Innovation in Brazilian Business Administration Programs: an Analysis of Alignment to 21st Century Skills

Inovação nos Cursos de Administração no Brasil: uma Análise do Alinhamento às Competências do Século XXI

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ABSTRACT

In this paper we investigate whether there is an alignment between the competencies developed in the teaching and learning innovations of business schools in Brazil and the competencies of the 21st century administrator required by employers and society. To this end, we initially studied the evolutionary trends of higher education and produced a list of the 11 competencies that are currently considered the most necessary for citizens and administrators. We then looked at the cases of the 23 winners of the 2018 ANGRAD Innovation Award, which document and detail initiatives considered the most innovative in Brazil in the field of business education. We assume that this set of cases largely represents the efforts of business schools to align themselves with current social demands. Each case was evaluated individually and compared to the list of competencies for extracting conditions (descriptor variables) and results (response variables). The configurations thus obtained were analyzed using the crisp set Quantitative Comparative Analysis technique in order to allow the proposition of generalizations. The results indicate that the innovative initiatives most aligned with 21st century competencies were implemented based on robust and coherent projects, using their own methodology and involving teachers and students. On the other hand, initiatives that were less in line with 21st century competencies were characterized by not using practical or real cases. Finally, from the tabulation of the competencies developed in the initiatives, it was observed that most projects involved regional integration efforts; that there is a visible commitment to develop social relational skills; and, at the other extreme of the range, that no initiative involved the development of being comfortable with using technology.

Keywords: Teaching and learning innovation. 21st century competences. ANGRAD award.

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RESUMO

Neste trabalho, investigamos se existe um alinhamento entre as competências trabalhadas nas inovações de ensino e aprendizagem das escolas de Administração no Brasil e as competências do administrador do século XXI exigidas pelo mercado de trabalho e pela sociedade. Para isso, inicialmente estudamos as tendências de evolução do ensino superior e produzimos uma lista com as 11 competências atualmente consideradas as mais necessárias aos cidadãos e aos administradores. Em seguida, analisamos os casos dos 23 ganhadores do *Prêmio ANGRAD de Inovação*, de 2018, que documentam e detalham iniciativas consideradas as mais inovadoras do Brasil no campo do ensino em Administração. Entendemos que este conjunto de casos representa amplamente os esforços das escolas de Administração brasileiras em se alinharem às novas demandas sociais. Cada caso foi avaliado individualmente e confrontado à lista de competências para a extração de *condições* (variáveis descritoras) e *resultados* (variáveis respostas). As *configurações* assim obtidas foram analisadas por meio da técnica de *crisp set Quantitative Comparative Analysis* (Análise Quantitativa Comparativa baseada em conjuntos bem definidos) de forma a permitir a proposição de generalizações. Os resultados indicam que as iniciativas inovadoras mais alinhadas às competências do século XXI foram implementadas com base em projetos robustos e coerentes, utilizaram metodologia própria e envolveram professores e alunos; por outro lado, as iniciativas menos alinhadas com as competências do século XXI caracterizaram-se por não utilizarem casos práticos ou reais. Finalmente, a partir da tabulação das competências trabalhadas nas iniciativas, observou-se que a maioria dos projetos envolvia esforços de integração regional; que há um visível empenho em desenvolver competências sócio relacionais; e que, no outro extremo, nenhuma iniciativa envolveu o desenvolvimento de conforto diante do uso de tecnologia.
Palavras-chave: Inovação no ensino-aprendizagem. Competências do século XXI. Prêmio ANGRAD.

Introduction

Contemporary Higher Education Institutions (HEIs) still tend to follow a model with industrial society characteristics, compatible with "[…] training workers en masse" (GOLEMAN; SENGE, 2014, p. 31). This pattern deviates from the reality seen across most organizations, where dizzying rates of economic, social and political change have been caused by the digital revolution. Professional know-how and skills quickly become obsolete. This has happened in retail, music production, communication mediums, transport systems and the hospitality industry, while health

and education are currently being disrupted. A change to the current educational models is urgently needed. The way knowledge is produced and made available should consider students' needs, difficulties and learning styles while meeting the demand for competencies that are relevant to the current socioeconomic context (MEINEL; NOWESKI; SCHEER, 2012).

The HEIs that offer business courses are acutely aware of the need for innovation and are responding, although possibly slowly, to this imperative. In this study, we investigate to see whether the competencies focused on the learning and teaching innovations of Brazil's business schools are in alignment with those in demand by the market and society for 21st century administrators.

To this end, we began by studying the higher education evolution trends in business courses and listing the competencies considered as requirements for Brazilian citizens and professionals that are being prepared for a complex and uncertain socioeconomic landscape and increasingly longer lifetimes, expected to be 80 years for those born in 2040 (ERVATTI; BORGES; JARDIM, 2015).

Next, we analyzed the cases of 23 winners of the *ANGRAD Innovation Award* for 2018, which document and detail initiatives considered the most innovative in Brazil's business education field. It is our understanding that this set of cases broadly represents the efforts by business schools to align themselves with new social demands. Each case was individually evaluated and matched against the list of competencies currently expected by administrators.

Finally, we used Qualitative Comparative Analysis (QCA) to extract generalizations from the cases about the characteristics of the innovative initiatives in business education that are more and less aligned with the competencies expected of 2st century administrators.

In 2015, a total of 124,986 students graduated Business Administration courses in Brazil, making it the one with the highest number of graduates in Brazil, as per the Higher Education Census by the Anísio Teixeira National Institute of Educational Studies and Research (ADMINISTRADORES.COM, 2016). This figure remains solid, even in times of economic difficulty. The way in which HEIs organize their teaching and learning processes for this large contingent of students will drastically impact the quality of the country's business courses and its economic development over the coming decades.

Theoretical Framework

This chapter presents the conceptual foundations used for this research, beginning with the current evolutive trends of teaching-learning processes in business. Next, we examine the competencies expected by 21st century professionals and present the list of competencies used to verify the degree to which innovation projects in teaching-learning align with the development demands of competencies from contemporary administrators.

TRENDS IN THE EVOLUTION OF TEACHING AND LEARNING METHODS IN BUSINESS COURSES

Approximately 30 years ago, business graduates stated they did not feel fully prepared for the future. A significant part of this sentiment came from the lack of connection between the various subjects tackled within the programs and the focus on solving problems, instead of formulating them. This approach did not sufficiently prepare students in themes such as people management, communication, corporate ecosystems, international business and ethics (PORTER; MCKIBBIN, 1988).

