the practice of starting a company and taking the risks that the company will present, seeking to make a profit. Drucker (quoted in Nnaemeka-Okeke *et al.*, 2019) states that innovation is one of the tools of entrepreneurship, such as developing new products, new production techniques, as well as seeing a new niche in the market. Nnaemeka-Okeke *et al.* (2019) say that management skill is a combination of leader and team, where the leader or manager, will have the skills and knowledge to manage the team in the best possible way directing tasks, managing time to achieve the company's goals and that good leadership produces profit and good leadership generates entrepreneurship. Professional and business guidance, on the other hand, comes with the study and analysis of entrepreneurship models, to inspire and guide future entrepreneurs.

It is seen that the role of the architect has undergone changes over time, which requires changes in the curriculum in universities so that it can keep up with market demand. The study shows that there is a deficiency in the curriculum of architecture and an absence of professional and commercial guidance courses, soft skills and entrepreneurship courses. Disciplines involving entrepreneurship are not just for those who think about opening their own business, because even if they do not open their own office, architecture is an area that involves several fields, that is, the architect works with a wide range of professionals, and depending on the field of action, the architect will be leading teams, demanding that they have

a vision of managing teams and projects, as a strategy for decision making, among many others.

The research shows that there are universities as shown in table 1 and 2 that try to attend to this deficiency in teaching, however, it still needs reformulations, and to have a greater depth in teaching about entrepreneurship, making architects more prepared for the job market. As shown, business education is not the central discipline of the architecture course, however, research believes that it should have as much relevance as the design discipline and that the lack of these disciplines has left trained architects unprepared for the job market, showing that there is a need to improve the curriculum.

Table 1	
UCD ARCHITECTURE	
Year 1	Architectural Design (Studio-based learning), History & Theory of the Designed Environment, Architecture & its Environment , Architectural Technologies, The Engineering and Architecture of Structures, Into Practice.
Years 2 & 3	Architectural Design (Studio-based learning), History & Theory of the Designed Environment, The Indoor Environment , Architectural Technologies, Theory & Design of Structures, Imagining Architecture, Framework for Practice Optional Year Out - Experience the world of work*
Year 4	Design Technologies, Research & Innovation in the Designed Environment , Architectural Design (Studio-based learning), Comprehensive Design Project, Specialised option modules, International study abroad options Optional Year Out - Experience the world of work*

MyUCD Undergraduate Admissions. (2020)

Table 2	
UCC ARCHITECTURE	
Year 1	Design Studio 1 & 2 (15 credits each); Construction, Materials and Structures 1 & 2 (5 credits each); Applied Technology Studio 1 & 2 (5 credits each); History and Theory of Architecture (5 credits each)
Years 2	Design Studio; Construction, Materials and Structures; History and Theory of Architecture; Environmental Design ; Applied Technology Studio
Year 3	Design Studio; Conservation; Applied Technology Studio; Environmental Design ; History and Theory of Architecture; Landscape
Year 4	Design Studio; Dissertation; Architectural Technology; Professional Practice and Management.

University College Cork. (2020)

In sum, entrepreneurial and business skills are essential to enter the job market, even if the professional does not start a business, because as shown in the research, skills that involve the field of entrepreneurship do not apply only to those who are going to undertake. And such skills according to several authors mentioned in the research can be learned or improved. Also, architecture is a field with a great variety of performance in the job market, therefore, understand that obtaining this knowledge during the university period is essential for the architect to be better prepared for the job market, as mentioned by some authors who

the profession of the architect has been changing, and universities must prepare these young professionals for the job market they will face. At the same time that many authors cited in the research say that there is a need to revise the academic curriculum of schools of architecture, as there is still a deficiency in teaching management, or disciplines that assist in professional practice, training professionals unprepared for the job market. Thus, it is observed that there is a need to investigate the field of entrepreneurship and how the skills involved in this area can assist in the training of future architects, thus being able to contribute not only with the professional itself, but with society as more prepared professionals who can contribute economically to society.

5. Research Questions

Research shows that some authors agree that architecture is in itself entrepreneurship and for that, the professional needs to improve or learn administrative, business and business management skills. The profession of the architect constantly works with situations where the professional deals with solving problems, where they must often be creative and innovative seeking solutions that are efficient in their projects. The architect takes aspects such as functionality, lighting and aesthetics into account in a project; projects can vary in size, from small furniture design projects, graphic design to large works or urban planning.

Today, the architecture profession has a vast area where they can work in the market, not only being restricted to works or decorations but also working in other sectors such as project management and administration. An area that has also been explored by these professionals, is acting as a service provider, during the policy developing research and projects on popular housing. There are countless possibilities where the architect can act as seen in the research.

