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Dynamic Capabilities, Political External Relationship, Educational Technology Capability and Firm Performance

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Abstract: This study brings the argument that dynamic capabilities through the influences of external political relationship is able to create educational technology capability and it results in better performance. The reconfiguration and application of an educational system engaged in understanding the external needs of an institution and finding internal evaluations to improve their processes can bring better results at the expense of their resources expandability and show superior performance from results in the growth of sales and services as shown by the analysis of this study.

Key words: Dynamic capabilities, political external relationship, educational technology capability, firm performance, influences

INTRODUCTION

The dynamic capabilities view have tried over these two last decades answering countless questions which are the capabilities that impact on performance and understand how it occurs. It brings concern to researches about its context and environmental changes that needs to be more explored and explained.

Organizations sense and seize the environmental rules to make decisions but this formal situation is influenced for political and market positions and it depends how the government operates its initiatives and practices and how risky is the environmental to make changes. This are some minimum requirements that an organization needs to avoid undesirable results. Few researches have examined the relational between governance and dynamic capabilities perspectives and their effects on innovation and performance as well as these relationships (Cheng *et al*., 2014).

The perspective of dynamic capabilities is essentially important to the management of political environments and stakeholders relationship for several reasons. First, dynamic capabilities focus on the variation in firms' abilities to adapt quickly to rapidly changing environments (Teece *et al*., 1997). This suggests political and government changes. Second, dynamic capabilities "affect profitability by enhancing the productivity of the other resources that the firm possesses" (Makadok, 2001).

This argument suggests the need for an organization to maintain relationships with its stakeholders and partners in order to achieve better trading resources.

This study defends that dynamic capabilities through the influences of external political relationship is able to create educational technology capability and it results in better performance. We apply a dynamic capabilities framework to address the following questions: under what conditions dynamic capabilities drive to changes? What are the business process of the Higher Education Institutions (HEIs) which leads a superior performance? Thus, this study attempts to contribute to the literature of dynamic capabilities and strategic management by examining the educational technology capabilities role to HEI's performance. It explores the influences of external political relationship on dynamic capabilities and how it impacts on performance. This study shows results of a unique context which explains the main strategic process used for HEIs to differentiate themselves in a competitive market and point out the influences that can lead an organizational success.

Literature review

Dynamic capabilities in Brazilian higher education institutions: The approach of dynamic capabilities can help to explain different strategic decisions because managerial capabilities are the capabilities for which managers build, integrate and reconfigure resources and organizational competences (Adner and Helfat, 2003).

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Thus, this perspective provides to strategic management the understanding of the capabilities that drive change and what organizations do to remain competitive over time. And understand the sector that the organization is inserted makes its core processes highlighted as well as reveal what drives change and readjustment in the market in which it operates. Thus, this study has as object of study to understand the private higher education institution in Brazil. This importance is given by the understanding of a highly competitive sector which needs to adapt with the market and government requirements all the time because the quality of education is constantly evaluated and their response is widespread in society.

The selection of the private sector was due to the expectation that private institutions have established administrative and academic procedures and act more intensely in resource allocation, innovation, strategic renewal and development capabilities. This sector has been relevant to studies in Brazil because it is growing quickly and has formed a highly dynamic and competitive environment.

Based on the assumption that dynamic capabilities is crucial to understand firm's changes, we propose a framework which suggests that dynamic capabilities is influenced by external political relationship and Dynamic Capabilities (DC) influence directly the firm performance and educational technology capability is a mediation between dynamic capability and performance.

External political relationship and DC: In the light of dynamic capabilities approach, Oliver and Holzinger (2008) associate it with political activity as a way to explain that firms adopt strategies to influence the political environment. The DC under a political management are dynamic processes by which companies influence or are adjusted to their political environment in order to generate future value for the company and protect its current value losses. Efficient history perspectives see the outcomes of politics including the dynamics of political order as implicit in environmental constraints (March and Olsen, 1998). Then, DC are also required to deal with the political change.

