

*Full Length Research Paper*

# An 'adventure' of MBA students in Europe: How volcanic ash produced an incidental learning experience.

Ana Claudia Souza Vazquez\*, Roberto Lima Ruas, Clarissa S. Cervo and Claudio Simon Hutz

<sup>1</sup>Federal University of Health Sciences at Porto Alegre, Department of Psychology, Brazil

<sup>2</sup>University Nove de Julho, School of Management, Brazil.

<sup>3,4</sup>Federal University of Rio Grande do Sul, Department of Psychology, Brazil.

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Because the volcanic ash that affected air travel in Western Europe in 2010 was considered as one of the most meaningful learning experiences by a group of MBA students, this article aims to outline the main aspects of an incidental learning situation, rarely described on management education literature. Incidental learning is an unsystematic apprentice's experience led by tacit knowledge. Our central objective was to describe ways of learning that developed from this situation, herein referred to as the "adventure in Europe", and also deepens the understanding of the role of incidental learning in formal education. This qualitative-exploratory study included ten senior managers from a Brazilian International Executive MBA program. Data were collected by a focal group, an objective questionnaire and two rounds of interviews. The results show the combination of reflection, reflexivity and cooperation in dealing with an incidental and loosely structured situation regarding two aspects used by students to produce significant knowledge: engagement in action and decision-making process. We discuss the relevance of educational strategies that provide opportunities so that incidental experiences can be explored creatively in management education to produce significant and experiential learning for the apprentices.

**Key words:** Incidental learning, tacit knowledge, experiential learning, volcanic ash, management education, engagement, Decision-Making Process.

## INTRODUCTION

Incidental learning experiences are unexpected and embedded situations that challenge individuals to react rapidly, under time pressure and/or dynamic conditions, without enough previous, specialized or structured knowledge. There are no expectations to learn something, but

in dealing with it, individuals must trigger tacit their knowledge and get new information activating the process of implicit learning. This learning process occurs in the absence of explicit awareness to learn and it depends more directly on contextual factors (Francis et al., 2009;

\*Corresponding author. E-mail: [vazquez.ac@gmail.com](mailto:vazquez.ac@gmail.com) Tel: +555133038875

Nokes and Ash, 2010). Therefore, incidental learning is an unsystematic learning experience led by tacit knowledge.

In MBA educational contexts some studies have drawn that learning which is not confined only to the formal education space (Blasco, 2009; Thursfield, 2008). It is acknowledged in the literature that the transmission of a specific content favors the flow of formal knowledge through activities designed to achieve specific educational purposes. However, other modes of knowledge production by MBA students are shown on management learning field, such as informal and incidental learning (Chia and Holt, 2008; Flach and Antonello, 2010).

This paper is rooted in this approach and sought to discuss incidental learning as significant to the development of MBA students. During our investigation on learning within MBA programs in Brazil, interviews with students indicated that coping with an unexpected incident was regarded as one of the most significant learning experiences of their MBA program. Because their reports showed that an unplanned learning situation was important to the formal MBA education process, we considered it relevant to investigate their learning experience in the incidental situation, which is referred to as the “adventure in Europe.” Deepening our understanding about the role of incidental learning experience to produce significant knowledge for MBA students allow us to identify the learning dynamic in the activities of a management education program and advance in the debate about the effectiveness of the MBA. The discussion about the “most appropriate design” or the “most adequate educational technology” can be enriched critically, reflecting on how much an MBA program can engage students in the appropriate pedagogical contents aim to transform them in meaningful knowledge to their practical accomplishments.

The main idea of this paper is to shed light on the dynamics used by students facing the challenges arising from the incident, highlighting the important aspects that triggered meaningful learning in an unplanned situation. The investigation question that guided this research was: which aspects in the incidental learning situation drove the MBA students to an active transformation of this experience into relevant knowledge to their professional practice? Our main objective was to characterize the process of incidental learning situation, deepening the understanding of apprentices’ learning experiences and the role of incidental learning to their formal education.

## LEARNING IN AN INCIDENTAL SITUATION

Current theories on management learning define learning as a dynamic flow embedded in an ongoing socio-political process wherein individuals connect multiple contents

and experiences. By this process, they become more sensitive to new possibilities, diverse meanings and actions among actors (Antonacopoulou and Chiva, 2007). In this perspective, MBA students’ learning process is grounded by apprehending, seizing and transforming information, contents and experiences in specialized and relevant knowledge to their practices. The debate about learning processes and strategies used by students to increase their knowledge level has advanced in the different theoretical approaches. It was not our objective to discuss the various schools of thought on this subject, although the variety of existing categories to characterize types of learning should be highlighted.