The research shows that there is a great need on the part of architects where it is necessary to learn subjects that involve skills in business management and entrepreneurship, making future professionals more prepared and confident in the job market. Even if the professional has no intention of opening their own business, it is of great importance to acquire this knowledge, since the work of the designer and architect involves creativity, innovation, decision making, solving problems, among others.

6. Methodology

According to Williams (2007) and Mack *et al.* (2005), qualitative research is research that consists of an investigation. The researcher seeks to find answers to a question, has the function of collecting evidence and can produce discoveries which were not determined at the beginning of the project. The author also states that qualitative research has the function of

helping the researcher to understand a problem or topic addressed in the research, from the perspectives of the public involved in the research and that qualitative research is effective in collecting specific data on the values, opinions, behaviours and social contexts of specific populations.

Williams (2007) also states that this type of research can provide complex information from the interviewee's point of view. It is also effective in finding intangible answers, such as social norms, socioeconomic status, gender roles, ethnicity and religion, which may not be as easy and related in the research. The collected data must be compared with previous research, comparing similarity between the data.

As mentioned by Williams (2007), the five methods of qualitative research are - case studies, grounded theory, ethnography, content analysis, and phenomenological. It is described that these methods serve different purposes and needs. Case studies and grounded theory research seek to investigate processes, activities and events, while ethnographic research seeks to analyze behaviours of specific cultural groups or individually. Both case studies and phenomenology can be applied to studies of individuals.

The advantages of using qualitative methods according to Williams (2007), is that the interviewee has the opportunity to respond with their own point of view, as opposed to quantitative research that forces the respondent to answer a fixed answer. Performing qualitative research, it is possible to obtain unforeseen data by the researcher, and rich in information and explanations. Just as it is cited by Gill *et al.* (2008) that this research method allows interviewers and interviewees to differ in opinions, being able to have a broader view of the proposed topic.

The methodology chosen for the purposes of this thesis was to conduct in-depth interviews, which fits into qualitative research, which aims to conduct individual interviews. This technique generally consists of a small number of respondents, due to the large amount of data generated through the interviews. This technique is generally used when focusing on a specific situation or objective. Asking questions objectively and paying attention to the interviewee's answers. The interviewer should encourage respondents to seek more details that may be relevant to the survey. (Garcia, and Gluesing, 2013).

Therefore, the choice of this method is due to the following reasons. The data collected individually on the questions being investigated may contain much richer content than a large number of data and responses. Being able to collect much more information, giving interviewees time to grant their views on the questions. Because the interviewee is in an isolated environment, they can feel more comfortable to be able to give information about their

experiences on the topic of the question. Available resources, such as time constraints on the part of the interviewees, had to be taken into account.

For this reason, qualitative research is a fundamental tool for the research carried out, as the research sought various points of view and opinions, on the topic studied. For the interviews, participants were selected who are related to architecture and urbanism, such as architects who teach at universities, newly graduated architects, architects who are already established in the market and students of architecture and urbanism courses. With this, the data provided will help to answer the questions raised previously.

6.1 Objective

The interviews sought to understand various points of view about entrepreneurial and business skills for architects and whether there is any relevance in introducing them in the academic curriculum of architecture and urbanism. For this, the chosen group had as a criterion of choice their profession or course that they are studying which in this case is architecture and urbanism.

This research presents the results of interviews with professors of architecture and urbanism, architects who work in the labour market, and students who are studying the last year of architecture and urbanism. The choice of teachers had as a criterion the time they have worked teaching architecture and may have relevance in the results that will be presented because, with the years of experience in the academic area, it is extremely important to understand their points of view for research. The architects who were selected for the interview are owners of their own offices; this group for research is important because they work in the business market, where they deal with the management of an office. Data collection with this group is important because they work in the field business in their daily lives, which contributes to the results of the research. As for the students, three students from the last year of architecture and urbanism were selected because, as they are about to enter the job market, for research they can contribute with information about how they feel about the job market today, and whether the university provided a sufficient basis to prepare them for the job market, not just in design, but to be able to open their own office or act as project leaders among other factors.

6.2 Sample/participants

The interviewees were selected through an international sampling process or known as trial sampling, in which the researcher chooses the selected group that will compose the sample. Participants were contacted via e-mail and participated according to the availability on their

agendas. The architects participated freely and spontaneously, with confidentiality guaranteed by the interviewer. The interviews were conducted through video conference.

12 participants were selected, 5 academic professors with at least 11 years of experience, 3 architects with at least 7 years of graduation and 4 recent graduates or who are in the last year of the university. As shown in tables 3,4 and 4.