Some researchers have found some alignment between political relationship and learning capability as Ferdinand (2004) who demonstrates how learning within organizations is dependent in the government policies towards education and training. Santos found that relationships built with peer companies in industry (suppliers and competitors) appear as distinct capabilities that are along the innovation process and are designed predominantly for training groups and coalitions that expand the sector's strength mainly in discussions with governmental entities, this researcher refers to this phenomenon as political relationship capacity. Besides it, Cheng *et al.* (2014) assert that political relationship and DC are major perspectives for competitive advantage and are important for the improvement of innovation performance, i.e. in supply chains.

Political relationship and DC perspectives are key determinants of competitive advantage that concern maintenance of the partners' relationship (Wang and Wei, 2007). In this sense, political external relationship is a strong determinant to drive and control the changes that occur within organizations. Then, the first hypothesis is:

- H_1: the presence of EPR in a HEI may be a strong regulator to the DC

DC and ETC: In the literature has discussed two important classes of capabilities: ordinary and dynamic. The first one refers to the involvement of the administrative performance, operational and governance-related functions which are important to accomplish technical tasks and the second one refers to the involvement of higher-level activities that can enable an enterprise to direct its ordinary activities toward high-payoff endeavors (Teece, 2014). Some researchers call ordinary capability as operational capability like Winter (2003), Teece (2007), Wu *et al.* (2010), Pavlou and El-Sawy (2011), Protogerou *et al.* (2008) and others, i.e., Helfat and Winter (2011) in their framework proposed ordinary capabilities equated with operational capabilities.

Protogerou *et al.* (2008) studied the technology capabilities, considering them as operational capabilities and Giacomini. The capabilities related to technology are those that enable the development and production technology, enabling the response to the rapidly changing technological environment while marketing capabilities are those that provide relations with consumers, allowing compete in predicting changes in their preferences as well as create and maintain lasting relationships (Song *et al.*, 2005). The CDs can explain how new businesses are created, defined and discovered from the search of opportunities in the environment by combining strategic resources and needs of the market by the use of new technologies (Jiao *et al.*, 2013). This assumption is supported by the proposition that companies with a strong base of innovation technology improve sales force by the influences of their consumers about their expectations regarding the product (Dutta *et al.*, 1999).

In this study, the annual capacity of technology was applied in the educational sector and is called the

proposed framework of Educational Technology Capacity (ETC) which seeks to measure and evaluate the activities involving technology in HEIs. For this, we assume:

- H_2: the presence of DC in a HEI favours the development of ETC

ETC and firm performance: Protogerou *et al.* (2008) suggest that the more a firm is endowed with capabilities that permit the production of higher value market offerings or lower costs compared to competitors, the more those skills can be translated into competitive advantage positions and superior performance in business. Technological capabilities is one of the most driver of a firm's performance and thus a central interest to managers (Wilden and Gudergan, 2014). It is suggested here that the more a HEI is endowed with the capacity ordinary ETC result more positively on their performance.

- H_3: the presence of ETC in a HEI favours the development of firm performance

DC and firm performance: The relation of DC on firm performance has been a matter of verification between scholars (Arthurs and Busenitz, 2006; Wu, 2007; Hung *et al.*, 2010; Zhan and Chen, 2013; Chien and Tsai, 2012; Prange and Verdier, 2011; Protogerou *et al.*, 2008; Jiao *et al.*, 2013; White *et al.*, 2014; Wilden *et al.*, 2013; Makkonen *et al.*, 2014). However, how the dynamic capabilities effectively affect the performance is still not clear. Several scholars as Eisenhardt and Martin (2000), Helfat and Peteraf (2003), Winter (2003), Zott (2003), Zahra *et al.* (2006), Easterby-Smith *et al.* (2009) and Protogerou *et al.* (2008) among others, suggest that performance is not the result of dynamic capabilities in itself but is a result of effective configuration of the common or operational capabilities. For this, we assume:

- H_4: the presence of DC in a HEI favours the development of Firm Performance. Therefore, its impact is direct and mediated by ETC

MATERIALS AND METHODS

Research design: The approach of this exploratory study is quantitative and held by a survey. The model was developed from the dimensions of dynamic capabilities by Protogerou *et al.* (2008), Pavlou and El-Sawy (2011) and Wilden *et al.* (2013). The construct external political relationship was developed by Santos in her doctoral thesis. This researcher explains that the political relationship are positively associated with the ability to reconfiguration/adaptation of a company. The construct

