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How is the strategic group theory applied to higher education?

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Higher education institutions participate in highly competitive, complex, changing, and differentiated environments (Ganga, Quiroz & Fossatti, 2017; Hwang & Choi, 2019; Araya-Castillo et al., 2021), as the environment in which they usually interact has globally experienced a process of construction and reconstruction (Altbach, Reisberg & Rumbley, 2009; Gaete, 2011; Nhan & Nguyen, 2018). In this context, institutions are challenged to achieve and maintain their leadership (Thieme, Araya-Castillo & Olavarrieta, 2012; Araya-Castillo & Pedreros-Gajardo, 2014; Araya-Castillo & Rivera-Arroyo, 2021) and sources of competitive advantages (Sadiq & Shaikh, 2004; Cubillo-Pinilla et al., 2009; Araya-Castillo et al., 2018), while developing a solid foundation that allows them to reach high quality levels (Hota & Sarangi, 2019), through value creation and constant improvement of their organizational processes (Degtjarjova, Lapina & Freidenfelds, 2018).

This competitive context is explained by the emergence of new types of institutions (Yilmaz, 2019) and higher demands for standards of excellence and efficiency (Ganga-Contreras et al., 2018), by the rapid growth of participating corporations (Jain, Sahney & Sinha, 2013) and the corresponding rate of enrollment (Ganga et al., 2019), budget constraints (Martínez, Blanco & Castán, 2013), changes in regulations (Sultan & Yin, 2014), the constant reduction in funding by governments (Ivy, 2008), and increases in students' tuition fees (Mok, 2003).

Additionally, there is an increasingly heterogeneous student population in an international context (Archer, Hutchings & Ross, 2003), as well as higher levels of demand for quality control (Brunner & Uribe, 2007), the development and fast diffusion of information and communication technologies (Buil et al., 2012), increased international student mobility (Nhan & Nguyen, 2018), the emergence of academic consortia (Juarros, 2006), the pressure to raise capital funds and control increases in personnel costs (Lovett, 2002), a global education market (Abdullah, 2006), and increasing levels of diversification and privatization of higher education systems (Espinoza & González, 2011).

Therefore, educational institutions are challenged to adapt to the changing environment (Tamutienė & Matkevičienė, 2019) and respond quickly to new competitive dynamics (De Jager & Gbadamosi, 2010), due to the fact that the higher education sector has significant similarities with a service industry (Gruber et al., 2010; Jain et al., 2013; Yeo & Li, 2014), in that it is intangible and heterogeneous; it meets the criterion of

inseparability, it is produced and consumed at the same time; it meets the criterion of perishability; and it assumes student participation in the service delivery process (Danjuma & Rasli, 2013).

To meet these challenges, higher education institutions must adopt a market approach (Araya-Castillo & Bernardo, 2019), revitalize their marketing strategies (Jain et al., 2013), operate from entrepreneurship-oriented approaches (Mayer, Charles & De la Garza, 2019), focus their efforts on marketing activities (Ivy, 2008), benchmark against globally recognized institutions (Martensen & Grønholdt, 2009), prioritize quality issues (Hwang & Choi, 2019), and show the quality of their processes and outcomes (Rodríguez-Ponce, 2009).

As a result, these institutions must study the competitive dynamics of the sectors in which they participate from a management-centered approach (Thieme et al., 2012; Araya-Castillo et al., 2015; Araya-Castillo et al., 2018), rather than from a traditional approach coming from education or social sciences. This is so because both policy makers and social agents have begun to require institutions to justify their results (Chacón et al., 2001), reexamine their structures, strategies, and processes (Thieme et al., 2012), and implement competitive strategies in order to differentiate their offerings (Araya-Castillo & Pedreros-Gajardo, 2014), based on higher levels of quality (DeShields, Kara & Kaynak 2005) and aspects linked to social responsibility (Severino-González et al., 2020).