Table 3

Academic Professors

Lecture 1 (L1)	Lecture since 1997 at São Judas Tadeu
Lecture 2 (L2)	Lecture since 1991 at São Judas Tadeu and Escola da Cidade
Lecture 3 (L3)	Lecture taught for 35 years at São Judas Tadeu and Belas Artes (no longer acts as a Lecture)
Lecture 4 (L4)	Lecture since 1992 at São Judas Tadeu
Lecture 5 (L5)	Lecture Bandeirantes of São Paulo, for 11 years Artes (no longer acts as a Lecture)

Table 4

Architects

Architect (A1)	Architect graduated in 2013
Architect (A2)	Architect graduated in 2013
Architect (A3)	Architect graduated in 2001

Table 5

Students or newly graduated

Student (S1)	Tenth-semester Uniron
Student (S2)	Tenth-semester Unemat
Student (S3)	Fourth-semester Unemat
Student (S4)	Graduated in 2019 by Unemat

The age of the participants was not taken into account for the choice, but the time of experience for each group, for the group of academic professors, the time they teach with at

least 11 years of experience, the group of graduated architects with at least 7 years of graduation, and for the group of students being recently graduated or who are in the last year of the architecture and urbanism course.

6.3 Data collection tool

In the research, semi-structured interviews were used, which according to (Triviños, 2008, p. 152) mentioned by Manzini (2004) “[...] support not only the description of social phenomena but also their explanation and understanding of its entirety [...] and maintaining the researcher as an actor in the information collection process”. The semi-structured interview focuses on a subject with the main questions that can be added by other questions depending on the circumstances that occur in the interview.

Each architect was asked to describe what the architect works on and how they work in society. Initially, it was asked: “How do you see the work of the architect in the current market and why?”. This allowed each participant to reflect and explain their way of seeing the role of the architect today, to seek a greater understanding of the role of the architect in society in the view of each respondent. Within this theme, the interviewees within the research topic related to existing and missing skills to the architect.

The interviews lasted between 40 minutes and 1 hour, being conducted through video conference, and recorded for reference purposes. The interviews were recorded and transcribed in full-text format.

6.4 Ethical considerations

The interviewees were contacted by the researcher via e-mail where the dates and times of the interviews were negotiated, the interviewees signed a term in which they authorized the recording of the interview and who chose to participate in the interview willingly and spontaneously.

6.5 Data analysis

The research used thematic analysis as proposed (Braun and Clarke 2006) cited by Souza, (2019) which is a qualitative data analysis methodology to analyze patterns or themes from qualitative data. This method makes it possible to organize and describe the database in rich detail, through data collection, transcription and review. Each interview was transcribed and analyzed, separating information or keywords that assist in the formulation of the qualitative table as can be seen in Tables 6, 7 and 8. Each question was coded to ensure that all questions were identified in the interview.

Table 6

A conceptual analysis of entrepreneurship concerning the education of the architect: according to academic professors.

lack of improvement-entrepreneurial and business skills	<p><i>“this administrative part about how to manage the office, which was an education we didn’t have” (L1)</i></p> <p><i>“this was not a central concern in education (...) business and entrepreneurial skills, that was a flawed thing in my education.” (L2)</i></p> <p><i>“was seen as a minor thing, less important in education” (L4)</i></p> <p><i>“The absence of this education during graduation, I don’t know if I can say this, but it delayed the opening of an own office” (L5)</i></p> <p><i>“the architect becomes a negotiator of interests, which represent various points of view, which is precisely the skill that many do not have in their academic education” (L5)</i></p>
Beginning of a reformulation of architecture education	<p><i>“now the architecture student has a greater mobility, he even has the possibility to take courses in other units of the USJT” (L1)</i></p> <p><i>“has undergone many curricular reformulations, and this approach has been expanded, but at the same time it has reduced the course load” (L2)</i></p>
Plural profession	<p><i>“work with multidisciplinary teams, so it is important to an architect to have this vision, to get used to and work with other fields of learning” (L2)</i></p> <p><i>“architecture is a very plural formation; it is very generalist so it opens up many fields” (L3)</i></p>
Opening an office after graduation	<p><i>“I find it difficult without having a previous experience” (L1)</i></p> <p><i>“not every professional want or should invest in the creation of an office because I think there is a wide range of possibilities” (L2)</i></p> <p><i>“Somehow they open, but opening an office is one thing to maintain is another,” (L3)</i></p> <p><i>“Alone I find it very difficult, but if he has partnerships, I think it is possible, it is difficult it is not an easy job.” (L5)</i></p>
Practice and theory - there is a distance	<p><i>I don’t think what is taught at school is far from what happens at work, (...) I think that at school what the student actually learns is a method of how the student will develop a project, how he thinks, how he faces a problem,” (L1)</i></p> <p><i>“I think so, but I insist that there is a wide range of possibilities for professional practice in addition to the provision and services of an office” (L2)</i></p> <p><i>“I believe that in parts he is right, (...) it is not open all the issues that involve the functioning of the office” (L3)</i></p>

