

Article

Development of Emergent Knowledge Strategies and New Dynamic Capabilities for Business Education in a Time of Crisis

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Abstract: The current pandemic is, above all, a crisis of knowledge—Humanity had to find a vaccine, and now we are not sure how to behave socially to minimize the pandemic bad effects. For organizations, this situation requires an update in the reflection regarding both the strategy and the actions that should be performed. Therefore, the current crisis requires new ways of applying knowledge strategies and dealing with dynamic capabilities. We first analyze the two questions (knowledge strategies and dynamic capabilities) in abstract and general terms, and then we specifically focus on business education during the COVID-19 crisis. We conclude that COVID-19 creates a need for all knowledge strategies in terms of business education. Data, information, knowledge, and wisdom will be needed; above all, it requires the Unknown-Knowns, which is the basis for Knowledge Sharing, and the Unknown-Unknowns that base Knowledge Exploration because both Knowledge Exploitation and Knowledge Acquisition are strategies business schools use to perform in times of crisis. They are more difficult to implement because both the Known-Knowns and the Known-Unknowns are less valuable to solve a crisis like this one: all this will result in “agile universities”, which will be (and already are) those that will use the right strategies and the right dynamic capabilities and will have better results. The paper is original because we link Knowledge Management and Human Resources Development Concepts to generate a broader and more comprehensive understanding of the organizational behavior about a very specific problem—business education—in a very specific time of the COVID-19 crisis. The limits of the paper relate to the evolution of society itself; we do not know when the crisis will end, and we are not sure how much of the “new normal” will remain in the “post-COVID-19” situation. The topic and analysis are of interest for practitioners because daily, they experience how their reality changed and their need to adapt, yet they do not know how. This topic and analysis are also of interest to scholars because science is based on questions, explaining and providing ways to improve one’s reality. COVID-19 has shown us, dramatically and uniquely, the need for new solutions in times of peace.



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1. Introduction

More than one year ago, (January 2020), COVID-19 presented humanity with new and unprecedented challenges. Suddenly, normality was not what it used to be. Routines of people, organizations and societies were severely affected. Not only was safety put into question, but behavior was challenged as well. For organizations, this situation requires reflection on both the strategy and the actions that should be performed. Therefore, the current crisis requires new ways of applying knowledge strategies [1], and new ways of dealing with dynamic capabilities [2,3]. For some, Mathematics would solve the problem and indeed, there are very interesting analyses available on how mathematics may explain and solve the COVID-19 crisis [4]. For others, the situation was more mixed, and social

sciences had a decisive part to play in solving the COVID-19 crisis [5]. The authors of this paper understand the first position but basically side with the second group. On the one hand, we understand the interest of finding some elaborate and complex model that will explain the COVID-19 crisis. On the other hand, we are sure that this model must have not only biologic but also social variables and that it will have to be put in place using social policies.

In this context, the authors of this paper assume that the COVID-19 happened in the scope of a globalized knowledge economy driven by services [6]. In this economy and society, macro and micro actors exist; also, basic elements are technology, people, and processes [7]. We therefore assume that the COVID-19 crisis is first and foremost a crisis of knowledge. This means that the most important aspect of the crisis was a lack of knowledge, namely the lack of a vaccine; this situation lasted for almost all of 2020; nowadays, several vaccines exist, but the problem is not yet solved, and the crisis continues. Therefore, this also means that, even if since the end of last year, several vaccines already exist and are beginning to be used, the crisis lasts and is aggravated because people, organizations and societies do not have appropriate social knowledge for reducing the contagion and stopping the deaths.

In fact, besides the search for the vaccine, the fight surrounding COVID-19 was trying to reduce the number of deaths, cases, hospitalized persons, and the figures for those variables are known to evolve in “waves”. Causes that have become associated with the spreading of the disease are parties and festivities [8], low temperatures [9], population density [10], and old age [11]. This means that imposing mandatory lockdowns, the compulsory use of masks, and the promotion of social distancing should also decrease the pandemic [12]. However, there is no general rule; while some governments like New Zealand and Australia or Austria and Portugal have been very restrictive on these policies, some others like Brazil, the USA or even Russia and France have been more lenient. The crisis continues.

Moreover, COVID-19 is also very important in terms of its relationship with the current trends in the knowledge society. Namely, COVID-19 has a very strong link with the “digital transformation”. Crucially, some would say that COVID-19 accelerated the movement decisively toward a digital society [13], a fact that is favored because while enabling social distancing, digitalization also makes us safe [14]—therefore, COVID-19 would be the ultimate digital transformer.

One of the basic aspects of digitalization within the COVID-19 pandemic is the staggering number of employees working from home. What was once a rarity seems to have to become the norm. This situation is not without problems—even if connections may be technically safe [15], isolation was soon found to be a big issue for teleworkers [16]. Universities have been severely hit by COVID-19 problems, with many questions arising about technology versus isolation. Finally, all the business education changes will lead to new emergent knowledge strategies [17] and the need for new dynamic capabilities [18]. This question is not yet solved, and it poses a research gap. It is this research gap we want to address in this paper, namely: What are the new knowledge strategies and the new dynamic capabilities needed to face the COVID-19 crisis, particularly when related to business education?