In a more recent study, Herrington and Arnold (2013) state that the situation described by Porter and McKibbin has not been resolved; on the contrary, it has become more dire. Business schools have shown themselves to be resistant to changes: they are risk averse and fear losing their accreditation; their professors reject proposals modifying their hours and credits to alter the balance in the allocation of work loads and their belief in the fundamental importance of the disciplines that they teach. Added to this is the fact that many professors continue to teach in the same way they were taught, having received their education in a period during which few changes took place or were even imagined (HERRINGTON; ARNOLD, 2013).

However, today, there is a reasonable consensus on the idea that traditional education is crossing a period of turbulent transformations (CHRISTENSEN; EYRIN, 2011; HARDEN, 2012; HORN; MOESTA, 2019; O'HARA; LEICESTER, 2011; SANTOS, 2011; STERLING, 2001). The prestige of education institutions and the distinctions they earn through accreditation processes have delayed, without succeeding in avoiding, the effect of the disruptive forces of technology and the rise in costs that are currently causing such an impact (CHRISTENSEN; EYRIN 2011).

There are three main categories of cultural changes that are molding the impact disruptive market forces are having on schools (O'HARA; LECESTER, 2012): i) the professional competencies for the 21st century, understood not as abstract skills, but as the ability to concretely deal with the challenges of everyday life in a complex world and which are radically different to those needed by professionals in the previous century; ii) in society's current conditions it is no longer possible to be competent on one's own – collaboration, team work and the ability to sustain interpersonal relationships have become basic skills; and iii) the development of whole human beings, involving cognitive, intellectual, emotional and practical capacities, has become more central to educational processes. The notion that education supports individuals as a whole goes back to the humanist tradition that places emphasis on reflection and purpose; it extends beyond formal schooling in a co-evolution and mutual recreation of education and society (STERLING, 2001) within a continuous process of education over the full span of a lifetime (CISCO SYSTEMS, 2010). The principles that guide the transformation of the educational process in this context can be resumed by eight points (CISCO SYSTEMS, 2010, p. iv-v): The teaching-learning process

- Happens over one's entire life;
- Aims to develop students' autonomy, preparing them to solve unknown challenges;
- Reaches students anywhere, without being restricted to specific locations;
- Is inclusive and accessible to everyone;
- Recognizes that different people learn in different ways, with these differences being respected and coherently responded to;
- Cultivates and embraces the new providers of public, private and third sector education;
- Develops relationships and networks among students, professors, financial backers and innovators; and
- Supports feedback and continuous innovation systems to develop knowledge about what "works" in each context.

Brooks and Holmes (2014) point out the need to include the multidisciplinary approach to the above principles. When students, involving themselves in projects with real world applications, are able to tackle their object of interest based on multiple perspectives and disciplines, their levels of motivation tend to be higher and the learning tends to generate better results.

Cerasoli et al. (2017) and Redecker et al. (2011) expect a growing trend toward more informality in education, driven by demand for different forms of teaching-learning. Individual styles and preferences are barely considered in formal teaching: traditional teaching institutions expect students to adapt to them, not the other way around (NORIEGA; HEPPELL, 2013).

If the schools do not adopt a network community attitude with an increased ability to renew content in line with this demand, they will quickly lose their relevance in the face of new actors in the educational ecology. The function of enriching, improving and increasing access to the learning process currently occupies a much broader space than before, which was previously almost exclusively the preserve of teaching institutions, including public and private companies, NGOs and institutions with the most diverse types of objectives and organizational forms. Noriega and Heppell (2013) defend that new learning locations are designed *by* users and, over time, substitute the locations designed *for* users. One of the consequences of constant learning is constant change and an environment built at a certain point in time may not meet the needs of other moments.

COMPETENCIES OF THE 21ST CENTURY PROFESSIONAL

Davies, Fidler and Gorbis (2011) believe four main disruptive social and technological changes will remodel the job landscape in the future: i) extreme longevity; ii) the spread of intelligent machines and systems, likely substituting humans in a variety of tasks that require manual labor; iii) the advance of the Internet of Things (IoT), with all digital interactions being converted into data; and iv) the rise of new multimedia platforms that will further change the way the world is perceived.

In line with these changes, Davies et al. (2011) postulate that eight competencies will become important to professionals in 2030: sense-making, social intelligence, original and adaptive thinking, trans-disciplinarity, new media literacy, computational thinking and cognitive workload management. Tekarslan and Erden (2014) understand that, aiming at benefitting society, administrators should create and involve themselves with local projects with real-world applications and corporate representatives in order to gain greater understanding of the ecosystem around them. Furthermore, they believe universities should offer mentoring programs aimed at ensuring these projects' social responsibility. From the point of view of employers

(HOLTZMAN; CRAFT, 2010), the ability to manage time, oral communication, interpersonal skills and knowledge of global matters are the most essential competencies administrators should have.

For this article we prepared a systematic list of eleven competencies that characterize the 21st century administrator:

1. Autonomy in learning: According to the Cisco Systems (2010) study, the high rate of change in today's world makes knowledge obsolete in short timespans; thus, every professional should be able to seek out new skills and perfect the ones they already possess;
2. Comfort around technology: Professionals should be able to quickly adapt to technological change, because organizations invest heavily into technology to improve their productivity (VENKATESH et al., 2003);
3. Regional awareness: Tekarslan and Erden (2014) emphasize the need for administrators to understand the local context instead of automatically applying theoretical models established under different conditions and that may not be efficient to their specific situation;
4. Global awareness: Due to globalization, the measures taken by companies have increasingly heavy impacts, which is why administrators need to be aware of the consequences of their actions on a global scale (CISCO SYSTEMS, 2010);
5. Empathy: The ability to comprehend others, to put oneself in different points of views and to share experiences, embracing them with a feeling of solidarity, have all been shown to be essential in the forming of leaders and the development of teamwork (PASSOS-FERREIRA, 2011);
6. Good communication: Abraham and Karns (2009) believe that the ability to communicate must be considered the most important skill a successful administrator can have;
7. Leadership: For Moscardini and Klein (2015), the production of professionals capable of leading people and processes is fundamental for organizations seeking expansion. A good leader can be understood as one who transforms interactions with other team members into motivation, learning and development (WOLFF; CABRAL; LOURENÇO, 2011).