	<p><i>"I agree in parts, as a teacher I think that a good part of the course that is given, is not very associated with the reality that these future architects will face in the labour market" (L4)</i></p> <p><i>"I agree in a practical sense, the vast majority if quantifying out of every 100 architects what 90 do is not applying what was learned at the university," (L5)</i></p>
Migration of architecture professionals to other areas	<p><i>"has more architects than the job market can offer, (...) I also think that people change a lot, they end up having other interests, some think they will love working with projects and no," (L1)</i></p> <p><i>"Sometimes they have a frustrated expectation, and they end up working on what had a chance in the opportunities that came up" (L2)</i></p> <p><i>"then an architect graduated and works with visual programming, web designer, I think it is within the area" (L3)</i></p> <p><i>"When the market is more retracted and has fewer options, the architects end up leaving the field of architecture" (L4)</i></p> <p><i>"I believe for lack of market opportunity, at least for the people I know who left the market and there are many of them" (L5)</i></p>

Table 7

A conceptual analysis of entrepreneurship concerning the education of the architect: according to architects.

Lack of knowledge-entrepreneurial and business skills	<p><i>"maybe we got a little bit of merit in Fernando class (...) but I found it to be a very weak discipline" (A1)</i></p> <p><i>"In fact, I had it, but the discipline was very weak, it was just an introduction" (A2)</i></p> <p><i>"that was it that I realized that I had to gain knowledge far beyond architectural knowledge that the college did not give me." (A3)</i></p>
Management, leadership – for newly graduated	<p><i>"management, leadership, it is not easy, so I don't think that newly formed has this preparation to take a lead." (A1)</i></p> <p><i>"No, because the newly graduated architect is seen as an intern (...) there is not much difference between an intern and a newly formed" (A2)</i></p> <p><i>"No, they are very poorly prepared, and the worst of all is the newly formed ' feeling of frustration" (A3)</i></p>
manage own business-difficulties	<p><i>"it was very difficult because we spent 3 months without entering a project at the office, we couldn't get clients" (A1)</i></p>

	<p><i>“was very difficult because I had to control the work, carry out the project, deal with the client, manage the company, and doing all this alone” (A2)</i></p> <p><i>“my biggest difficulty was how to be an entrepreneur, I thought it was just taking a project and building,” (A3)</i></p>
Practice and theory - there is a distance	<p><i>“I fully agree, as we say the architect in college he is taught to think, but not to practice, there is a little lack of this conversation” (A1)</i></p> <p><i>“I totally agree, and I experienced it I think the college prepares the student to live in a world that is a bubble that doesn’t exist, a utopian world,” (A2)</i></p> <p><i>“I think the insight is the college or the professors but of course it has to be something decided by the university board to understand what happens in the job market, and bring this reality of the market into the university” (A3)</i></p>
Migration of architecture professionals to other areas	<p><i>“I think in college we should see a little more than architecture can offer to us in the job market, such as graphic design, interior design, many who are new graduate will work with interior design, I think that is missing, it shows reality.” (A1)</i></p> <p><i>“I think this happens because the new graduates leave unprepared for the job market” (A2)</i></p> <p><i>“it creates an expectation during the college period and when graduate it is not what the person expected, there comes a feeling of frustration,” (A3)</i></p>

Table 8

A conceptual analysis of entrepreneurship concerning the education of the architect: according to architecture students.