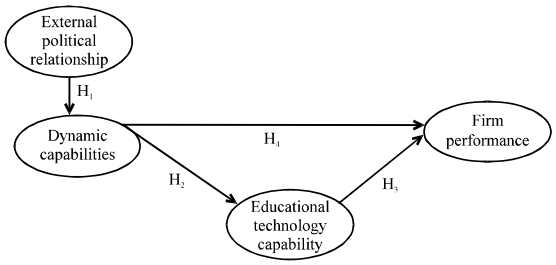

Fig. 1: Proposed framework

educational technology capability was developed from Protogerou *et al.* (2008) and was adapted do education sector to attend the firm's requirements.

Research instrument: The context of research's application is national (Brazil) and the selected sector is the private higher education. The questionnaire was prepared based on the work of these scholars and included questions on the four constructs: dynamic capabilities, external political relationship, educational technology capability and firm performance as shown in Fig. 1. A Likert 5-point scale was used ranging from strongly disagree to strongly agree and the questionnaire was applied through the software qualtrics to leaders of the HEIs. The statements of technological capability was adapted to educational sector with a previous study and was based on the experience of academics and practioners. For this, we call of educational technology capability.

According to data from the national institute of educational studies teixeira-INEP in 2014, the time of data collection, there were 1932 higher education institutions-HEIs in Brazil, among them 92 universities, 136 university centres and 1704 colleges, considering all the country's states. The selection of the private sector was due to the expectation that HEIs have established administrative and academic procedures and act more intensely in resource allocation, innovation, strategic renewal and development capabilities. This sector has been relevant to studies in Brazil explained by its rapidly growing and it has formed a highly dynamic environment which seeks superior performance. The sample of n = 316 IES (16.36% return) was based on a cross-sectoral approach to ensure sufficient sample for the generalization of data, among the population of 1932 HEIs.

RESULTS AND DISCUSSION

Firstly, we conducted an exploratory factor analysis which were confirmed the unidimensionality of the

constructs as a way to measure their validity and reliability. The second step was the construct validity in order to examine the measurement properties of the indicators and the construct validity by employing Confirmatory Factor Analysis (CFA) using PLS-SEM.

All the indexes showed significance p>0.000, further supporting the acceptance of the proposed model. Therefore, all analysis provide reasonable confidence that the measured used in the present study are valid and reliable (Table 1).

The third step was assessing discriminant validity, all construct's AVEs showed be greater than their squared correlation with all other constructs according to Fornell and Larcker (1981) as shown in Table 2.

The results of the structural model estimates are shown in Fig. 2. It was used the bootstrap procedure with 5000 times because the number of bootstrap samples must be larger than the number of valid observations in the original data set.

Table 3 shows that t-statistics are significant at the 0.001 level. Our model has one exogenous construct represented by External Political Relationship (EPR) and three reflexive ones, represented by Dynamic Capabilities (DC), Education Technology Capability (ETC) and Firm Performance (FP).

To make sure the quality of the research model, we analyzed the Goodness of Fit (GoF) suggested by Tenenhaus *et al.* (2005). The GOF is calculated as: GOF = square root (communality×R^2) = square root (0.2623×0.5634) = 0.488 which exceeds the cut-off value of 0.36 for large effect sizes of R^2. From the following data, we can conclude that our model has good results. The communality is equals AVE in the PLS path modeling approach, we propose a cut-off value of 0.5 for communality as proposed by Fornell and Larcker (Table 4).

The model results confirm and validate the assumptions made in this study that dynamic capabilities favor directly in the development of performance and indirectly through its educational technology capability. This study was applied to the Higher Education Institutions sector (HEIs) in Brazil and is explained to be a highly competitive industry with a large concentration of institutions and of similar course offerings which makes it questionable in which strategies these HEIs follow in order to differentiate themselves in the market in which they operate.