To answer these research questions, this paper is composed of the following sections: A literature review (on Knowledge Strategies and Dynamic Capabilities), results and analysis (provided by the joint consideration of the two concepts mentioned in the scope of business education during the COVID-19 crisis), discussion and conclusions. We hope to provide the reader some stimulating food for thought.

2. Literature Review

In this section, we first analyse the concept of knowledge strategies, then we summarize the theories on dynamic capabilities. These theories will serve as the basis for the analysis we perform.

2.1. Knowledge Strategies

In this subsection, we address some relevant theoretical questions. The starting point is the notion that Knowledge Strategy (KS) is a complex and specific concept that mixes two different concepts that are often considered separately, namely knowledge management and strategic thinking.

2.1.1. What Is Knowledge?

On the one hand, in the Knowledge Management (KM) field of science, information is considered organized data, and knowledge is understood information; when knowledge becomes somehow automatic, it becomes Wisdom [19]. The situation is often described in a pyramid in which the basis is data, and the next steps are information, knowledge, and wisdom.

2.1.2. What Kinds of Knowledge Exist?

An important clarification about these concepts is between rational knowledge, emotional knowledge, and spiritual knowledge [1]. Rational knowledge is the knowledge individuals and organizations acquire by using the scientific method, as defined by Descartes [20] and many other great thinkers after him. It requires a method, which may be quantitative or qualitative, and the test of a hypothesis or at least the consideration of research proposals that are to be analysed; for rational knowledge, falsifiability is a major issue. [21] The scientific or rational value of a statement is higher if it cannot be easily falsified; therefore, “it’s raining” is less valuable in terms of scientific knowledge than “it is raining in location X at time Y.” Emotional knowledge constitutes the feelings people have towards other persons, things, organizations of societies that are not based in any scientific judgment but in emotional predispositions. One may know a product is cheaper than another but may buy the more expensive product because one prefers the more expensive. The same situation may occur in relation to organizational and societal decisions; finally, some other decisions are based on values, and those cultural values form the spiritual knowledge of people, organizations, and societies. Not all cultures are equal [22], and one country may decide to implement one policy based on cultural grounds only, regardless of any previous scientific knowledge.

2.1.3. What Is Knowledge Management?

Knowledge Management (KM) is therefore defined as the process by which people, organizations and societies manage their knowledge resources. Therefore, KM is an important field of management. More precisely, it is linked with the management of intangible resources—knowledge being one of the most important of those resources. Traditional knowledge dealt more typically with tangible resources [5].

The dynamic of knowledge has been widely analysed. Important models are those of Nonaka [19] with the SECI model and Probst [23] with the diffusion model and Kianto, with the knowledge dynamics and renewal model [23,24]. The two first models explain how knowledge moves but do not explain how it is created [24,25]. They describe the “organizational capacity of renewal” (OCR) as the fundamental characteristic organizations must have to achieve a sustainable competitive advantage. This OCR, in turn, is generated by a set of behaviours like connectivity, use of time, learning culture, leadership, strategic competence, and knowledge management.

2.1.4. What Is Strategic Thinking?

On the other hand, Strategic Thinking (ST) is defined as the way people, organizations, and societies think in order to achieve a pre-defined goal. Strategic Thinking is a part of Strategic Management. Strategic Management is the way organizations try to achieve pre-defined goals. Strategic Management includes not only thinking but also the planning and the operations phase [26]. Five major characteristics define Strategic Thinking; namely,

systems perspective, focus on intent, thinking in time, hypothesis-driven and intelligent opportunism [27].

2.1.5. What Are Knowledge Strategies?

As Knowledge Management is a part of Management, and Strategic Thinking is a part of Strategic Management, Knowledge Strategies (KS) are part of Business Strategies. This means that when we put together Knowledge Management and Strategic Thinking, we obtain a Knowledge Strategy; furthermore, a Knowledge Strategy is a Business Strategy that is based in intangible goods and services. Within the framework of a SWOT analysis, [28] Knowledge is placed in the centre of the Business Strategy, therefore defining the basics of KS analysis. In this context, KS balances knowledge-based resources and capabilities to the knowledge required for providing products or services in ways superior to the competitors [28].

2.1.6. What Are Knowledge Gaps?

KSs are meant to eliminate or solve knowledge gaps [28]. Knowledge gaps are defined between the current state of organizational knowledge and the state where the company wants to be in the future [29]. Therefore, a knowledge gap is like a need that has to be fulfilled in any circumstance. Empirical definitions of those knowledge gaps may be made by using radar charts and asking persons to rank, regarding specific questions, both their current and their desired level of knowledge [30]. When the rank of the current situation and the desired level are the same, there is no need; when the current rank is higher than the desired forecast, there is a surplus (this may easily happen in times of change when the current competences are foreseen as becoming outdated); when the current level is less than the desired, there is a need.