beyond architecture	<p><i>“architecture must become something broader, more accessible (...) I think this is the role of architecture today” (S1)</i></p> <p><i>“the fields that architecture involves is not just building a house” (S2)</i></p> <p><i>“many people think that the architect is just a decorator (...) an architect designs, defines materials, thinks about the construction environment.” (S3)</i></p>
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	<p><i>"I see that the architect has the function not only of creating or conceiving a project (...) even to a certain extent psychologically the client" (S4)</i></p>
Lack of knowledge-entrepreneurial and business skills	<p><i>"I had the discipline to know how to make a contract, construction management, but it was a very basic course" (S1)</i></p> <p><i>"I believe that these disciplines that address business skills had to be seen since the beginning of the course" (S3)</i></p> <p><i>"in my curriculum, we have the option of making a discipline of our choice, (...) I chose to do business law in law school" (S4)</i></p>
Being prepared to manage a team or project	<p><i>"In my experience, no, I had an experience related to this in events organized by the university as architecture week or congresses" (S1)</i></p> <p><i>"I believe so because most of the projects are in groups" (S2)</i></p> <p><i>"No, until now I didn't realize that through the work is done, we are being prepared for such tasks" (S3)</i></p> <p><i>"in real life, this type of communication is very different, this contact between the team is very different in the academic project" (S4)</i></p>
knowledge and skills to open an office	<p><i>No, so much so that I don't think about opening an office, I want to pursue an academic career" (S1)</i></p> <p><i>"I would try to open my office because I like to venture out, but not everyone has this security" (S2)</i></p> <p><i>"I think it's kind of complicated open an office (...) I find it difficult just because of the baggage we have accumulated at the university." (S3)</i></p> <p><i>"Today I don't know if I would have to open an office, it's kind of risky" (S4)</i></p>
Practice and theory - there is a distance	<p><i>"in college, we do projects for ourselves, in a utopian way, teachers are our clients, so we don't have a lot of technical issues project." (S1)</i></p> <p><i>"In relation to the rush, the madness and exhaustion, I think the college prepares (...) but our mental health goes to the trash" (S2)</i></p> <p><i>"what is charged in college is not what is charged in professional life (...) In college, there was no talk about the charges involved in approving a project." (S4)</i></p>
Migration of architecture professionals to other areas	<p><i>"I know many people who changed their field of work, my friend set up an office, but he was in limbo, today he works teaching" (S1)</i></p> <p><i>"I discovered another area of architecture that I want to work in" (S2)</i></p>

	<p><i>“can be several reasons, due to lack of opportunity, saturated market” (S3)</i></p> <p><i>“It was my wish to work in this area, and today I’m in a totally different segment, and I think that the affinity of the architect and depends on the market, the job market for the architect is saturated” (S4)</i></p>
improvement in university education	<p><i>“I think that not only one discipline (...) I think that if there were more reality within universities it would make a difference in our professional life.” (S1)</i></p> <p><i>“other possibilities that the architect can explore should be introduced, so if these options are shown before probably graduating these people who drop out of the course, end up exploring these new areas and specializing” (S2)</i></p> <p><i>“I believe that giving a direction to the student who does not feel an affinity with the project (...) because there are other paths that he can follow after graduating” (S3)</i></p> <p><i>“I believe that the college can insert a discipline that helps us to understand our client (...) should be addressed in college would be marketing, how to demonstrate your work, how to sell your product, and today I miss not having learned this in college” (S4)</i></p>

6.6 Findings

The study used 1 questionnaire for each group that required participants to reflect on the theme of entrepreneurial and business skills related to education that the architecture student learns in the university period. Not only that, the questions also sought to understand from the interviewees' point of view the role of the architect as a professional for society, which helps in the research to understand the profile of this professional. Tables 4,5 and 6 show the results of the findings of the responses that the participants gave.

It is observed that most of the interviewees believe that, even though they saw something in the university period concerning entrepreneurship and business skills, they report that they believe that the content given in universities is weak, and there is a lack of depth in these disciplines. Also, they believe that such disciplines would be of great value if they are better elaborated and taught, to better prepare university students for the job market.

Such findings generated pertinent themes that assist in the research to seek an answer to the research questions.

6.6.1 Lack of knowledge- entrepreneurial and business skills

Participants reported that they did have subjects that covered topics involving the administration of a small office, how to charge for a particular job offered, among other topics that involve running a business. However, everyone agrees that this is a weak discipline, in which the university does not pay due attention, as being almost an unnecessary subject. Also, they believe that such knowledge should be taught in universities, preparing students for the job market.

“I had the discipline to know how to make a contract, construction management, but it was a very basic course” (S1)

“In fact, I had it, but the discipline was very weak, it was just an introduction” (A2)

“this administrative part about how to manage the office, which was an education we didn’t have” (L1)

“This was not a central concern in education (...) business and entrepreneurial skills, that was a flawed thing in my education.” (L2)

6.6.2 Beginning of a reformulation of architecture education

A fact that can be observed according to the participants is that there is a desire on the part of the university to have a reformulation in teaching, to better prepare students for university, but still inefficient.

“now the architecture student has a greater mobility, he even has the possibility to take courses in other units of the USJT” (L1)

“has undergone many curricular reformulations, and this approach has been expanded, but at the same time it has reduced the course load” (L2)

“in my curriculum, we have the option of making a discipline of our choice, (...) I chose to do business law in law school” (S4)

6.6.3 Management, leadership – for newly graduated

The vast majority of participants believe that the university does not prepare the recent graduate for leadership and management, due to the discipline that should prepare students for the job market not having as much relevance as a project discipline. Others believe that because many tasks in the university are proposed in groups, this forces students to train this part of leadership and work in groups, where management skills emerge.