In addition, HEIs need to be appropriate to market requirements, they are regulated by the government through the MEC (ministry of education) which assesses the teaching conditions and thus position and legitimizes them in the market sector. The HEIs are influenced by government action such as changing interest rates, quotas for students, student loans, among other factors that influence them in their decisions. Comply with government mandates is a major step to align the internal strategies of the institution. Another external factor that influences the HEI's decisions are the relationship with its

Table 1: Measurement properties of the SE Model

Construct	Indicator (label)	Item loading	CR	AVE
EPR	The HEI has knowledge of initiatives and practices of the government, so that it can evaluate which of them are related to its strategic	0.752	0.8464	0.5252
	The HEI uses the results of government initiatives to identify risks and opportunities for improvement in their management	0.797		
	The IES has a responsibility for engaging with the government, beyond the institutional researcher	0.692		
	Once established partnerships, there is the development of long term relationships	0.691		
	Our HEI has the capability to creating and maintaining relationships with associations (commercial, etc.) and associations (industry, etc.) and other stakeholders (suppliers, partners, etc.)	0.685		
ETC	We evaluated frequently and formally the main difficulties and challenges that teachers have in this institution	0.709	0.8602	0.5519
	We develop indicators, systems, procedures to monitor the administrative activities of the institution	0.759		
	We often develop educational systems and processes that contribute to the solution of educational challenges	0.726		
	We are able to absorb knowledge of teaching methods, new educational practices and evaluating and easily adapt to innovations	0.769		
	We develop indicators, systems and procedures to monitor teaching activities	0.749		
DC	We use established processes to identify the target market, changes in consumer needs and possible innovations to offer services	0.769	0.5718	0.5595
	We renew our business processes significantly (administrative and academic management practices) according to market demands to achieve our objectives and goal	0.725		
	The HEI can appropriately allocate resources for each of their services offered	0.783		
	Administrative tasks in the HEI are described in accordance with the relevant knowledge and skills for the management function	0.746		
FP	Financial capacity of expansion from its own resources	0.683	0.6048	0.6606
	Growth in student numbers over the past 3 years	0.781		
	Growth in the number of courses and services	0.787		
	Sale of courses and services	0.842		
	Investment degree in sales mechanisms	0.787		

EPR: External Political Relationship; ETC: Education Technology Capability; DC: Dynamic Capabilities; FP: Firm Performance