The mode of learning was traditionally discussed in the literature is reflection, which is characterized as an analytical process to deal with daily challenges seeking for rational control and practical solutions in order to reorganize and reconstruct experience through cognitive processes (Elkjaer, 2004). Kolb (1984) demonstrates that experiential learning can be produced by exploring the meanings of past experience, creating new meanings from the results of the performed action in a process named reflection on action. Schön (1987) argues that reflection in action can emerge from unexpected events, causing the individuals to think about their actions as they are being performed. Developing reflective and analytical thinking is the main objective of MBA educators, considering the most traditional pedagogical approaches (Raelin, 2009; Rubin and Dierdorff, 2009).

However, some authors consider that the experience of questioning does not necessarily correlate with a problem to reflect upon. In this sense, the concept of reflexivity as a mode of learning refers to a process of questioning the individual’s experience in practice (Cunliffe, 2009). This process involves questioning of underlying assumptions in the ideological positions of the critic, a movement of self-awareness (self-reflexivity) by learning about oneself via interaction with others, by observation, by exchange, by diversity in the comprehension of situations. In this perspective, Eriksen (2012) proposes an innovative way of teaching by a Model of Authentic Becoming Cycle. According to this author, by improving classroom learning, practical reflexivity leads students to relief their experiences more than cognitively. To facilitate the students’ learning process is also to ask them to look at their feelings, thoughts, relationships, etc., to make decisions and take actions to influence their process of becoming.

However, learning by cooperation involves collective aspects of recognition of individuals as legitimate participants of social interaction. Handley et al (2006) argue that the learning process is sensitive to events that offer opportunities for participation in socialized practices and develops an identity that promotes a sense of belonging and commitment. In this perspective, Warhurst (2011),

Chia and Holt (2008) claim for a redesign of MBA educators' pedagogical strategies to better enable their apprentices' identity-formation. Also, Wright and Gilmore (2012) propose an innovative design of teaching using a threshold conception of 'management and practice informed by theory' that can be useful to develop in-depth questioning and reflexivity in MBA students and their identity-work.

Reflection reflexivity and cooperation represent different ways that MBA students can connect multiple contents and learning experiences with relevant knowledge in their practice. But, considering the situated nature of learning process, the context in which daily events occur is another important aspect to understand sources of learning and the way that it can shape learning experiences. Literature on management learning presents three distinct learning situations: formal, informal and incidental. Formal learning is conceptualized as a previously structured situation, with objectives, content and activities constructed to transfer specific knowledge. The prevalent MBA educational context is planned by educators in formal learning situations, previously structured in order to enhance apprentices' competences and capabilities (McGuire and Gubbins, 2010). But, as individuals learn more than their deliberative goals or intentional educators' pedagogical objectives, the value of unplanned learning situations stands out in what students learn facing a variety of unpredictable challenges that can enhance their expertise in meaningful experiences (Runger and Frensch, 2010; Francis et al, 2009).

Unplanned learning situations are called informal or incidental in the literature and are related to the knowledge acquired outside the instructional composition previously constructed. What is common between these two situations is the assignment of self-directed learning to students, where they must delineate goals of knowledge. Despite the crucial role of formal learning situations to teach specialized knowledge, informal learning is highlighted by researches that their approaches focus on learning that occurs through on-the-job experiences (Flach and Antonello, 2010; Raelin, 2008). In informal learning situations, individuals build their learning goals seeking to acquire significant knowledge through work experience and professional interactions in the workplace. In this context, the collaborative aspect of informal learning is an element that stands out because the interactions are crucial to produce relevant knowledge to practical accomplishment (De Vries and Lukosch, 2009). While informal learning experiences can be potentially useful for enhancing performance at work, the main problem is the difficulty to systematize and gather into practice information obtained as tacit knowledge. Therefore, McGuire and Gubbins (2010) claim that formal learning play a central role in education, which could not be supplanted by technologies based solely on informal

or incidental learning.