2.1.7. What Is Knowledge Absence?

Knowledge Gaps (KG) are intimately related to Knowledge Absence (KA). In fact, these ideas are two faces of the same coin: when there is a knowledge gap, there is a knowledge absence. There are three main categories of knowledge absence, namely, ignorance (which has to do with lack of data and information), indeterminacy (which has to do with not knowing what the competitors will do), and finally, incommensurability (which has to do with the lack of a certain metric for knowledge, and relates with the famous adage, “if you cannot measure you cannot know” [29].

2.1.8. What Is Strategic Work?

Due to the evolving nature of organizations and life itself, Knowledge Absence cannot be completely eliminated [31]. However, due to its importance and the need for survival and organizational results, KA has to be fought and reduced. This requires Strategic Work (SW). Quite crucially, strategies are always “situated” reflections of the knowledge absence [31]. This means, as it is well-known, that context is decisive in organizations, and that a KS depends on the KA, which is intimately related to it. According to [29], “strategic work “embraces imagination, judgment, and creativity” [31]. Thus, it is not limited to only rationality and logic. Therefore, in order to perform strategic work, we have to consider all the components of knowledge: rational, emotional, and spiritual. As such, KS are made to solve KA, are contextual, and have to use all kinds of available knowledge.

2.1.9. What Types of Knowns and Unknowns Exist?

For the scope of this paper and in order to link knowledge management with the strategic, we use four types of knowledge situations, namely—“Known-Knowns”, “Known-Unknowns”, “Unknown-Knowns” and “Unknown-Unknowns” [32]. These concepts relate to the Hierarchy of Competences [33], which has four levels: unconscious incompetence, conscious incompetence, conscious competence, and unconscious competence.

Three of the four categories were mentioned by Donald Rumsfeld in a famous speech [34]. In terms of epistemology, the four categories are quite interesting. Namely:

Known-Knowns are what people know they know and are correct in assuming it; this is obtained by diplomas, routines and experience; in the Human Resource field, it is defined as a Conscious competence. When we want to use or improve this type of knowledge, we should make a Strategy of Knowledge Exploitation (see below).

Known-Unknowns are something we know we do not know, and therefore it is conscious incompetence; people, organizations and societies often know their limits and this category includes the limits people and organizations put to their knowledge. The way to solve this problem is by a Strategy of Knowledge Acquisition (see below).

The third category (Unknown Knowns) is probably the most tricky—people and organizations that do not know they know something—and therefore, they have an unconscious competence. This situation may occur with modest persons or unexperienced situations, when somebody or an organization is put to a new test and solves it, because it had the competence, and the knowledge but was unaware of; quite crucially, in the pyramid of competences [35], unconscious competence is in the higher stage, as wisdom is in the higher stage of the knowledge pyramid, related to knowledge. The relevant KS in this case is knowledge sharing (see below).

Finally, the last type of situation (Unknown-Unknowns) is also complex. We do not know that we do not know something, probably because we never thought about it, or just because we were never confronted with the situation. This is therefore a situation of unconscious incompetence; in order to solve this problem, it is necessary to implement a strategy of Knowledge Exploration (see below).

2.1.10. Which Types of Knowledge Strategies Exist?

We now proceed to describe four types of knowledge strategies, namely Knowledge Acquisition, Knowledge Sharing, Knowledge Exploitation and Knowledge Exploration as related to the types of knowns and unknowns that are to be managed in order to minimize the Knowledge Absence. The four strategies are summarized in brief in the following Table 1 [1], adapted by own work.

Table 1. The Knowledge strategies Matrix 1 [1], adapted by own work.

Name	Knowledge Exploitation Strategy	Knowledge Acquisition Strategy	Knowledge Sharing Strategy	Knowledge Exploration Strategy
Problem	Known-knowns	Knowns-Unknowns	Unknown-knowns	Unknown-unknowns
Strategy	Codification, knowledge mapping and organizational ambidexterity	Knowledge Acquisition Knowledge Capturing Knowledge Retention	Knowledge Sharing Communities of Practice	Knowledge Creation Knowledge Co-creation
Competences	Conscious competences	Conscious incompetence	Unconscious Competence	Unconscious incompetence
Innovation	Minimal	Normal	Important	Radical
Context	Stable	Normal	Trouble	Uncertain
Difficulty	Easy	Normal	Important	Maximal

Within a Strategy of Knowledge Exploitation (SKE) Codification implies transforming cognitive, emotional, and spiritual knowledge into meaningful messages [29]. It may relate to rational ideas, unwritten codes (like dress code) or unwritten values (organizational or cultural) [29] that are made explicit. Knowledge mapping implies identification of the distribution of individual knowledge within the organization and mapping that distribution in easy to be found ways [1]; organizational ambidexterity implies being efficient today while adjusting for tomorrow [36]. This strategy also relates to conscious competences. Therefore, we believe this strategy is related with minimal innovation, within stable contexts and it is (relatively) easy to be put into practice.