8. Critical thinking: According to Gadotti (1998), educating equips itself by developing critical, questioning thinking. In order for critical thinking to be reached, one must first encourage the habit of acquiring knowledge through enquiries, allowing individuals to create or transform, not simply reproduce the information being learned.
9. Feedback: The administrators of the future must adopt the practice of continuous feedback to understand the effectiveness of their actions and the need to acquire new knowledge and behavior. For this to happen, they need to master the practice of giving and receiving feedback (CISCO SYSTEMS, 2010).
10. Rapid adaptation to one's environment: Noriega and Heppell (2013) state that, given we are in a world of constant learning, we have to get used to constant change. New work methodologies must be incorporated and abandoned without personal suffering.
11. Comfort with risk: Herrington and Arnold (2013) concluded, in their study, that being comfortable with assuming risks is an ability that is needed to be able to innovate; this is crucial to the survival of any organization (MCKINSEY, 2018).

Case Study: The 2018 ANGRAD Innovation Award

The National Association of Undergraduate Business Courses (ANGRAD) was founded in 1991 with the main objective of raising the bar of business teaching in Brazil. ANGRAD has since consolidated itself as one of the most representative associations in the academic world, with the mission of, "[…] promoting the exchange of information on business teaching among its members". The environment created solidified as, "[…] a unique and privileged space for the exchange of academic and pedagogic experiences, as well as a proven source for the renewal of knowledge for and the refining of business courses in the country" (ANGRAD, 1991/2018).

In addition to holding conferences, seminars, technical meetings and a variety of other events with business themes, the Association launched its first Innovation Award in 2018. The ANGRAD award is aimed at "recognizing the Higher Educa-

tion Institutions, coordinators, teachers and students who have innovated in the teaching and learning process of business courses". In addition, it was verified that awards play an important role in the dissemination of successful innovation experiences in teaching (IIZUKA, 2017). In 2018, "[...] 23 innovative initiatives committed to improving higher education in business" were awarded, from a total of "32 initiatives, assessed using a double-blind system […]. The assessment team was coordinated by regional leaders and comprised 72 professors and researchers in the teaching and learning area from the country's five regions" (ANGRAD, 2018a).

The process for submitting the initiatives involved filling out an online form that broaches the following themes (ANGRAD, 2018b):

1. The title and abstract of the initiative, including the challenge perceived by the Education Institution, objectives of the innovative experience, methodology used, and a description of the initiative, actors involved and results obtained.
2. Diagnosis and objectives, containing a description of the causes of the challenge that gave rise to the initiative and its main objectives.
3. Description of the innovative experience, detailing the characteristics, specifics and importance of the project.
4. The methodology used, describing details and the alignment of the methodology with the objectives; the national and international references that may have been used while developing the work, and; the material, technological and human resources used.
5. The involvement of the actors, detailing the roles played by the participants of the project.
6. The main findings, comparing a "before" and "after" of the implementation of the project and pointing out the benefits it brought and impact it had.

The surveys were assessed based on five criteria (IIZUKA, 2019):

1. Substantial change regarding previous practices, accounting for 25%;
2. Methodology used and potential for replication, accounting for 30%;

3. Innovation of the proposal in terms of the concept and results, accounting for 25%;
4. Involvement of the actors, in terms of the expansion or consolidation of the interaction among the project's participants, accounting for 10%; and
5. Responsible use of resources, bearing in mind sustainability, accounting for 10%.

The questionnaires filled out by the teaching institutions of the 23 ANGRAD Award winners provided the data for this study. It is our understanding that these 23 cases represent well the best and most up to date teaching-learning practices in Brazil and we assumed that the Brazilian schools most interested in innovating in their business courses would participate in the competition. Furthermore, the variety of the cases allowed for an analysis that is far-reaching geographically, with the participating schools covering nine of the country's states.

Chart 1 presents a brief summary of the geographic origin and objectives of the cases of innovation under analysis. To preserve the anonymity of the institutions, the names of the schools have been omitted; in the context of this work, they are referred to by the number allocated to them in the table. The project (or initiative) submitted by each school will be given matching numbers, such that Initiative 1 is the project presented by School 1, and so on.

Chart 1 2018 ANGRAD Innovation Award Winners.

Example Cases – 2018 ANGRAD Award		
School	**State**	**Declared Objectives**
School 1	Rio de Janeiro	Provide students with experiences beyond the content
School 2	Pernambuco	Engage students and provide a bridge between theory and practice
School 3	Distrito Federal	Develop entrepreneurial competencies and contribute to regional development
School 4	Ceará	Promote regional entrepreneurship and put students in touch with real problems companies face

School 5	São Paulo	Provide consulting to real companies, develop a systematic approach
School 6	Santa Catarina	*Stimulating interest in millennial students*
School 7	Distrito Federal	Integrating Business, Law and Accounting students; lining up theory and practice; improving the university's rank
School 8	Paraná	Promoting entrepreneurship and innovation
School 9	São Paulo	Integrating a process of broader and continuous evaluation, aiming for a better ENADE score
School 10	São Paulo	Increasing students' engagement in class; encouraging professors to reinforce student performance improvements
School 11	São Paulo	Introducing students to organizations and understanding their role in society; getting to know corporate environments; analyzing and understanding organizational problems
School 12	São Paulo	Offering integrated education with students as protagonists and aimed at the group
School 13	Paraná	Provide customized learning experiences; refine personal and professional development; provide a systematic overview of corporate processes
School 14	São Paulo	Better prepare students for local organizations; improve the ENADE score
School 15	Pernambuco	Improve teaching practices, the role of the professor as a mediator and experience-based learning
School 16	Minas Gerais	Stimulating entrepreneurship, partnerships with the corporate community and carrying out interdisciplinary activities
School 17	Paraná	Bringing lessons closer to regular administrators' routines, meeting society's demands and challenges
School 18	São Paulo	Bringing classroom case studies closer to local market realities
School 19	Pará	Promoting interaction between local students and entrepreneurs and teaching practical applications of management tools

School 20	Paraná	Implementing a curriculum that favors interdisciplinarity through active methodologies
School 21	Minas Gerais	Encouraging the entrepreneurial profile, developing and fostering the attitude of contributing to society
School 22	Santa Catarina	Address problematic situations of local organizations and promote local economic and social development
School 23	São Paulo	Reduce the fail rates in disciplines requiring a foundation of logic and mathematics

Fonte: Edrawn up by the authors.