However, knowing and understanding the competitive dynamics of higher education not only has strategic implications, but also public policy implications, as different stakeholders express their concern for higher levels of regulation (Araya-Castillo & Rivera-Arroyo, 2021). This interest in regulatory institutions arose in response to the demands of the population, the worsening quality of some institutions, changes in student behavior, and business and society demands for professionals with new skills, as well as for new roles for higher education institutions (Rama, 2006).

Considering the above, decision-makers in higher education institutions need to recognize that the changes in the environment have brought about a transformation in the public policy approach to education, since the reforms in the higher education sector seek to expand the State's regulatory capacity over the sector through mechanisms of external quality assessment and accreditation, both from institutions and undergraduate programs and graduate programs (García, 1997).

The idea is for higher education corporations to offer prestigious and added-value academic programs (Lai et al., 2015), since education is expected to be linked to the context of post-truth and its social applications (Cerdán, García & Padilla, 2020). Likewise, these institutions ought to satisfy the interests of their stakeholders (Gruber et al., 2010), find effective ways to deliver services to their students (Jain, Sinha & Sahney, 2011), and improve the quality of the activities they carry out (Dill, 2007), in terms of teaching, research, and information (Hota & Sarangi, 2019).

To meet this objective, some researchers have applied the theory of strategic groups to study higher education sectors. This approach suggests that firms do not compete with all the other firms in their market, but only with those that share common resources and strategies (Carroll & Thomas, 2019). The organizations that make up a strategic group resemble each other, not only in business key features, such as size and structure, but also in terms of organizational identity, image, and reputation (Labianca et al., 2001).

With strategic groups, it is possible to infer which firms are likely to interact with each other, the nature of these interactions, and how interactions might affect their performance levels (Carroll & Thomas, 2019). This is because the concept of strategic group occupies an imaginary conceptual space between the firm and the sector, hence it is conceived as an intermediate unit of analysis that recognizes intra-industry heterogeneity and also emphasizes the similarity among companies within the group (Céspedes, 1995).

Therefore, researchers can use the theory of strategic groups to study the higher education sector in a way that is functional for public policy makers and managers of higher education institutions (Thieme et al., 2012; Araya-Castillo & Bernardo, 2017; Araya-Castillo et al., 2021), inasmuch as the division of the industry into strategic groups provides an analytical tool that allows for an in-depth study of the nature of

industrial competition, with a higher level of variation than the analysis of a single firm allows, and in a more particularized way than the aggregate analysis of sectors allows (González-Fidalgo, 2001).

This is so because the industry is heterogeneous and composed of groups, which are made up of entities that follow similar strategies (Ketchen, Snow & Hoover, 2004). This means that firms belonging to the same group are able to respond in the same way to disruption, are mutually dependent, and accurately anticipate the reaction of the rest of the group (Prior & Surroca, 2001). Likewise, the response to disruption will be a common competitive strategy for the companies in the strategic group, decreasing the relative importance of some strategic variables and increasing the relative importance of others (Araya, 2019).

Table 1 shows a compilation and summary of 17 studies conducted in higher education sectors in the United States (hereinafter US), Europe (Germany, Australia, Poland, Spain), South America (Chile, Colombia, Brazil) and Australia, or in samples of institutions from these countries. When research is carried out in a given country, it is for the national territory as a whole or in a specific region. Furthermore, these studies have been conducted on universities as a whole or on specific academic units (Colleges, Business Schools) or training programs (MBA).

With regards to the information collected, although strategic groups play an important role in the business development of countries (Vázquez, Rech & Miranda, 2018), their application in higher education has not yet reached a relevant level of significance. Additionally, when applied, the strategic group approach often uses statistical techniques (Hervás, Dalmau & Albors, 2006).

There are three alternative methods of forming strategic groups (Nath & Gruca, 1997). The first method consists of identification through factor and cluster analysis (Fiegenbaum & Thomas, 1990). The second method consists of multidimensional scaling of managers' perceptions (Fombrun & Zajac, 1987). The third method is based on the direct identification of competing firms by managers involved in the industry (Porac et al., 1995). However, the use of multivariate methodologies is more useful for developing empirical research (Hatten & Hatten, 1987), as these methodologies make it possible to broaden the concept of strategy analyzed, giving rise to classification schemes of greater complexity, which improves the quality of the results (Flavián & Polo, 1999).