Within Strategy of Knowledge Acquisition (SKA), organizations know what they do not know, and crucially, also know how to get the knowledge they don't have [29]; this means there is a prevailing state of "conscious incompetence" within the organization. If we believe that "change is permanent", we may assume that this is the "normal" state in which every organization lives. Therefore, a SKA is the customary activity for organizations, be it through acquisition, retention, or capturing of knowledge. Possible actions are buying books, research journals, technical and scientific reports, data, information and knowledge bases, or software programs; paying experts from consulting companies, asking trainers to implement some training programs; hiring talented, creative, and people with experience in some specific domains; asking people who will retire soon to teach and record their knowledge in order to reduce the risk of critical knowledge loss; create databases about the work that has been done already in order that the knowledge will not be lost by the organization if and when the workers leave [29].

A Strategy of Knowledge Sharing (SKS) works best when people do not know that they know, and therefore are in a situation of Unconscious Competence. This situation indicates a turbulent environment, considerable innovation, and difficulties in putting a strategy into place. The difficulties arise because of the fact people must be willing to share their knowledge and there may be many important trust and power issues that arise as some people do not like to share their "secrets" for fear of losing power or their job. Communities of Practice are one of the ways organization may use to foster this strategy [29]. The other problem is that the strategies based on Unconscious competences; for it to work, people must first understand what they did not understand, and second, to share it. In fact, this amounts to sharing intuitions, or "tricks" or implicit knowledge. This is not easy, even when it may be very necessary for an organization's sustainability.

Finally a Strategy of Knowledge Exploration (SKX) exists when organizations admit they are "in the dark" and they do not know that they do not know [29]. This calls for creativity and knowledge creation and co-creation [1]. This means organizations understand they do not exactly know the environment they are in, and they require radical innovations and operations of maximal difficulty to survive.

2.2. *Dynamic Capabilities*

In this subsection, we first define the context, the concept, then we explain the most important theoretical ideas and framework of analysis related to it.

2.2.1. *The Need for Organizational Agility*

At the time of writing, industrial enterprises are increasingly faced with a turbulent environment, with strong doses of dynamism, complexity, and uncertainty. These conditions have led to the emergence of hyper-competitive markets that pose a serious threat to the survival of companies. In this context, knowledge of the mechanisms that enable enterprises to detect changes in the external environment, as well as the ability to adapt to them and offer appropriate responses, is particularly relevant since this knowledge can lead enterprises to achieve greater success by exploiting new opportunities and new sources of competitive advantage. Therefore, the concept of organizational agility seems to be a key issue for the survival and success of an industrial enterprise.

As emphasized by D. Teece [37] and colleagues, knowing when and how much organizational agility is needed is an essential managerial skill. Based on the ideas of this scientific group, we can consider organizational agility as the ability of an organization to effectively reallocate and redirect resources for the purpose of creating and preserving the value of more profitable activities, depending on what internal and external circumstances dictate. Businesses with this capability tend to manage supply-side uncertainties and adjust their strategy if necessary and/or desirable. Achieving organizational agility is not a universal solution. In one case, the achievement makes sense; in the other case, the best approach is building or buying general-purpose equipment or diversifying the customer base. Importantly, the abilities required to respond to negative events are often

different from those needed to take advantage of positive events. The requirements for organizational agility depend on the context. In stable markets, for example, it can be more profitable to optimize core operations and achieve efficiency just by mastering this ability. However, when it comes to deep uncertainty, organizational agility becomes an essential attribute of an industrial enterprise. The authors of this paper propose to consider this concept within the framework of the structure of dynamic capabilities.

2.2.2. What Are Dynamic Capabilities?

The concept of dynamic capabilities by D. Teece [38], is the development of the so-called resource-based view, one of the latest modern organizational technologies that appeared in the early 1990s of the 20th century. This was based on the representation of the enterprise as a set of resource groups and the allocation of resources, which are the key competencies that achieve competitive advantages, as well as the transfer of non-specific business functions for a particular enterprise to third-party organizations. The concept studies the issues of generating and maintaining the competitive advantage of an enterprise, which is achieved through the presence of dynamic capabilities, in a changing external environment. The enterprise is considered not only from a resource position, but also as mechanisms for the formation and accumulation of abilities that create competitive advantages and, thus, are the basis for effective management.

Dynamic capabilities define how an enterprise integrates, creates, and reconfigures internal and external competencies to address the challenges of a changing business environment. This class of abilities is reinforced by organizational and managerial competencies, shaping the environment, and developing business models that address new opportunities and threats. Thus, dynamic capabilities identify an enterprise's ability to innovate, adapt to change, and create changes that are favourable to consumers and unfavourable to competitors.

Dynamic capabilities can be analytically separated from the formulation of the strategy but must be compared to the strategic direction that flows from the strategic process. A strategy that is consistent and adaptable to innovation is just as important as the dynamic capability to achieve a competitive advantage. Therefore, while strategy and capabilities can be separated, in practical terms, they need to be developed and implemented together.

2.2.3. The Framework of Dynamic Capabilities

The framework of dynamic capabilities was presented by Teece [3]. In the scope of Institutions, Complementors and Rivals, Dynamic Capabilities are defined by Strategy, Resources (in particular the valuable, rare, inimitable, and non-substitutable) and Capabilities.