“I believe so because most of the projects are in groups” (S2)

“No, they are very poorly prepared, and the worst of all is the newly formed ' feeling of frustration” (A3)

6.6.4 Manage own business- difficulties

Managing one’s own office is a task that requires a lot of technical knowledge, which according to the participants, a recent graduate does not yet have all the necessary skills. But many choose to open an office because the job market is saturated, and learning in practice as managing your own business, however, the vast majority end up closing the office because they still do not have knowledge on how to manage a business.

“I think it's kind of complicated open an office (...) I find it difficult just because of the baggage we have accumulated at the university.” (S3)

“my biggest difficulty was how to be an entrepreneur, I thought it was just taking a project and building,” (A3)

“Somehow they open, but opening an office is one thing to maintain is another,” (L3)

6.6.5 Practice and theory - there is a distance

At this point, part of the participants believes that what is learned at the university is distant from professional practice. while another part believes that it is because the role of the university is to teach how to design and face problems, giving knowledge. So that in the job market the student can be prepared, to solve problems faced on day-to-day. This does not detract from what is taught at the university, however, they believe that disciplines should be implemented that can help the career of future professionals.

“what is charged in college is not what is charged in professional life (...) In college, there was no talk about the charges involved in approving a project.” (S4)

“I fully agree, as we say the architect in college he is taught to think, but not to practice, there is a little lack of this conversation” (A1)

I don’t think what is taught at school is far from what happens at work, (...) I think that at school what the student actually learns is a method of how the student will develop a project, how he thinks, how he faces a problem,” (L1)

“I believe that in parts he is right, (...) it is not open all the issues that involve the functioning of the office” (L3)

“I agree in a practical sense, the vast majority if quantifying out of every 100 architects what 90 do is not applying what was learned at the university,” (L5)

6.6.6 Migration of architecture professionals to other areas

There is no definitive answer to this topic; according to the participants there are a variety of reasons that may lead a graduate in architecture to change careers. One group believes that because they are unprepared for the job market, they start to feel frustrated and due to the lack of options, they migrate to other options or careers, yet many people who do not work in architecture work any way with something connected to design. What, according to the interviewees, should be addressed more clearly during the course showing all the possibilities that an architect's career can offer, so that the student can choose subjects for areas that have more affinity and skills. increasing the possibilities of newly graduates in the job market.

“I know many people who changed their field of work, my friend set up an office, but he was in limbo, today he works teaching” (S1)

“I discovered another area of architecture that I want to work in” (S2)

“I think in college we should see a little more than architecture can offer to us in the job market, such as graphic design, interior design, many who are new graduate will work with interior design, I think that is missing, it shows reality.” (A1)

“I think this happens because the new graduates leave unprepared for the job market” (A2)

“It creates an expectation during the college period and when graduate it is not what the person expected, there comes a feeling of frustration,” (A3)

“Sometimes they have a frustrated expectation, and they end up working on what had a chance in the opportunities that came up” (L2)

“then an architect graduated and works with visual programming, web designer, I think it is within the area” (L3)

“When the market is more retracted and has fewer options, the architects end up leaving the field of architecture” (L4)

“I believe for lack of market opportunity, at least for the people I know who left the market and there are many of them” (L5)

“has more architects than the job market can offer, (...) I also think that people change a lot, they end up having other interests, some think they will love working with projects and no,” (L1)

6.6.7 Improvement in university education

The students who participated in the interviews agree that the architecture course is very broad, but many do not have this knowledge or come to discover the many other possibilities

in the area after graduating. They believe that during the university period the possibilities should be shown, to the students and during the course; they will choose which area of architecture they will want to specialize in so that during the educational period their skills for the job market will be formed.

“I think that not only one discipline (...) I think that if there were more reality within universities it would make a difference in our professional life.” (S1)

“other possibilities that the architect can explore should be introduced, so if these options are shown before probably graduating these people who drop out of the course, end up exploring these new areas and specializing” (S2)

“I believe that giving a direction to the student who does not feel an affinity with the project (...) because there are other paths that he can follow after graduating” (S3)

“I believe that the college can insert a discipline that helps us to understand our client (...) should be addressed in college would be marketing, how to demonstrate your work, how to sell your product, and today I miss not having learned this in college” (S4)

The group of professors points out that these changes are already happening inside the universities, not yet for a complete one. But there is a desire by the university to understand the need of the market and reflect this in the classroom, to better prepare future professionals, and not just prepare the student to manage an office but enable the student to explore the wide range of areas in which they can specialize in architecture.