TABLE 1
Strategic group studies (GE in Spanish) in higher education sectors

Author(s) (Year)	Country	Scope of Application	Methodology	GE No.	Results Description
Rodrigues, Simões & Ferreira (2021)	Brasil	Business Schools	Factor analysis, cluster analysis, and multivariate analysis of variance (MANOVA).	5 / 7	Groups were obtained according to the Porter (5) and Mintzberg (7) typologies, and the performance of the SITM group was verified.
Rodriguez, Zabala-Iturriagagoitia & Aparicio (2021)	Colombia	Private Higher Education Institutions	Multidimensional Scaling (MDS), cluster analysis, Ward's method, fit analysis, ANOVA and linear regression.	5	Groups were obtained according to the following strategic dimensions: a) institutional profile; b) size; c) face-to-face production; d) online production; e) specialization; and f) diversity.
Duan (2019)	Australia	Public Universities	Data Envelopment Analysis (DEA).	4	Groups were obtained according to the following strategic dimensions: a) how these universities work; and b) their strategic approach to teaching and research.
Araya-Castillo et al. (2018)	Chile	Universities	Factor analysis, cluster analysis, and Pearson correlation analysis.	10	Groups were obtained according to the following strategic dimensions: a) reputation; b) social responsibility; c) online education; d) scope; e) corporate governance; f) infrastructure; and g) advertising.
Scafuto, Backes & Maccari (2017)	Latin America	Business Schools	Multidimensional scaling.	3	Groups are characterized by isomorphic behaviors among institutions, and by complementary idiosyncratic behaviors in some of them. It is concluded that participation in MBA rankings is a boost of legitimacy and that this affects the strategic behavior of organizations.
Pietrzak & Pietrzak (2017)	Polonia	Colleges of Engineering and Technological Sciences	Cluster analysis.	4	Groups were obtained according to the strategic dimensions: a) number of publications versus number of students; and b) value of externally acquired funds versus number of students.
Araya-Castillo & Bernardo (2017)	Chile	Universities	Factor analysis, cluster analysis and Pearson correlation analysis.	9	Groups were obtained according to the following strategic dimensions: a) reputation; b) infrastructure; c) social responsibility; d) online education; / e) scope; and f) advertising.
Araya-Castillo et al. (2015)	Chile	Evening Schools of Economics and Business of the Metropolitan Region	Factor analysis, cluster analysis and Pearson correlation analysis.	4	Groups were obtained according to the following strategic dimensions: a) accreditation; b) investment; and c) scope.
Araya-Castillo & Escobar-Farfán (2015)	Chile	Business Schools	Factor analysis, cluster analysis and Pearson correlation analysis.	4	Groups were obtained according to the following strategic dimensions: a) reputation; b) scope; and c) advertising investment.
Araya-Castillo & Pedreros-Gajardo (2014)	Chile	Universities	Factor analysis, cluster analysis and Pearson correlation analysis.	14	Groups were obtained according to the following strategic dimensions: a) scope; b) reputation; and c) infrastructure; and d) advertising.
Thieme et al. (2012)	Chile	Universities	Factor analysis, cluster analysis and Pearson correlation analysis.	10	Groups were obtained according to the following strategic dimensions: a) reputation; b) scope; and c) advertising investment.
Thomas & Li (2009)	US, Canada, Europe, Asia, and Australia	Business Schools	Cluster analysis.	10	Groups have different resource and reputation profiles.
Paucar-Caceres (2008)	UK and France	Business Schools	Co-plot method.	6	Groups are characterized by core and optional features.
Warning (2004; 2007)	Germany	Universities	Quantile regression.	2	Groups were obtained according to the following strategic dimensions: a) teaching versus research; and b) social sciences versus natural sciences.
Hernangómez et al. (2007)	Spain	Universities of Castilla y León	Factor analysis, cluster analysis and global analysis.	5	Groups were obtained according to the following strategic dimensions: a) tangible and intangible resources and skills; b) degree of differentiation of the educational service in relation to quality; c) degree of differentiation of the educational service in terms of specialization; d) development of educational products; and e) development of markets to work in.
Labianca et al. (2001)	US	Colleges and Universities	Regression analysis.	10	Industry subgroups were obtained based on emulation decisions that differ in their a) structural; and b) identity attributes.
Segev, Raveh & Farjoun (1999)	US	Business Schools	Co-plot method.	6	Groups show that there is no best content structure for MBA programs.