Methodology

To analyze the data, we used Configurational Comparative Analysis, as presented in *Configurational Comparative Methods - Qualitative Comparative Analysis* (QCA) *and Related Techniques* by the method's creators, Charles Ragin and Benoit Rihoux (2008). The 23 cases (or innovative projects) were analyzed using QCA and take into account their specific attributes.

In the following chapter, we briefly introduce Configurational Comparative Methods (CCM), which is the context into which the QCA methodological tool is inserted. The following chapters specify the particular aspects of the methodology, present the crisp-set QCA (csQCA) and, finally, describe the application of csQCA to the 2018 ANGRAD Award.

INTRODUCTION TO CONFIGURATIONAL COMPARATIVE METHODS

Comparison lies in the heart of human thought and is always present in observations about the world – " […] thinking without comparing is not thinking" (SWANSON, 1971, p. 45). For the social and behavioral sciences, comparing is a method akin to experimenting in the laboratory sciences (LIJPHART, 1971), where empirical phenomena are observed and their contexts are controlled (RAGIN; BECKER, 1992).

For the social sciences, each case carries with it its own intrinsic complexity of multiple facets and contradictions. On one hand, understanding this singularity allows for a better and deeper understanding of the case; on the other, a single case

study makes it harder to produce generalizations, with the conclusions limited to the specific context of the case in question.

How, then, to compare various complex cases within a single study? One option is the strategy created by Ragin (1987), which helps in the collection of insights from each individual case, while also allowing for a degree of generalization. This method belongs to a set of techniques called Configurational Comparative Methods (CCM). Simply put, they seek to transform the complexity of each case into configurations, a specific combination of variables (called conditions, in CCM) that produce a result. One then evaluates if these conditions are necessary and/or sufficient to produce the result.

A condition is considered necessary for a result if it is always present when the result happens. In other words, the result cannot happen in the absence of the condition in question. A condition is considered sufficient for a result if the result always happens when the condition is present, which means that the result can also happen due to other conditions.

For example: free elections are a necessary condition for a democratic state; however, it is not a sufficient condition, because respect for civil rights also needs to be present. Nevertheless, the absence of a free election is a sufficient condition to qualify a state as non-democratic, given that democracy cannot exist without free elections.

Methods that use this approach are almost experimental, as implicit in the result is the isolation of genuinely important factors; but these methods do not use deductive processes and do not prove causality, given that there is no control over the factors beyond observing the result and conditions.

CCM: ASSUMPTIONS AND CHARACTERISTICS

A CCM, or Configurational Comparative Method:

1. Seeks to harness advantages of qualitative (using cases) and quantitative (using variables) techniques. Even though there is no strong quantitative validation, due to the reduced number of cases, the method allows for a modest generalization, albeit one that is temporal and sample-based.
2. Is directed at the case; that is, complex cases are dealt with without losing sight of each of their properties and specificities. In other words, the

cases in question and their unique characteristics are well known by the investigator and are not reduced to anonymity.

3. Requires that each case be characterized by a series of attributes – by a certain number of descriptive variables (conditions) and by a response variable (result): for example, if several athletes were considered as cases, then some conditions could be height (tall vs short); speed (fast vs slow); muscle mass (heavy vs light); while the result could be defined as "skill in throwing a disc further than 60 meters". These attributes would then be evaluated for each "case". Athlete 1 could be tall, fast and heavy; Athlete 2, short, fast and light; and so on. It is worth noting that this description using conditions does not affect the perception of each case as an individual. As mentioned previously, the main concern is allowing for a simultaneously quantitative and qualitative analysis, by evaluating these variables and maintaining the holistic view of each case, respectively.
4. Uses the concept of multiple conjunctural causation. In other words, accepts the notion that different causal pathways – each relevant in their specific context – can lead to the same result (BERG-SCHLOSSER et al., 2009). The term "multiple" refers to the number of causes, while "conjunctural" expresses the notion that each pathway consists of a combination of conditions. This implies the concepts of: i) equifinality, which means that different causes can lead to the same result; ii) multifinality, when the same cause can lead to different results, depending on the context; and iii) asymmetrical causation, which assumes that the presence or absence of a result requires its own explanation and separate analysis. Thus, it considers the non-uniformity of causes, that is, that a condition can, in combination with others, act in favor of the result and, when in a different combination, act against it.
5. Requires transparency in the investigator's choices regarding the selection of the conditions and the processing of the analysis. In this sense, it is expected that, to improve the model's explicative power, the investigator follows an iterative logic of returning to the cases when necessary, changing definitions that have been formulated and adopted in prior stages – as along as it describes the covered process.

Crisp-Sets QCA

Ragin and Rihoux (2008) present, in their book, five CCM variations. This work uses the simplest one, called crisp-set Qualitative Comparative Analysis (csQCA), where crisp is used in the sense of being the opposite of fuzzy.

The csQCA method uses binary analysis of the descriptive variables, the conditions, and the response variable, the result. This strategy is also called dichotomized analysis, with the convention that each attribute can only assume one of two states. Generally, the value [1] represents large, greater or present, while [0] represents small, lesser or absent. It is up to the investigator to define [1] and [0] for each variable.

As previously mentioned, it is implied that, when defining the variables and their states, the investigator will have thorough knowledge of each case and the theoretical knowledge of the most suitable variables for the analysis. All complex problems can be subject to a variety of possible approaches, according to which factors (conditions) will be included or excluded to explain the phenomenon. Often, there are also many different causal pathways, making it practically impossible to include all the factors involved. Therefore, it is up to the investigator to know how to choose the variables to be considered and to limit their number, considering the context in which the analysis is applied.

APPLYING CSQCA TO THE 2018 ANGRAD AWARD CASES

This chapter was organized according to three indispensable steps when carrying out a QCA. First, the case selection process is detailed; then, the response variable is defined and; third, the conditions used as the foundation of the analysis are specified.

Case Selection

In case studies, selecting the cases and choosing their variables must be guided by explicit theoretical concerns, even if they are still of an exploratory nature at the beginning of the study, with relatively low levels of theoretical construction.