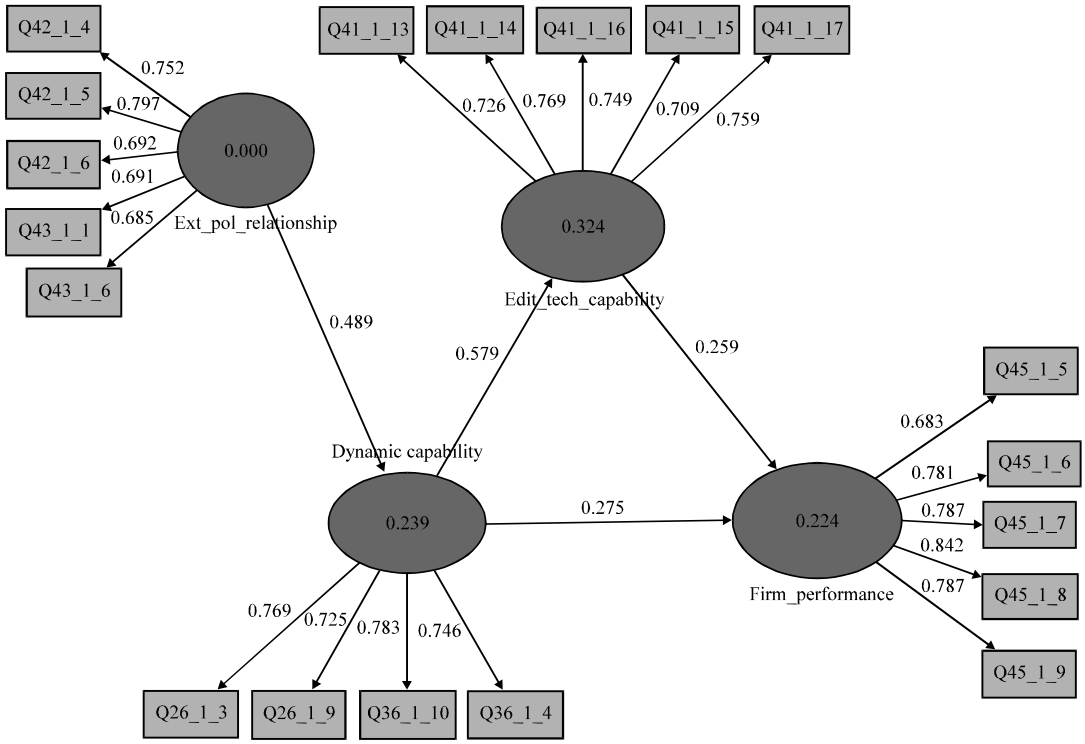

Fig. 2: Structural model

Table 2: Discriminant validity

Index	DC	ETC	EPR	FP
DC	0.7562	0.0000	0.0000	0.0000
ETC	0.5695	0.7429	0.0000	0.0000
EPR	0.4889	0.4660	0.7247	0.0000
FP	0.4230	0.4159	0.3244	0.7777

EPR: External Political Relationship; ETC: Education Technology Capability; DC: Dynamic Capabilities; FP: Firm Performance. The square root of average variance extracted is shown in the diagonal of the correlation matrix and inter-construct correlations are show off the diagonal

Table 3: Structural estimates

Path coefficients	PLS results	t-Stat.	Sig.
DC>>ETC	0.5695	5.8054	***
DC>>FP	0.2755	1.8101	*
ETC>>FP	0.2590	1.7106	*
EPR>>DC	0.4889	5.1774	***

Table 4: R^2, communality, redudancy

Constructs	R^2	Communality (AVE)	Redundancy
DC	0.2390	0.5718	0.1360
ETC	0.3240	0.5519	0.1774
EPR	-	0.5252	0.0000
FP	0.2240	0.6048	0.0936
Avarage	0.2623	0.5634	0.1357

EPR: External Political Relationship; ETC: Education Technology Capability; DC: Dynamic Capabilities; FP: Firm Performance

stakeholders such as associations, industries, suppliers, unions which contribute to the decisions taken by the organization and know-how. These relationship types are called in this study of External Political Relationship (EPR) as these are relationships that influence the organization's behavior in the market and it is considered that this relationship is favorable for its growth and expansion.

It was found in H_1 that the EPR is a strong regulator of CDs, it is explained that HEIs that have the governance practices of knowledge and establish partnerships with these and other stakeholders can verify and establish better processes that concern consumer needs which to enable innovation in its processes and service offerings. In addition, this knowledge and acquired skills are precious to drive internal change in a HEI as well as the development of educational technology capabilities, supported by the H_2. The hypotheses 2 reveals that the renewal of such processes as the demands of market are used for the development of indicators, systems and procedures to monitor administrative activities of the educational institution which can contribute to solving educational challenges.

From this reconfiguration and application of an educational system engaged in understanding the external needs of institution and finding internal evaluations to improve their processes such as adapting to new teaching methods and to support its teaching staff is explained from the hypotheses 3. It explains that an HEI can bring better results at the expense of their resources expandability and show superior performance from results in the growth of sales and services as shown by the analysis of this study.

The hypotheses 4 which explains the direct impact of dynamic capabilities on performance was accepted and gives one more explanation of this relation, besides the indirect linking. It supports that DC can direct and indirect support the development of performance in a context of a HEI, under an external influence of EPR.

CONCLUSION

The results show that HEIs keeping external political relationships are able to absorb knowledge of teaching methods, new educational practices and evaluating and easily adapt to innovations and expand in the growth of service offerings. It was found in this study the relationship political and DC perspectives are key determinants of competitive advantage que concern maintenance of the partners 'relationship (Wang and Wei, 2007). In this way, the chances were accepted brought in this study confirm that EPR is a strong regulator of CDs in HEIs and CDs affect directly and indirectly on the Performance of an HEI through its ETC.

RECOMMENDATIONS

We suggest that further research be carried out to investigate the EPR in other sectors from qualitative research, using observation, interviews, documentary research which allow through other evidence confirm and better explain this relationship brought this proposed model.

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