Also, these capabilities were defined in a hierarchy [3], which we summarize and visualize in Table 2.

Table 2. Hierarchy of Capabilities [3] adapted, own work.

Name	Ordinary	Micro-Foundations	Sensing, Seizing, and Transforming
Position	Bottom	Middle	Higher level
Description	<i>"Processes that deploy people, facilities, and equipment to carry out the current business of the firm"</i>	<i>"Processes for forming external partnerships or for developing new products. Routines (often idiosyncratic) that are employed less often than the routines of ordinary capabilities"</i>	<i>"Activities and assessments that channel other capabilities and resources so as to maintain external fitness".</i> Organizational processes as well as unique managerial decisions [37,39,40].
Function	<i>"Allow a firm to achieve best-practice levels of efficiency, regardless of whether the current output plan is likely to be suitable in the future".</i>	<i>"Allow the firm to integrate, reconfigure, add, or subtract resources, including ordinary capabilities" [41].</i>	
Audit	<i>"Measured and benchmarked, easier to replicate".</i>		
Problem	<i>"Unreliable basis for long-term advantage".</i>		

The capabilities of higher levels are summarized in Table 3 [3].

Table 3. High-level dynamic capabilities [3] adapted, own work.

Name	Sensing	Seizing	Transforming
Description	<i>“Environmental scanning: bringing disorganized information and unstructured data from the external environment into the organizational system”.</i>	<i>“Investing to commercialize new technologies and designing (or updating) and implementing business models for various products and services. Activities to be undertaken, the internal incentives to be used, the design of customer interactions, and more [42].”</i>	<i>“Most critical when a new business model involves a significant change to the organization’s design or conflicts with an existing business model. Minor transformations must also be made periodically to keep the organization aligned with its environment”.</i>
Function	<i>“Managers at various levels must generate and test hypotheses about latent consumer demand, technological possibilities, and other forces that affect the firm’s future”.</i> <i>“The system must allow relevant information to find its way to where it will be properly assessed and handled. An effective intra-organizational network requires decentralizing authority, creating a collaborative organizational culture, and propagating a shared vision. The top management team can use the data from internal and external sources to continuously monitor the firm’s environment, prioritize problems, and identify new opportunities”</i>	<i>“Determine how quickly the system can respond to opportunities and threats once they have been identified and deemed important”.</i>	<i>“Responsible for keeping the elements of the organizational system aligned both with each other and with the strategy”</i>
Problem		<i>“It is essentially a vertical slice of the firm’s activities and has the same systemic need as the entire firm for all its elements to be kept in alignment”.</i>	<i>“Established firm adopts a digital business model that risks cannibalizing existing sales. Fostering an organizational culture that favours flexibility and experimentation, while challenging to bring about, can provide a firm foundation for quicker and easier transformations and, therefore, for future advantage”.</i>

3. Methodology

In order to address the research question, we analyzed the most relevant theoretical models available at the time of writing (January 2021) on Knowledge Strategies and Dynamic Capabilities. We then searched Google Scholar and the B-On database for papers linking “knowledge strategies” and “dynamic capabilities”.

4. Results and Analysis

4.1. What Are We Looking for?

According to Bratianu [29], “Knowledge strategies are components of business strategies and their role is to contribute to achieving a competitive advantage for the company. Knowledge strategies aim at bridging some knowledge gaps and thus reducing the absence of knowledge. Designing knowledge strategies depends on the perception of time and of the future, and on changing our mind from deterministic thinking to probabilistic thinking. Any strategy should incorporate a deliberate component and an emerging one, reflecting to us both metaphors used in understanding time and our approach toward the future. Emergent knowledge strategies are necessary especially during crises, when the future comes over us, as it is now with this COVID-19 pandemic.”

In this paper, we try to analyze knowledge strategies linked with dynamic capabilities during the COVID-19 crisis and in business education.

4.2. Theoretical Analysis

4.2.1. Two overlapping Perspectives?

We did not find any paper in the B-On database that explicitly addressed, and in combination as keywords, both knowledge strategies and dynamic capabilities. In Google Scholar, only three publications seem to address the problem: a study on universities conducted in 2017 [43], one on marketing from 2019 [44], and one on information systems from 2021 [45].

However, quite crucially, the type of problem and question that the Knowledge Strategies (KS) and the Dynamic Capabilities (DC) approaches seek to address are exactly the same: how to increase the efficiency of organizations, particularly in troubled times. Moreover, in the DC framework [3], strategy and resources are two of the basic elements, and knowledge strategies address both. Also, Capabilities are needed to make knowledge strategies effective. If we were talking about chess, we would say that we may easily transpose from DC to KS studies.