Specifically for the selection of the cases, in the principle of any investigation, we use the criteria of homogeneity: by defining the limits of the investigation, the cases must be self-contained and comparable over the dimensions of interest. This is the meaning of the saying that one cannot compare “apples to oranges”.

The 23 winning cases of the 2018 ANGRAD Innovation Award were chosen intentionally and consciously, given that they all, without exception, passed through the same criteria for evaluation (standardized questionnaire) and submission. As Ragin and Becker (1992, p. 20) suggest, "[...] the cases must share enough characteristics that can become 'constant' in the analysis". Within this context, it is assumed that the 23 award winners for 2018 describe practical, innovative, teaching and learning activities in business courses, and which develop, implicitly in the activities, competencies that are in line with those expected of a 21st century administrator.

Selecting the Response Variable

The response variable was defined based on the question of this work: what is the degree of alignment between: the competencies that each case proposes to develop in business students, regardless of the methodology used, on one hand; and the competencies required by 2st century administrators, on the other?

We consider the result of the case as a strong or a weak alignment with the eleven competencies listed in the corresponding session of this paper. That said, we carried out an initial individual analysis of the cases. A rigorous criterion was used, aiming at finding, in the answers in the submission form for the award, concrete elements that would allow us to conclude which competencies each initiative proposed to work with its students. Having observed certain discrepancies, in some cases, between the competencies declared in the project and those effectively listed in the results, for the evaluation of the response variable we chose to consider only those competencies for which we found evidence that they had been effectively worked on. Next, we compared the competencies effectively worked on in the initiatives and the eleven competencies of the 21st century.

In the first iteration of the analysis, we attributed the classification "initiative strongly in line with the competencies of the future", coded as [1], for those initiatives where six or more of the eleven competencies of the future were present; conversely, we attributed the complementary classification, coded as [0], to those that had five or less competencies. However, of the 23 cases studied, only one initiative was given the value of [1], with all the other cases labelled [0]. Faced with this, we readjusted our criteria for the next iteration, attributing those initiatives with a [1] when 3 or more of the competencies on the list were present. The new coding char-

acterized eight of the 23 initiatives as strongly in line. For QCAs, it is legitimate and desirable to readjust the characterization criteria for the variables in trying to improve the analysis. At the end of this stage, we defined the response variable as "initiatives strongly aligned with the competencies of the future" and attributed a [1] to cases that worked on three or more of the eleven 21st century competencies.

For example, Initiative 1 proposed to work on the following five competencies in its innovation project: critical thinking, empathy, being comfortable with technology, regional awareness and ability to adapt quickly. However, based on our reading of their questionnaire, we found evidence for only three of the five they claimed: regional awareness, ability to adapt quickly and critical thinking. Thus, we compared these three competencies to the 11 of the future. As the three competencies were all on the list, we considered the initiative to be in line (response variable result = 1).

In the process of checking which competencies were worked on by each of the 23 winning initiatives, we produced the chart presented as Chart 2, below.

Chart 2 Competencies Worked on in the Projects.

21st Century Competency	Number of cases it was present	Initiatives it was present
Regional Awareness	13	1, 2, 3, 4, 5, 7, 8, 16, 17, 18, 19, 20, 22
Autonomy in Learning	9	6, 8, 9, 10, 11, 12, 17, 21, 22
Adapting Quickly	8	1, 2, 3, 16, 18, 19, 20, 22
Critical Thinking	8	1, 5, 6, 7, 12, 13, 14, 22
Communication Skills	6	2, 5, 6, 10, 13, 23
Leadership Skills	3	12, 13, 22
Feedback	2	12, 19
Global Awareness	2	13, 21
Comfortable with Risks	2	12, 23
Empathy	1	12
Comfortable with Technology	0	none

Source: Drawn up by the authors.

Specifying the Conditions

Similar to the way the response variable was selected, specifying the variables (conditions) that characterize the cases must be guided by theoretical criteria. One possibility is for the investigator to adopt the "perspectives" approach, which means adopting a mixed bag of conditions derived from the main theoretical perspectives in the literature on the problem. This approach is, probably, the most common option for dealing with complex problems within the social-empirical research spectrum. The investigator must carefully look at the state of the art in an area of knowledge to then develop a specific research project that takes into account the broad reach of the relevant conditions. At the same time, the investigator must develop a way of choosing between conflicting explanations and use the "effects of interaction" between certain conditions.

Another important point is the number of conditions to be considered. It is necessary to keep it low, especially for research projects based on small or intermediary sample sizes. The question, here, is not the absolute number of conditions, but the ratio between number of conditions and the number of cases.

Considering the crisp-set QCA, if the number of variables increases, the number of possibilities of the combinations of these variables increase exponentially. Should there be only two conditions, four combinations are possible; from there, the number of possibilities increases quickly. For example, for three conditions, there are eight (two squared) combinations; for six conditions, there are 64 (two to the power of 6) combinations; for nine conditions, 512 (two to the power of nine) combinations; and so on. The care in keeping a small number of conditions is important for the investigator not to fall into the "limited diversity" problem; that is, in the situation where the observed data have substantially less variation than the space of possibilities delineated by the conditions.

According to this analysis, as all the cases were written based on the same criteria and questions that guided submission for the ANGRAD Award – that is, everyone answered the same questions –, the choice of the conditions was entirely aligned with these criteria. The "perspective" was finding variables that were common to the entire sample and that could justify the presence or absence of the response variable.

At first, considering the broader reach of these conditions, 13 variables were chosen, organized into four large groups:

1. Context describing variables. There are three variables in this category: the gross domestic product (GDP) per capita for the city in which the school is located; the existing challenge that drove the implementation of the new methodology and; the main objective of the project.
2. Innovation describing variables. This category also has three variables: the practical activities adopted with the new methodology; the type of methodology proposed and; the number of disciplines involved.
3. Pedagogy describing variables. Also has three variables: the pedagogic foundation for the project; the existence of pedagogic coherency and; the pedagogic focus (student or faculty).
4. Post-implementation results describing variables. This category has four variables: the degree of alignment between the project's proposal and result; the presenting of concrete proof of the results; the focus of the results (student or faculty) and; the degree to which the proposed competencies of the future are delivered.

In line with the premise of keeping the number of conditions low, we chose one variable from the first category, two from the second and two from the fourth, totaling 32 (2 to the power of five) possible combinations. In the search for more explicatory variables for the response variable, we managed and substituted the five initial variables with others from the four groups described above.