Own elaboration, 2022.

Segev et al. (1999), studied the strategic behavior of leading US business schools. With the revolution in MBA programs in mind, this research sought to examine the adaptation and change of business schools. These institutions were mapped in terms of their core course structure and areas of concentration, concluding

that there were six strategic clusters, and that the program content structure (the particular combination of core and concentration areas) is not a source of higher performance in itself.

Labianca et al. (2001), studied the competitive dynamics of US colleges and universities. These authors analyzed the US higher education sector in order to identify industry subgroups, which were grouped into ten clusters that were shaped by emulation decisions (strategic reference groups), which differed in structural and identity attributes. In conclusion, decision-makers tend to imitate educational institutions that are similar to theirs; if they seek to improve the performance of their organizations, they ought to broaden their perspective and include structural and identity-related dimensions in their benchmarking processes instead.

Hernángómez et al. (2007) argued that, as the relevance of strategic decisions increases, and given that these decisions are interdependent from the agents in the analyzed sector, the knowledge of competitors and their behavior becomes a very important strategic tool. Five strategic clusters were obtained from universities in Castilla y León (Spain). These were differentiated based on resources and skills, differentiation through quality, differentiation through specialization, product development, and market development.

Warning (2004; 2007), sought to explain how and why German universities differ in the degree to which they specialize in the natural or social sciences and in relation to their research or teaching resources. The study showed that universities that differ in their strategic orientation present differences in their efficiency, which is higher in teaching than in research and in natural sciences than in social sciences. While most studies use cluster analysis to identify strategic groups, his research used quantile regression to identify common strategic variables in high- and low-performing groups.

Paucar-Caceres (2008), analyzed the clustering of MBA programs offered by British and French business schools accredited by the AMBA Association. Six groups of business schools were obtained in the study, based on their core and elective course offerings. It was the first study to use a sample of institutions from different countries, hence making a contribution to the area of international higher education (specifically, in the design of MBA programs).

Thomas & Li (2009), examined the strategic profiles and differences in resources among the world's leading business schools. They studied business schools in the US, Canada, Europe, Asia and Australia, and were able to provide a clear mapping of strategic "bands" in globally branded business schools. With this input, ten strategic groups were obtained, which had different resource and reputation profiles.

Thieme et al. (2012), studied the university market in Chile and were able to design ten strategic groups of universities according to the strategic dimensions of reputation, scope, and advertising investment. They evaluated whether the decisions made in the aspects of reputation, scope, and advertising investment have an impact on attracting and keeping students, the position in quality rankings and tuition fees. They concluded that investment in each aspect (strategic dimensions) leads to ad-hoc results, i.e., universities obtaining what they intended from a mix of resources, as a result of their management.

Araya-Castillo & Pedreros-Gajardo (2014), studied the university market in Chile. According to these authors, universities compete for the decisions they make in the strategic dimensions of scope, reputation, infrastructure, and advertising; resulting into fourteen strategic groups. They also concluded that investing resources in scope and reputation aspects increases enrollment rates, and that investing in reputation is positively correlated with tuition fees and ranking position.

Araya-Castillo & Escobar-Farfán (2015), studied the research behavior of business schools in Chile. They identified four strategic groups according to the decisions these institutions make in terms of academic production, research team, and academic dissemination. In addition, the authors concluded that the investment made by business schools in research sources has an impact on organizational performance indicators, such as international accreditation, position in quality rankings, and MBA tuition fees.