4.2.2. How do Strategies, Problems, Competence and Knowledge Relate?

We found an interesting fact as we put together the Knowledge pyramids and the Competence Pyramid as shown in Table 4. The interesting thing is that knowledge exploration is solved with facts because it solves a problem of unknown-unknowns and unconscious incompetence. It is only after those basic facts are reached can we elaborate policies or new and radical innovations; furthermore, knowledge acquisition deals with known-unknowns and conscious incompetence, which is solved with information. It is only after the information is obtained that policies and projects can be defined. Moreover, knowledge exploitation is a question of known-knowns and conscious competence, and it is solved by knowledge—that knowledge is then used in new projects and policies. Finally, knowledge sharing answers to unconscious competence and solves the problem of unknown-knowns by using wisdom, which ultimately will produce new policies and products.

Table 4. The two scales put together.

Strategy	Problem	Competence Type	Knowledge Type
Knowledge Sharing	Unknown-Knowns	Unconscious-Competence	Wisdom
Knowledge Exploitation	Known-Knowns	Conscious-Competence	Knowledge
Knowledge Acquisition	Known-Unknowns	Conscious-Incompetence	Information
Knowledge exploration	Unknown-Unknowns	Unconscious-Incompetence	Data

4.2.3. How Can Dynamic Capabilities Can Be Developed Uncertain Times?

We seek to analyze in parallel three mental models, namely Knowledge Strategies (KS), Dynamic Capabilities (DC) and the COVID-19 situation (C-19).

By comparing the content component of organizational flexibility with the structure of dynamic capabilities, one can conclude that organizational agility is mainly based on two interdependent elements of a dynamically capable enterprise: entrepreneurial management, which can potentially combine and recombine technologies, as well as flexible structures that can be quickly changed.

A more detailed study of the capabilities of an industrial enterprise allows us to identify the place of organizational agility more accurately among other capabilities in the arsenal of the enterprise. D. Collis [46] proposed a hierarchy of enterprise capabilities based on operational (functional) abilities that are necessary for the survival of the company and the maintenance of key business processes. The next level (the level of improvement) associated with the improvement of organizational business processes is occupied by dynamic abilities. The top level in the hierarchy is creative, reflecting the ability of the

enterprise, related to the ability to develop new strategies faster than competitors, managing valuable resource groups. Accordingly, the key competencies are at this level.

It is noteworthy that B. Oxtoby [47] and his colleagues distinguish the key dynamic capability, meaning the ability to make organizational changes, which is “common to all other dynamic capabilities built into the organization”.

In turn, Javidan [48] considers the following hierarchy of competencies. At the bottom of the hierarchy are the resources that are the building blocks of competencies. Capabilities occupy the second level of the hierarchy and relate to the ability of the enterprise to use its resources. Their distinctive feature is the functional basis. Next, on the third level, there are competencies that represent cross-functional integration and coordination of capabilities. The highest level of the hierarchy corresponds to key competencies, which are skills and areas of knowledge that result from the integration and harmonization of competencies. The main features of this hierarchy are that the subsequent level results from the synergy of elements at a lower level, and each level includes a higher indicator of added value for the company.

Teece [42] identifies so-called “strong” dynamic capabilities, which are distinguished relative to competitors in relation to all areas of the three micro-bases of dynamic capabilities. An enterprise with strong dynamic capabilities can profitably create and update resources, assets, and ordinary capabilities, reconfiguring them as needed to innovate and respond to changes or implement them in the marketplace.

Some researchers who consider the concept of dynamic capabilities by D. Teece as a reference structure have identified organizational agility as one of the key dynamic capabilities for organizations to achieve sustainable competitive advantages [49] and survive in highly dynamic environments [50].

D. Lee and co-authors [51] conceptualize organizational agility as a two-dimensional dynamic capability with an entrepreneurial (or offensive) and adaptive (or defensive) aspect. Sambamurthy and colleagues [49] define organizational agility as “a higher-order dynamic capability that builds over time.” Developing various interpretations of this concept, and relying on the explication in the context of dynamic capabilities, we can assume that this capability is the most effective in achieving and increasing competitiveness.

Thus, based on the hierarchy of the organizational capabilities of the enterprise by D. Collis [46]. Guided by the common principles laid down in the hierarchy of competences by M. Javidan [48], we assume that in the conditions of an emergency, fleeting changes and a high degree of uncertainty in the business environment, the model for the development of capabilities enterprises has the following form (Figure 1).

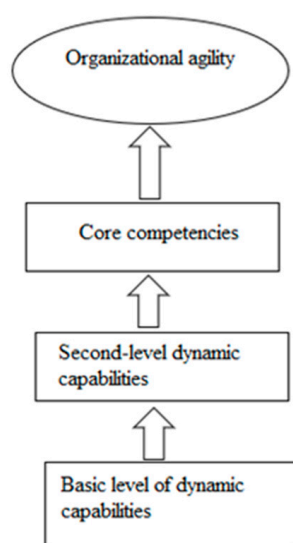


Figure 1. The model of the development of the company’s capabilities (Own work).

Understanding, according to Oxtoby [47], under the basic dynamic capability, the ability of organizational change, we can assume that it should become the generating base for other dynamic capabilities, the totality of which is necessary for the sustainable development of the enterprise. If it is considered the base for other dynamic capabilities, that is, the main dynamic capability, then the rest are derived from it, that is, dynamic capabilities of the second level (evolving capabilities).