At the end of the preliminary analysis process, the five variables chosen (and which are hereinafter labelled by the letters a, b, c, d and e) were based on the best possible result for the QCA. The definition of each describing variable and how it was coded have been summarized in Chart 3, below.

Chart 3 Conditions Used in the csQCA

Condições					
				Possible Values	
Variable	**Name**	**Definition**	**Coding Process**	**[1]**	**[0]**
a	Integration	At least one of three objectives present: practical application of theory; promote closer ties to the local community; develop the region socially-economically	List the objectives present in the descriptions of each case and check the presence of at least one of the Integration objectives	Involves integration	Does not involve integration
b	Real Problems	The project works with real or practical problems or situations	Consult the activities carried out in each initiative, as explicitly documented in the award submission questionnaire	Does work	Does not work
c	Own Methodology	The project uses its own (new) methodology or existing methodology proposed by others	Consult and interpret the information provided in the award submission questionnaire	New	Existed before
d	Project/Execution Alignment	The project's proposal and what was effectively carried out were in alignment	Evaluate the cases based exclusively on the interpretation of the accounts from the questionnaires	In alignment	Not in alignment
e	Reach	The project assumes changes in the roles, behavior or activities of students and faculty	Interpret the accounts available in the questionnaires	Impact on both faculty and students	Impact on one or none of these groups

Source: Drawn up by the authors.

Results

Using fsQCA 3.0 software to process the conditions and response variable for the 23 cases, it was possible to obtain the first findings of the analysis: a truth table, or table of configurations (remembering that a configuration is a combination of variables associated with a specific result). Table 1 groups together the cases with the same conditions and same result.

Table 1 Truth Table.

	Configurations					
	Conditions					
Cases	**a**	**b**	**c**	**d**	**e**	**Response**
Initiatives 6, 12 and 13	0	0	1	1	1	1
Initiative 1	0	1	0	1	1	1
Initiative 22	1	1	0	1	0	1
Initiatives 2, 5 and 19	1	1	1	1	1	1
Initiative 10	0	0	0	0	0	0
Initiative 8	0	0	0	0	1	0
Initiative 23	0	0	0	1	0	0
Initiative 20	0	0	0	1	1	0
Initiative 9	0	0	1	0	0	0
Initiative 17	0	1	1	1	1	0
Initiative 15	0	0	0	0	0	0
Initiative 21	1	0	0	1	0	0
Initiatives 7, 14 and 16	1	0	0	1	1	0
Initiative 11	1	0	1	0	0	0
Initiative 3	1	0	1	1	1	0
Initiative 18	1	1	0	0	0	0
Initiative 4	1	1	0	1	1	0

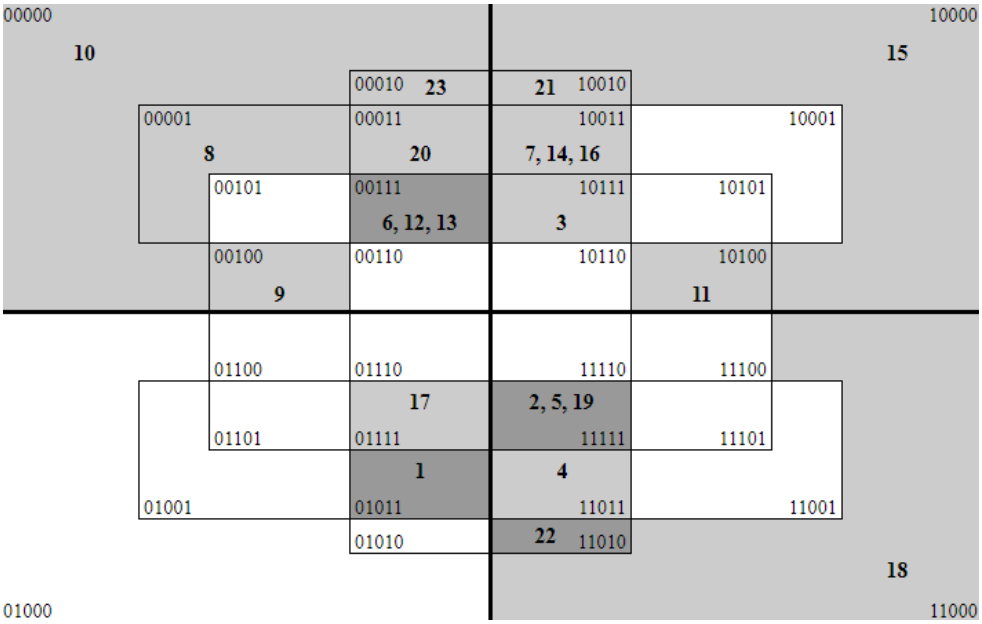
Source: Drawn up by the authors, using fsQCA 3.0 software.

This truth table allows for some summarization, in that 23 projects have become 17 configurations, where 4 have a value of [1] for the result – indicating a strong alignment with the competencies of the future – and 13 have a value of [0] – indicating a poor alignment with the competencies of the future.

The truth table data can also be visualized using the Venn diagram below, which requires a slightly more complex interpretation than Table 1. The diagram is drawn using the same logic as the truth table; however, all 32 possible configurations are represented, regardless of the existence of cases corresponding to them. The areas in white represent possible configurations that are not seen in the cases being studied; the areas in light gray correspond to configurations with a value of [0], while the areas in dark gray represent configurations with a value of [1].

Going through the steps used in the production of the diagram may make it easier to understand. The external rectangle symbolizes the space of all the possible configurations. The codes attributed to each delimited area are formed by five positions, representing the values of the variables: a, b, c, d and e, in that order. To start, a thick vertical line down the middle divides the diagram into two parts: to the left are all the configurations with a value of [0] for the first variable (variable a); while to the right are all the configurations with a value of [1] for this variable. Next, a thick horizontal line was drawn to separate the diagram into two halves: the top half, which has all the configurations with a variable b value of [0] and the bottom half, where the value for this variable is [1]. The combination of the two previous steps forms four quadrants. Next is the drawing of a horizontal rectangle in the middle, that intercepts the four quadrants; outside the rectangle are the configurations with a value of [0] for variable c, while inside it are the ones with a value of [1] for this variable. This is followed by drawing a vertical, central rectangle that also intercepts the four initial quadrants and, much in the same way as the previous step, the configurations outside this rectangle have a value of [0] for variable d, while those inside it have a value of [1] for this variable. The final step is to draw two horizontal rectangles, one in the middle of the top half and the other in the middle of the bottom half; outside these rectangles are the configurations with a value of [0] for variable e, while contained within these rectangles are those with a value of [1] for the same variable. The numbers in bold indicate cases that “fall” into each configuration represented by the delimited spaces.