Differently from formal and informal learning, when individuals are coping with an incidental learning situation they do not have the intention to learn something from it. They are dealing with an unanticipated and unexpected event that has to be solved. An incident is characterized by a situation in which individuals have to perform in an unpredictable way and for this reason, they may be sensitized to learn unconsciously. The central principle of this concept is that individuals learn important contents in challenging situations, even though there is no awareness of the knowledge that is being apprehended. So, the main aspect of incidental learning is its provocative nature in exposing individuals to a novel situation, which may be potentially creating learning opportunities to push them beyond (Francis et al., 2009). But, the tacit feature of incidental learning leads educators to undervalue its role on management education. And, just the exposure to incidental learning experiences is not sufficient to produce relevant knowledge. Thus, how can individuals effectively learn from an incidental situation? Incidental experiences are loosely structured situations and require reactions from individuals under time pressure and dynamic conditions. Because of its unexpected nature, they challenge individuals to react rapidly, triggering unconscious knowledge for which there is no immediate explanation. According to cognitive psychology, individuals have to be sensitive to variations in the incidental context, drawing their responses on tacit knowledge accumulated through experience and quickly retrieved through pattern recognition. Some of these automatic responses can be associated to insights that emerge through educational or work activities or to intuitions in decision-making process (Runger and Frensch, 2010; Sinclair et al, 2008).

Similarly, Bandura and Huston (1961) argue that incidental learning has the potential to produce significant and lasting changes, with indirect effects on performance growth. Bandura (1997) develops this concept to argue that there is a difference between the full range of life events and incidents that are selected for our attention and also receive a different connotation. It is in this vein that the identification process generates imitative behavior models, increasing the belief in personal self-efficacy. Therefore, to generate meaningful knowledge and expertise from loosely structured situations it is necessary to scrutinize the learning experience arising, connecting unconscious learning stemmed from exposure with awareness of one's own thinking processes.

Nowadays, it is noticeable that current authors are emphasizing pedagogical approaches considering tacit knowledge in developing managerial competence in MBA programs (Eriksen, 2012; Wright and Gilmore, 2012). Sadler-Smith and Burke (2009) suggested building unfamiliar situations in classroom activities to guide

students through the solving of those problems with coaching and feedback. Chia and Holt (2008) propose the knowledge-by-exemplification being transmitted by behavior, style and mannerisms of MBA educators. And Warhurst (2011) argues that it flows through interactions among students and between students and professors, which generate some unanticipated tensions and conflicts, which would be potentially significant in forming a new professional identity in MBA students. It is in this sense that it is possible to relate the volcanic ash in the European incident analyzed in this paper, to more typical events in the learning experience of MBA students.

But, how do people acquire conscious knowledge from an incidental learning situation? In Experiential Learning Theory, Kolb (1984) suggests that when individuals do not have conceptual schemes to interpret and deal with problem-situations in lifework challenges they accommodate new cognitive concepts, transforming the tacit knowledge obtained in active experimentation and reflexive observation on significant knowledge. This heuristic process is unique because individuals give meanings to emerging aspects of their incidental experiences and reinterpret the situations making explicit some unconscious knowledge that have been learned in this ongoing process. Consequently, individuals become capable to deal efficiently with similar situations, generalizing the knowledge learned by accommodation. This process of assimilation allows them to rapidly apprehend tangible characteristics of the situation and apply concepts and/or instruments that work well in the latter novel situation experienced.

According to authors of Cognitive Learning Theory, the key to this question lies in the individuals' observation of regularities in the environment and the sensitivity to variations in unexpected events (Haider and Frensch, 2005). By this process it is possible to learn musical structures incidentally (Kuhn and Dienes, 2006), spatial content to apply on navigation routes (Van Asselen et al, 2006), or word sequencing in sentences in a foreign language without inhibiting the sequence of the native language and still being capable of producing a new sequence (Francis et al, 2009). The verbal report of the incidental experience stands out, therefore, as a relevant aspect to make tacit knowledge have access to consciousness. This willingness to render explicit knowledge must rely on the conscious effort to verbalize perceived regularities and connect them with their underlying rules or logic (Runger and Frensch, 2010; Nokes and Ash, 2010).