The relationship between the basic level of dynamic capabilities and the dynamic capabilities of the second level is formed, in our opinion, according to linear causal relationships. In other words, the basic dynamic capabilities act as the ability for organizational change, on the basis of which a set of dynamically changing best organizational and managerial methods, models, tools and techniques used for the sustainable achievement of long-term competitive advantages is formed. The dynamic abilities of the second level are the factors, driving forces, objective conditions, as well as the reasons for the emergence of core competencies necessary to achieve long-term competitive advantages of the enterprise. In other words, dynamic capabilities of the second level are the causes, conditions, and driving forces behind the formation of core competencies, while reserves are the currently unused opportunities to increase the efficiency of interaction, productivity, consumption, exchange intensity, and the proportionality of the distribution of resources in the space and time of production. In sum, these form the core competencies of the enterprise. Core competencies provide potential access to a wide range of markets, contribute significantly to consumer benefits, and should be difficult to imitate by competitors.

Organizational agility is the ability of an enterprise to sense changes in the business environment and respond effectively to them. Considering organizational agility in the structure of dynamic capabilities, one may conclude that it is necessary to achieve harmony of organizational agility with the requirements of the business environment and the company's strategy. In an environment saturated with deep uncertainty, dynamic capabilities should become a leitmotif, as they determine the ways to achieve organizational agility, allowing for a profitable efficiency/organizational agility trade-off. Therefore, organizational agility is the highest development of dynamic capabilities as a result of the integration of core competencies.

The proposed model for the development of dynamic capabilities is particularly relevant at the present time, the time of the crisis associated with the COVID-19 pandemic. The key feature of organizational agility is the successful management of uncertainty, which is the feature that is prevalent in the current business environment.

Businesses must be ready for dynamic collaboration to ensure that orders are processed quickly and efficiently. Meeting a specific requirement is achieved through a specific combination of core competencies of partner enterprises, forming a unique ability of the enterprise-organization.

4.3. *Specific Case: Business Education during COVID-19*

4.3.1. The Old Normal versus the New Normal

Recently [17] summarized both the differences between the “Old Normal and the “New Normal” in societies (see Table 5) and in Universities (Table 6).

4.3.2. Business Education and COVID-19

Recently, on the topic of Universities and COVID-19, [17] concluded that “The new normal will ‘separate the wheat from the chaff’. We will certainly increase the use of digital solutions where and when they do bring benefits. On one hand, digitalization was a trend before the pandemic, which is going to be reinforced. But on the other hand, the extreme social conditions we live in clearly show the limits of the digital processes—it is as if digitalization was implemented as an experiment in the most drastic circumstances Digital will be increasingly used when solutions may be massified and/or lack differentiation. Face-to-face communication will be increasingly used when solutions are unique and need differentiation. As Plato and Aristotle in the famous painting of Raphael, we still need

to meet our students and our peers and to rub shoulders and to walk with them, this activity is essential to maintain a sustained level of academic output, and namely related to classes or research. In the Renaissance, our ancestors made traveling become a norm in order to foster progress—we are bound to follow their example, and this will be a major conditioning to the ‘new normal’ in Academia.”

Table 5. The Old Normal and the New Normal. Reprinted from Tomé, E.; Gromova, E.; Mello, P.; Hatch, A.; Mauricio, F. (2020)

	Pre-COVID-19	COVID-19 Crisis
Rule	Freedom	Confinement
Security	Medium high	Low
General feeling	Trust	Fear
Requirement	Proximity	Social distance
Freedom of movement	Very large	Very limited
Security concerns	Linked to crime and terrorism	Linked to virus
Meetings	Allowed and even encouraged	Restrained if not prohibited
Masks	For Carnival	For normal life
Online work	Residual	Norm
Office work	Norm	Residual
Face to face meetings	Frequent	Rare
Number of people in meetings	Hundreds of thousands if not millions	Ten
Borders	Open, limited by visas and security control	Closed, with exceptional possibilities of travel
Professional Sport	Permanent	Rare

Table 6. The case of Universities [17].

	Pre-COVID-19	COVID-19 Crisis
Classes	Basically presential	Online
Testing	Basically presential	Online
Administration	Presential	Online
Research	Online and face to face	Online
Conferences	Face to face	Online
Technology	PowerPoints, databases, PDFs, Word, Excel, SPSS	Blackboard or Zoom

Recently, Bratianu and colleagues, [52] found that knowledge management impacts business education through the mediation of the academic curriculum and the influence of the business environment.