Araya-Castillo et al. (2015), studied the competitive dynamics of evening schools of economics and business in the metropolitan region of Chile, and concluded that the strategic dimensions of accreditation, investment, and scope are the ones that define the competitive behavior of universities. As a result, four

strategic groups were identified. They also found that investing resources in the strategic dimensions has an impact on market share; but that investing only in advertising influences the tuition fees.

Araya-Castillo & Bernardo (2017), studied the competitive dynamics of Chile's university market. They concluded that universities compete on the basis of the decisions they make in the aspects of reputation, infrastructure, social responsibility, distance education, scope, and advertising. As a result, nine strategic groups were identified. The authors also found that investing resources in each strategic dimension has an impact on enrollment; investing resources in reputation and infrastructure has an impact on the ranking position; and investing resources in reputation has an impact on tuition fees (affordability).

Scafuto et al. (2017), verified the existence of strategic groups of Latin American business schools that were listed in the Ranking América Economía in 2015. The authors argued that rankings put significant pressure on institutions, which respond by adjusting their strategies. They concluded that there are three strategic groups, where isomorphic behaviors can be appreciated among the institutions, and also complementary idiosyncratic behaviors in some institutions. Accordingly, they argue that participation in rankings is a boost of legitimacy and that this affects the strategic behavior of organizations.

Araya-Castillo et al. (2018), analyzed the competitive dynamics of Chile's university market, and concluded that it is determined by the strategic dimensions of reputation, social responsibility, distance education, scope, corporate governance, infrastructure, and advertising. Considering this competitive dynamic, ten strategic groups were identified. It was found that university performance (based on the increase in undergraduate and graduate enrollment, ranking positions, tuition fees, and financial indicators) is consistent with the decisions these universities made and the resources they implemented in the different strategic dimensions.

Duan (2019), studied the efficiency of Australian universities, concluding that they keep a comparatively high level of efficiency in terms of operations and research, but that teaching efficiency does not show the same levels of performance. Given this, the author analyzed the strategic groups to find out the source of inefficiency in universities. She concluded that the grouping of four strategic groups is determined by the way these universities work, and by their strategic focus on teaching and research. This study concluded that resource allocation and funding decisions can be based on performance rating.

Rodríguez et al. (2021), identified strategic groups in the private sector of Colombia's higher education system. They classified institutions into five strategic groups, and analyzed the relationship between their institutional characteristics and the strategies that differentiate them. Strategic groups were obtained according to the strategic dimensions of institutional profile, size, face-to-face performance, online performance, specialization, and diversity. In conclusion, the results obtained can be used to address potential growth or expansion of private institutions based on their strategic identity, thus contributing to the sustainability and competitiveness of higher education systems.

Finally, Rodrigues et al. (2021) identified strategic clusters in the Brazilian private face-to-face higher education industry, as this sector has faced a number of challenges and is facing an increasingly intense business scenario. The authors concluded the existence of strategic groups in this industry, which were obtained according to the Porter (5) and Mintzberg (7) typologies. The performance of the SITM (Stuck In The Middle) group was also verified. With this research, the authors not only studied strategic groups and their performance, but also analyzed universities' strategic risks and opportunities.

The study of competitive dynamics is important not only for higher education, but also for education systems and country development, since higher education has similar dynamics among different countries, except perhaps for lower-income countries (Larraín & Zurita, 2008). This is why it is often considered that higher education is the most closely related service to society growth and socioeconomic development (Senthilkumar & Arulraj, 2011), as creating knowledge is crucial for the development of a country as a central element to improve the quality of life and progress (Sebastián, 2007).

In addition, the wealth or poverty of countries depends largely on the quality of their higher education (Hota & Sarangi, 2019), since it is recognized as a key element for economic prosperity (Vnoučková, Urbancová & Smolová, 2019), it favors the improvement of productive processes (Romer, 1986), it is a central element in the development of any country (Barrientos & Araya-Castillo, 2018), it contributes to social mobility (Urzúa, 2016), it is vital for social progress (Batool, Nadeem & Asif, 2018), it is the central link in the development of talent and culture (Chen & Fan, 2018), and it is essential for sustainable development and to improve people's well-being (Choudhary & Paharia, 2018).