“now the architecture student has a greater mobility, he even has the possibility to take courses in other units of the USJT” (L1)

“has undergone many curricular reformulations, and this approach has been expanded, but at the same time it has reduced the course load” (L2)

“think that professional training should not be linked exclusively to the profession of opening an office,” (L2)

7. Discussion

The discoveries produced evidence that supports the view that there is a lack of education in architecture and urbanism in the part that aims to generate a business where the architect can act as an entrepreneur. It is highlighted that while during the university period in the last year there are disciplines that help in professional practice, in general, they believe that this discipline is still considered weak, and shallow. In a way, both by students and by the faculty members, it is a matter of less relevance concerning other disciplines such as projects. The

findings made reaffirm the work of Vosloo *et al.* (2018), Farrelly (2007), Ebong *et al.* (2019) and Thammanuban (2016) who advise that architecture students should be trained not only to carry out projects but also learn skills that involve the field of entrepreneurship, as a strategy for decision making, management, risk-taking, high confidence. They also claim that architecture is a very broad field with several areas that the professional can explore.

At this moment, a summary of the findings is presented showing the perceptions of academic professors, architects, and architecture students referring to the entrepreneurial and business skills for architects, and possible causes of the profession migration after the conclusion of the course. Remembering that it is the perceptions of the interviewees in their own experiences, some respondents reported that many leave the architecture profession due to frustration after graduating.

7.1 Lack of knowledge- entrepreneurial and business skills

The interviewees reported that in their university period, there were disciplines that had the purpose of assisting in the architect's professional practice, however, it was a discipline that did not achieve the objectives for various reasons; some reported that because it was taught in the last year of the course, students did not give due attention to this discipline. After all, they are concerned with the other final subjects, for example the final graduation work, which takes a lot of the student's time. Along with that, many are not dedicated to the discipline of professional practices, besides being a subject that the university itself does not give due credibility, being only applied because it is required that in the curriculum there is something that helps future professionals for the job market. This is in agreement with the authors Vosloo *et al.* (2018) that say that there is a deficiency in the education and training of architects and that should be added or when they have to be better taught, disciplines that address the theme of business skills.

7.2 Beginning of a reformulation of architecture education

However, it can also be observed that, according to the professors, the university has already demonstrated this willingness to respond to the needs of the labour market. Some universities have already been adapting; for example, one of the lecturers reported that in the architecture course the student has the possibility to choose a discipline from another course, thus being able to complement their training. Just as one of the recent graduates said that she chose to study business law to implement her training. However, they still believe that there may be more improvements, and adaptations, due to the wide area that the architect can explore in architecture. This agrees with the author Richardson (2019) who says that the curriculum of architecture has been expanding, as well as the architect Decq (cited in Archipreneur, 2017a)

who feeling this deficiency, decided to open her own university aiming to form more focused architects for business, training not only architects but entrepreneur architects.

7.3 Management, leadership – for newly graduated / Manage own business- difficulties

The research sought to understand if architecture students are prepared for project management, teams, or their own business. The findings suggest that in part they are prepared for leadership because in the architecture course many tasks are performed in groups forcing the student to train the ability to manage people, time and projects. However, even if there are such tasks, some participants believe it is still insufficient because, when they graduate, they choose to open their own office as reported by the participants. But, because they have no experience, and do not know how to manage an office, they end up closing the office because they do not know how to attract customers or manage the financial part. Like Ebong *et al.* (2019) who state that architects should be trained to administer and manage a business and Thammanuban (2016) who says that architects should be trained to manage people, as an architectural construction involves many areas where one cooperates with the other, and often the architect leads these teams.

7.4 Practice and theory - there is a distance

Part of the participants believe that there is a great distance between what is taught in the classroom and what is faced in the day-to-day of an architecture firm and that the tasks performed do not represent what they will face in the job market. Another part believes that what is taught in universities is not so far from what happens at work because the school has no way of reproducing a work environment. Leaving it in charge of an internship, in which at the university they learn not only projects, but thinking, solving problems, and together with the intern training this student for the job market. However, in the internship, the student does not have contact with a client or with the closing of a contract, nor with the administrative part, which means that when they graduate, they become just machines to reproduce drawings. As mentioned in AIA (2013) what is taught in schools is different from the work environment and the internship does not help the future architect to develop business and entrepreneurial skills. This reaffirms the thinking of Eric Reinholdt who believes that what is taught in universities is far from what happens in the workplace.

7.5 Migration of architecture professionals to other areas

There is great mitigation in recent graduates in architecture for other areas correlated or not with the profession, for several reasons. The interviewees claimed that many leave the profession out of frustration, for lack of a job, for not stabilizing in the market, or for knowing another area with which they had more affinity and the architecture course helped to enter this career, such as graphic design, product design and others. For lack or not of market options,

they believe that these options, in addition to a project, should be presented to students in the university period, so that the student can choose in which area they have more affinity and improve their skills during the course.