The debate on learning situations demonstrates the authors' efforts to advance the theory and teaching methods aimed to balance the incidental learning within situations of formal education. According Runger and Frensch (2010), Francis et al (2009), Van Asselen et al (2006) and Khun and Dienes (2006), any theoretical

concept can be fostered in incidental situations, but such situations, by themselves, are not sufficient to foster significant knowledge. At MBA programs for instance, it is possible to learn about leadership, decision-making and negotiation in a provocative and incidental experience. In this perspective, making explicit the implicit knowledge obtained in the incidental situation is a crucial manner to learn with the incidents. First, MBA students must be exposed to provocative situations so that they can produce implicit knowledge. If such learning experiences are aligned with pedagogical strategies of public reflection and feedbacks about their performance and tensions then the students may examine and question underlying assumptions and decisions. This might lead to new learning experiences that may foster significant knowledge in an educational context (Eriksen, 2012; Raelin, 2008, 2009; Vazquez and Ruas, 2012).

However, how can educators deal with incidental situations driving their apprentices' in transforming this implicit learning experience in more systematic and useful knowledge? Based on Kierkegaard's concern over the tension between detached theorists understanding backward the activities lived forward by involved practitioners, Weick (2004: 467,468) argues that these distinctive ways of interpreting the 'real world' can be made tangible by adopting Heidegger language of three modes of human engagement:

"People engaged in practical activity are concerned with projects and action in context and their concerns shift as their needs shift. What practical activity does not consist of is a separation between subject and object. Instead, it consists of 'absorbed coping', which Heidegger describes as a *ready-to-hand* mode of engagement. When people act in this engaged mode, they are aware of the world holistically if an ongoing project is interrupted, then experience changes into an *unready-to-hand* mode.

Problematic aspects of the situation that produced the interruption stand out in the manner of a figure-ground organization, but people still do not become aware of context-free objects the third mode of engagement, which again involves a shift of experience, is *present-at-hand*. This occurs when people step back from their involvement in a project and reflect on it using analyses that are general and abstract and context-free".

Therefore, Weick (2004) argues that these moments of interruption or breakdowns in ongoing activities are fruitful to produce situated detachments in which people act and make meaning simultaneously. This process, when practitioners are interrupted, is the crucial point to produce relevant knowledge, as they are best able to discover relevancies that had been invisible up to that point. We consider that enhancing our understanding about MBA students' learning experiences in incidental situations allows us to discuss educational aspects that could be useful for teaching in MBA courses.

## METHOD

This qualitative-exploratory study included ten (10) senior managers from the International Executive MBA program at Universidade Federal do Rio Grande do Sul (UFRGS), Brazil. Their age ranged from 25 to 52 years ( $M=41$  years) and experience in managerial functions ranged between 2.5 and 20 years ( $M=9.5$  years). They were experts in the business area in which they operated, with advanced educational background. Due to the part-time program design, all of the participants in this research pursued educational activities while continuing to perform their managerial duties.

Data collection was carried out by three researchers: one of them conducted a focal group about the learning experience in the MBA program and participated in the international module observing MBA students' educational activities; the other two researchers did two rounds of interviews when MBA students returned to finish their MBA regular classes in Brazil. In the first round of interviews, we asked three open questions: (a) which situations were more relevant to increase your knowledge in the learning process at the MBA program? (b) Which characteristics in this situation can you point out as key factors to develop your expertise? and (c) which knowledge, educational contents and/or learning experiences can you point out as meaningful to your practical accomplishment?

Also, we applied an objective questionnaire formulated to identify situations and learning modes that culminated in increased levels of knowledge and performance in the students' professional practice. This instrument aimed to assess how significant the students' experiences were during their educational process, considering two investigated aspects: the influence of learning situations and the learning mode used to produce relevant knowledge to their practice. The incident of volcanic ash in Europe emerged as one of the most significant learning experiences in the responses to this questionnaire. So, we conducted a second round using in-depth interviews to understand the influence of the incidental situation on the learning process of MBA students. With the participants consent, the interviews were recorded and transcribed. Follow up questions were elaborated to validate our interpretation regarding the theoretical framework adopted.

For interpretation of the data, a content analysis technique and a theoretical saturation criterion were used to codify emergent categories and to ground a theory to explain the phenomena investigated (Strauss and Corbin, 2009). The important aspects to ensure the validity of the data obtained were the *follow up* questions and the second round of interviews. This approach, based on a communication technique, provided support to validate the researchers' analyzes, leading to coherent

interpretation (Sandberg, 2005).

## MBA STUDENTS' EXPERIENTIAL LEARNING IN AN INCIDENTAL SITUATION

This incidental situation occurred while the first part of the international module of the course was being held at HEC-Paris, France, during which a combination of three factors contextualized the incidental situation experienced by the students. Between the 15th and 21st of April, 2010, the volcanic eruption in Iceland produced ash clouds that caused the closure of airspace in several countries. Nearly 95,000 flights were canceled during the period, leaving just Portugal and parts of Italy and Spain with only partial flight disruption.