Figure 1 Venn Diagram of the Configurations Found.



Source: Drawn by the authors, using fsQCA 3.0.

Once the cases had been grouped into common configurations the Boolean minimization concept (as QCA suggests) was used to interpret which conditions, common to the different configurations, explain the results (0 or 1) in a concise way. This process has the objective of finding the smallest formula possible. It is important to note that the software does not recognize cases, but configurations. Therefore, the number of cases in each configuration is not relevant in the course of "Boolean minimization" (RAGIN; BECKER, 1992, p. 56). However, after the minimization it is possible to connect each case to the minimum formula obtained.

The process of minimization is executed twice: the first for configurations with a result of [1] and the second for configurations with a result of [0]. Independently of the processing order, it is important that both minimizations are carried out, due to the fact that causal symmetry is not expected in social phenomena. In other words, we accept that the causes for a result of [1] can be (and normally are) different than the causes for a result of [0], with it being impossible to deduce the smallest formula for a result of [0] from the smallest formula for the result of [1] and vice-versa.

In the Boolean algebra used, the convention is that the "+" sign means OR (from the set union operation) and the "*" sign means AND (from the set intersection operation). A lower-case letter in the representation of a variable means we are including the cases in which the variable has a value of [0], while conversely, an upper-case letter signifies cases in which the variable takes a value of [1]. The arrow represents the implication: it is followed by the response variable in lower-case if it has a value of [0], while it is in upper-case if the value is [1].

MODELS FOR CONFIGURATIONS WHERE RESPONSE = [1]

In our study, the descriptive formula for positive results (initiatives that are strongly aligned with the competencies of the 21st century) was formed by two terms; each consisting of a combination of conditions.

C * D * E	**+**	**B * c * D**	**=>**	**ALIGNED**
(Initiatives 2, 5, 6, 12, 13, 19)		(Initiatives 1 e 22)		

We can read this result in the following manner:

The first term: initiatives that have their own methodology (variable C) and an alignment between their proposed innovation and its implementation (variable D) and that impacts both professors and students (variable E)…

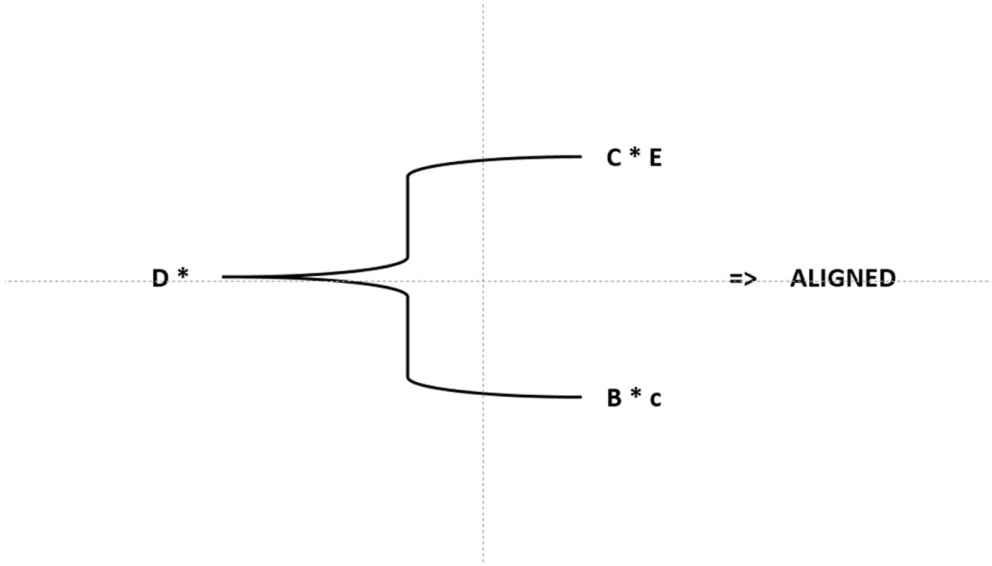
OR

The second term: initiatives that work with the solving of real problems (variable B) and do not have their own methodology (variable c) and have an alignment between their proposed innovation and its implementation (variable D)...

...present a strong alignment with 21st century competencies (response variable of ALIGNED).

The "descriptive formula" also has a certain complexity, in the measure that three of the five variables are present in each term. An average parsimony is reached. Using algebraic manipulation, one can convert it into a more structured formula

(although no more parsimonious, bearing in mind that no condition is eliminated through this manipulation).



With the minimum formula rearranged this way, we note that there are two possible "paths" to the strong alignment with the competencies of the future, in addition to a single condition necessary for the existence of this result: the presence of the variable "D" (an alignment between the proposed innovation and what was actually carried out).

MODELS FOR CONFIGURATIONS WHERE RESPONSE = [0]

The same procedure was used to obtain the "descriptive formula" for the result [0]:

b * d * e	**+**	**c * E**	**+**	**b * c * D**	**+**	**C * D * E**	**=>**	**aligned**
(Initiatives 9, 10, 11, 15)		(Initiatives 7, 14, 16, 20, 21, 23)		(Initiatives 4, 8, 18)		(Initiatives 3 e 17)		

We can read this result in the following manner:

First term: cases that do not work with the solving of real problems (variable b) and lack alignment between what the school proposed and what was effectively carried out (variable d) and do not impact faculty and students (variable e)…

OR

Second term: cases that do not have their own methodology (variable c) and have an impact on both faculty and students (variable E)...