7.6 Improvement in university education

The data shows that there is a demand for an improvement in the teaching of architecture since the architecture market today is very competitive. The interviewees believe that the theme of entrepreneurship should be addressed in architecture schools from the first year of the course, and not only in the last year, because that way it can form the minds of students, and prepare them for the market. Because the profession has a wide area of expertise, they believe that optional subjects should be offered that, during the university, the student accumulates knowledge and skills that better guide them to their area of expertise. According to Pombo (2019), such skills can be learned and improved over time, thus supporting management skills, decision making, marketing, among other skills involving the field of entrepreneurship. Even if the trainee does not come to open their own office but such skills would help them in other careers, because according to Hamburg and David (2017) these skills help the individual to have more creativity, initiative, work in groups, to be able to identify problems and find a better way to solve; such skills benefit both in the professional area and in their personal life.

8. Conclusion

This research aimed to evaluate the skills that an architect when graduating, needs to establish themselves in the market, and sought to investigate whether there is a need for implementation in the curriculum of architecture and urbanism. It was evident through the literature review and through the data collected through interviews that some skills are acquired in most architecture courses, skills like, creativity, problem-solving, innovation. However, many skills pertinent to a competitive market today are not acquired during graduation, as interview participants reported, such as leadership, management, negotiation, and some respondents reported a lack of confidence and many students graduate without communication skills.

It is observed in the literature review what entrepreneurship is, and the skills involved in entrepreneurship. Some authors say that entrepreneurship involves skills such as creativity, problem-solving, management skills, leadership, among others, and that such skills can be improved or learned. Making it clear that such skills must be learned and improved during the undergraduate period. The role of the architect is also presented, which is a multidisciplinary profession and can have several areas of activity. According to the interviewees, the architect

is seen as a negotiator of interests that requires many entrepreneurial skills that are not acquired in the university period, and that according to some authors, the knowledge of business management can influence the increase of profit by the professional, as well as increase their chances in the job market. Through the interviews, it was reported that in the university period they had subjects that had the purpose of helping the student to practice professionally. But it is a discipline that has little prestige on the part of the students and the school administration itself, and it is also possible to observe in the interviews conducted that it is possible to notice that some universities have started to improve their courses in architecture. This gives the possibility for students to choose disciplines that fit their skills and profiles, allowing the student to go specializing in a certain area that they want in the field of architecture, but still needs to be improved and better structured to meet the needs of the market

For future research, it is suggested to include other empirical tests on the value of teaching entrepreneurial and business skills in the architecture course, which may contribute to supporting these teaching methodologies for architects. It would be interesting for future studies to collect data with students who graduated from institutions that have subjects in the curriculum that help students develop the skills already presented in the research. In addition, it would be beneficial to interview the faculty members of such institutions to assess the contrast of universities that it only applies this discipline in the last year of the course as an aid to professional practices, but it does not study or apply in-depth the development of entrepreneurial and business skills. generating results that contribute to teaching in architecture schools.

1. Are business/entrepreneurial skills a necessary skill for architects?

Both in the literature review and the data collected, it is possible to see that everyone agrees that the knowledge of such skills is necessary, even for those who do not intend to open their own business, as such skills help the professional both as an entrepreneur and for those who want to work for others

2. What skills should be taught to architecture students?

The science of entrepreneurship encompasses many skills, however, in the data found it is possible to separate some main skills that should be applied in architecture schools which are: risk, innovation, managerial skills, leadership and professional and business guidance

3. What benefit would teaching business/entrepreneurial skills provide to architectural students?

Through the results, it is evident that the discipline of entrepreneurship should be taught in universities in order to stimulate the entrepreneurial behaviour of university students. Universities have the role of inspiring an entrepreneurial mind in students, which can generate economic and social development. It is important to make it clear that this practice of teaching entrepreneurship is intertwined with the crisis of qualified unemployment that affects many recent graduates. Given this situation, universities must adopt the process of entrepreneurship, which could be one of the solutions to answer this question. Because when an individual decides to undertake, they have to be prepared for such a task, increasing the chances in the market that they will face. Besides that, it can contribute to the high mitigation of recent graduates, being able to see in entrepreneurship an additional qualification in their profession, remembering that many give up and change their area of activity due to frustration when entering the job market. Even for those who change because they find more affinity in another area of architecture, learning entrepreneurship and business skills goes beyond opening a business but prepares the professional with various skills that will help their career regardless of the industry they choose to follow, thus forming better professionals and preparing them better for the market.

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