The last day of the students' educational programming in Paris took place on Friday, April 15th. The activities would resume in Barcelona on Monday the 18th. With the airport closings and flight cancellations, scheduled air travel had become impossible. As a result of this unexpected event, the students mobilized to find solutions to avoid losses in the program planned for the next week. However, two other situations further complicated the incident. During this period much of the French railway system was affected by a strike, which made it practically impossible to travel by train. And finally, the weekend coincided with the start of Easter school holidays, which, considering the problems in air and rail transport resulted in a great demand for car rentals in Paris. Therefore, getting to Barcelona became an unexpected challenge for students, who had no ready answers; experts were to assist them, or similar experiences to help them resolve the issue. Despite the impasses and tensions, they reached Barcelona on time and characterized this incidental situation as one of the most significant learning experiences in their MBA program.

Which aspects in an incidental experience that presents all the elements to be seen as an impasse becomes actively reinterpreted by these MBA students as a significant learning experience? The literature sustains that formal and informal learning situations play different roles in the process of producing significant knowledge in MBA students (Flach and Antonello, 2010; McGuire and Gubbins, 2010). Formal learning allows students to keep in touch with the last concepts, theories and tools in a systematized and specialized way. In this context, informal learning is highlighted as an important situation to gather the knowledge learned in the students' professional practice. Building specific solutions to their daily work challenges, they can reflect on what they have learned in the MBA formal situation and analyze this information in comparison with the tacit knowledge apprehended in informal situations. In the other hand,

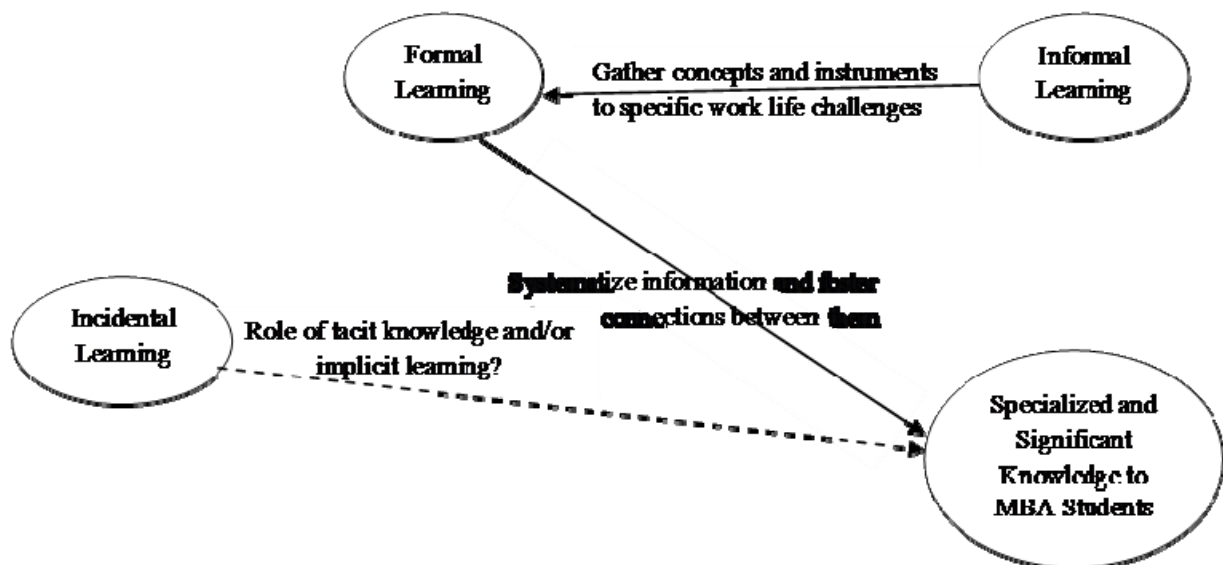


Figure 1. Conceptual map of MBA learning situations

incidental learning situations are pointed out by some authors (Francis et al, 2009; Handle et al, 2006), but not their role to foster specialized knowledge in the formal learning process. Our results are rooted into this perspective of analysis. Figure 1 show the conceptual map of these learning situations.