OR

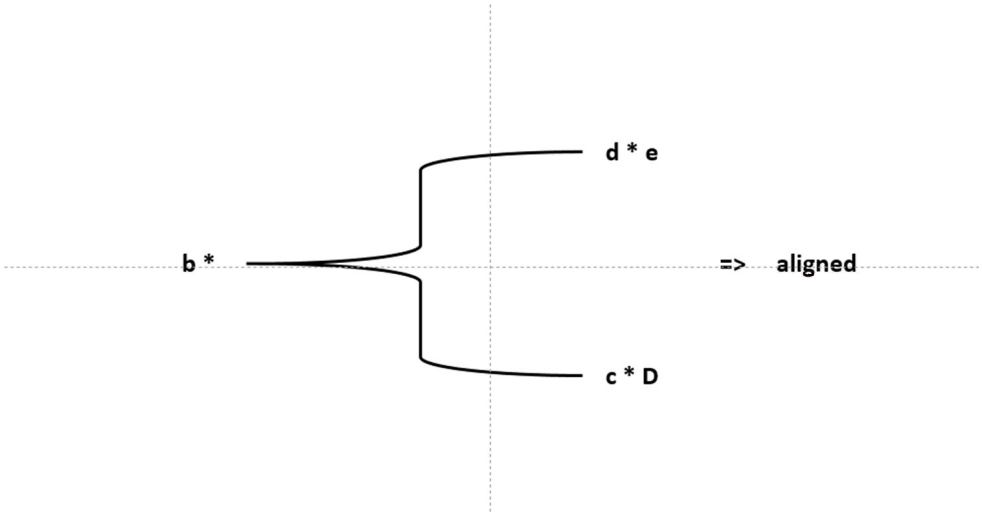
Third term: cases that do not work with the solving of real problems (variable b) and do not have their own methodology (variable c) and have alignment between what the school proposed and what was effectively carried out (variable D)...

OR

Fourth term: cases that have their own methodology (variable C) and have alignment between what the school proposed and what was effectively carried out (variable D) and have an impact on both professors and students (variable E)...

...do not present strong alignment with 21st century competencies (response variable of not aligned).

Compared to the previous one, this minimum formula is even more complex. There are four different "paths" to a weak alignment with the competencies of the future. The formula cannot be rewritten in a more structured or "shortened" way, because none of the four terms have variables common to all of them. In view of this, we chose to study a simpler formula that would still include the majority of cases with a result of [0]. For this, we discarded the second and fourth terms of the full equation, obtaining the following structured equation:



In this way, we can discern the presence of a necessary condition, that of variable b, indicating that the initiative does not work with real or practical cases; as well as two main paths.

Conclusions

The conclusions we can extract from the analyses carried out in this work are connected to the interpretation of the model based on the QCA and the table presented in Chart 2.

CONCLUSIONS BASED ON THE CONFIGURATIONAL MODEL

The descriptive formula found for the configurations with a response of [1] allow us to make some generalizations:

1. All the initiatives that were strongly aligned with the competencies of the future also present alignment between their initial project proposal and what was effectively carried out.
2. In the case of schools 2, 5, 6, 12, 13 and 19, the existence of their own methodology (C) and the participation of both faculty and students in the

implementation of the project (E) is associated with being aligned with the competencies of the future.

3. In the same manner, in the case of initiatives 1 and 22, the lack of their own methodology (c) did not prevent their alignment with the competencies of the future.
4. Another relevant point is the absence of variable "a" – integration objectives, whether between theory and practice or school and community – in both terms. This indicates that these objectives are not necessarily present in initiatives strongly associated with competencies of the future.

Bearing in mind that variables "a" and "b" refer to the context in which the project finds itself, that variables "c" and "d" refer to the quality of the project's structure and that variable "e" is about the actors (faculty and students) impacted by the initiative, we can formulate two more general propositions: in six of the eight cases strongly aligned with the competencies of the future, we can see the presence of a condition relative to the good quality of the projects' structure, as well as the presence of the condition relative to the initiatives' broad impact, affecting both faculty and students.

On the other hand, the descriptive formula found for configurations with a response variable of [0] allows us to conclude that the projects not strongly aligned with 21st century competencies can be characterized by initiatives that do not work on real cases.

CONCLUSIONS BASED ON CHART 2– COMPETENCIES WORKED ON IN THE PROJECTS

Chart 2 shows the frequency with which each competency of the future appears among the 23 cases under study. Although we acknowledge that it is difficult to work with all 21st century competencies in a single project, it is our understanding that initiatives based on innovative pedagogy in line with the demands society places on contemporary educational processes tend to work these competencies in an integrated manner. We had hoped to find them in significant numbers within the projects. This did not happen.

In Chart 2, we can see the highlighted presence of the competency linked to regional awareness in the projects. This makes sense. As seen in the theoretical framework, one of the characteristics of new processes in HEIs is the involvement of their external stakeholders, especially those located in their immediate surroundings. Next, we observed a group with intermediary frequency, in which the socio-relational competencies of autonomy, flexibility, critical thinking and communication stood out and which are also central in the proposals of innovation in teaching. However, it is surprising that only one initiative has the development of empathy as one of its objectives; we hypothesize that education institutions may be less familiar with how to tackle this competency.

Finally, we note, with concern, that the projects do not include being comfortable with technology. One of the effective routes to reinforcing the relevance of business programs is related to forming partnerships with engineering and IT programs with the aim of integrating knowledge of the hard sciences and the competencies of the administrator, especially in a moment when the impact of technology is provoking great disruption in professions, with the rapid development and frequent application of artificial intelligence.

FUTURE STUDIES AND SUGGESTIONS

It is our understanding that going deeper into the analysis of the initiatives acknowledged by the 2018 ANGRAD Award, based on fuzzy sets QCA, which is also presented in the book by Ragin and Rihoux (2008), would be worthwhile. This model probably provides more adjusted results, given that it is more flexible in the sense that it allows the exploration of different degrees of presence for the factors. With the publication of the award material in the form of chapters organized by Iizuka (2019), the cases have become totally public and the results of the analyses can be presented with greater transparency.

To further increase the usefulness of the already extremely important data relative to the award-winning cases, we would like to suggest to ANGRAD that, for a future edition of the Award, the questionnaire to be filled out by candidates separates the questions within a single topic, in order to encourage more specific and deeper answers to each of them. For example, in the first topic of the current

questionnaire, "Initiative's Title and Abstract", respondents are asked to describe the problem perceived by the HEI, the objectives of the innovative experience, the methodology used, a summarized description of the initiative, the involvement of the actors and the main findings, all in one single answer. This organization of the questionnaire allowed respondents to select points to elaborate, leaving some or many unanswered. The existence of a field to fill out for each point being analyzed would increase the chances of generating comparable data.

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