Within this context, we assume that business education will have to be adjusted in the COVID-19 times, and as long the effects of the pandemic continue. That adjustment means several things, namely:

- (a) COVID-19 put new pressures on Universities and on business education. Competition will become harder, so Universities and business education have to become agile, in the sense described in Section 4.2.3 and Figure 1. Even if the post-COVID-19 is very much like the “old normal” in many ways, the COVID-19 pandemic showed the possibility of an online-based, distance learning, which made the organization of business education in such a way that was only dreamt of by few people (considered at the time as “lunatics”) before COVID-19. As a consequence, two alternative ways of organizations (physically present and online) exist now. Universities and business education must be prepared to deliver both types of configurations and to mix the two solutions in their everyday operations. This double-edged circumstance requires a significant increase in university and business education agility. Universities must get ready for dynamic collaboration to ensure that demands from the public (students or other stakeholders) are processed quickly and efficiently. For each case, this requires a specific combination of core competencies of partner individuals, groups or universities, forming a uniquely agile university. The same applies to business

education. Core competencies must adjust to the new dualism (present and online) that is agile by nature. These newly found core competencies are based in first level (methods) and second level (practices) dynamic capabilities. These core competencies and these dynamic capabilities will have to be both deepened and enlarged, due to the fact the aforementioned new probable duality (present and online) that will exist after COVID-19. Very simply put, in post-COVID-19, Universities in general and business education in particular, will most likely be some form of hybrid, and therefore agility (defined as the possibility of adapting to both “states of nature” and to juggle between them) will be decisive. In the long run, only organizations and courses that are able to use the two solutions will survive and prosper.

- (b) Syllabus, programs, teaching methods, and evaluation have to change, but there is no road map because the situation is entirely new. Therefore, the Knowledge Exploitation Strategy, built on previously known knowledge, conscious competences and known-knowns cannot be applied. This complicates the task of universities drastically, but it gives realism to the current situation and to the task ahead. Also, the Knowledge Acquisition Strategy is not of great use because there is not much information to be acquired, or even if there was, it is important to know what to do with it, so it is by no means the end of the road, perhaps in some cases just the beginning. The problem is not only about known-unknowns or conscious incompetence: it is much deeper and broader; business education will have to be changed and the solution will not be to acquire knowledge or information. Moreover, the solution for the problem of business education during COVID-19 and in the aftermath will have to be found using both Knowledge Exploration and Knowledge Sharing because they deal with the two most important problems of the crisis, namely unconscious-incompetence linked with unknown-unknowns and lack of data, and unconscious-competence linked to unknown-knowns and lack of wisdom. This means that we do not know what we do not know regarding how to manage business education with and after COVID-19. As a consequence, we will have to search for the answer as if we were exploring a dense forest. But, quite crucially and rather remarkably, there is reason to believe that some of the best answers may be found in the unknown-knowns territory and in the possibility of using wisdom and intuition to solve this very complicated problem. Finally, and most importantly, University managers at all levels must realize that the solution for the COVID-19 crisis regarding business education is mixed (in the sense it requires the four strategies) and it is not unique (in the sense that it is contextual).

5. Discussion

The paper is original for the reason that we link Knowledge Management (meaning Knowledge Strategies) and Human Resource (meaning Dynamic Capabilities) over business education during COVID-19, generating a broader and more comprehensive understanding of organizational behavior.

Regarding the scope of this journal, namely *Sustainability*, we find that all the strategies and competencies defined in the paper make more sense in, and contribute to, a sustainable context. Sustainability is a global concern that may only be addressed with global strategies. Therefore, if we consider our analysis in the broadest of senses, we will consider that dynamic capabilities coupled with knowledge strategies, as defined in the previous sections, may influence business education, which should be used to create a more sustainable society. In short, this is about optimizing the use of resources, namely knowledge strategies and dynamic capabilities to achieve the highest objective, namely sustainability.

The limits of the paper relate to the evolution of society itself—we do not know when the crisis will end, and we are not sure how much of the “new normal” will remain in the “post-COVID-19” situation. The analysis presented above, crucially depends on how much the new emergent strategies will prevail as well as how much the “new normal” will be different from the “old normal”. We believe that the features described as the “new normal” will be more than an obligation to understand.

The topic and analysis are of interest to practitioners because they experience how their past reality changed; they need to adapt, but they do not know how. The topic and analysis are also of interest for scholars because science is about questioning, explaining, and providing ways to improve our reality and how COVID-19 showed us dramatically and uniquely the need for new solutions in times of peace.

6. Conclusions

We conclude that COVID-19 creates a need for all knowledge strategies in business education. Data, information, knowledge and wisdom will all be needed, and above all it requires the Unknown-Knowns, which are based on Knowledge Sharing, and also the Unknown-Unknowns, that are based on Knowledge Exploration. Both Knowledge Exploitation and Knowledge Acquisition are strategies business schools use to perform. In times of crisis, they are more difficult to implement because both the Known-Knowns and the Known-Unknowns are less valuable to solve a crisis like the one we are living in. All of this will result in “agile universities”, which will be (and already are) those that will use the right strategies and the right dynamic capabilities and will have better results. Due to the foreseeable hybrid nature of the post-COVID-19 future, agility will be decisive for an organization’s sustainability.

As a suggestion for future work, we believe that first, a qualitative exploratory study should be done by experts to test this model. Then, after having the insights from practitioners, we would create a questionnaire for the purpose of acquiring thousands of answers worldwide. With these questions, we would be able to obtain some generic insights about the research question we addressed in this paper.

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