Accordingly, we investigated the incidental learning experience as an interpretative and heuristic process of accommodation by the MBA students to deal with the unexpected situation (Kolb, 1984). The results describe their use of reflexive observation, active experimentation and modes of learning to overcome difficulties and being successful. In addition, we characterize incidental situation as *unready-to-hand* or *present-at-hand* (Weick, 2004) regarding to detect and describe different aspects learned by the apprentices in the volcanic ash incident. Thus, our empirical data led to the identification of two main aspects that MBA students learnt in an incidental situation: (a) their engagement in action and (b) the decision-making process to cope with it.

Firstly, the learning experience was driven by MBA students' engagement in reaching Barcelona on time to attend their next classes. The first direct effect of the volcanic ash on the students was the replacement of one class due to the flight cancellation of a professor that was coming from Asia. Initially, the majority of the respondents understood that the cancellation of flights would be reversed in 24 hours and that they could proceed with certain ease on Sunday. According to Weick's (2004) perspective, this volcanic incident threw the students into an *unready-to-hand* situation which they had to handle and to make meaning simultaneously. A group of six

students, who were traveling together around Europe before the international module started, perceived the incidental situation more readily and decided to leave Paris immediately. They rented a van at the end of the day and enjoyed the trip to Barcelona. Other 16 students considered it better to wait and try to reschedule their air transportation on the next days. They only figured out the scope of the incidents much latter and their options become scarcer. Their engagement in action started when they interpreted the incidental situation as a problem that they should surpass, although they did not have immediate solutions. To overcome this, they used reflection as the main learning mode to cope with the difficulties:

*"We read about the volcanic ash and air traffic problem. But, at the beginning it seemed only an inconvenience that was going to be solved. Suddenly, someone figured out how serious the situation was. So we analyzed our options and left Paris immediately"* (interviewee 9)

*"At lunch time we were making plans to rebook hotels, do some sightseeing and go shopping in Paris. We were stress-free"* (Interviewee 4)

*"Although we have been MBA colleagues for almost 2 years, we have never had to cope with a practical situation implicating all of us. When we realized that, we tried to obtain updated information and search feasible options. In the afternoon, we had a meeting to analyze data and decide what it could be done"* (Interviewee 10).

Analytical and cognitive reasoning was used to obtain rational control of the situation integrating data, discussing brainstorming ideas by questioning the solutions

presented (Elkjaer, 2004). In both groups, the process of experiential learning was evidenced both by reflection in the action and subsequently, (Schön, 1987). The learning process of accommodation was actioned because MBA students do not have previous knowledge, information, tools or experiences to deal efficiently with the situation. The volcanic incident and its consequences on the urban mobility provoked a 'real life' challenge to them. Moreover, they assumed this challenge as a problem that must be solved by engaging in the reflexive observation of available data (Kolb, 1984).

As the cognitive perspective authors, we observed that the reflection process lead to the integration of relevant data for action in observing regularities in the environment and increasing awareness of the knowledge that was being produced and clarified throughout the process (Runger and French, 2010; Francis et al, 2009). However, coordination to update information and analyze available options was important, but not sufficient. They figured out that their reasoning was bounded because of the uniqueness of the situation and messy information. It was a loosely structured situation where a deliberative judgment would not be enough; therefore, they started to act intuitively using improvisations (Sinclair et al, 2008; Chia and Holt, 2008). At this point, they try to accommodate new information obtained by reflexive observation and transform it in an optimal solution by active experimentation (Kolb, 1984).

The results showed that, in doing so, some MBA students faced the demand to engage into a group decision-making process and the consequent challenge to open their minds to a novel way of thinking and acting. The group of 16 students had adopted the principle that the solution should be collective in a way that would lead to a single egress for all. This demand breakdown the individuals' reflexive observation regarding a different feature of improvisation to solve the problems and led the MBA students to deal with *present-at-hand* problems in a collective and innovative way. Therefore, they experienced a collective decision-making process to create rapid solutions using tacit knowledge to seek optimal solutions by trial and error and by craft innovation (Sadler-Smith and Burke, 2009).

Initially, several attempts were uncoordinatedly improvised, creating tension and conflict in the discussion of solutions. After noting the difficulty of achieving consensus in the decision-making process, one of the students led two other colleagues in the search for alternatives without discussing it with the larger group. They rented a car and informed the other 13 colleagues of the solution they had adopted, being criticized for their individualistic attitudes. The individualized approach was criticized by colleagues, who claimed the proposition that cooperation should have been the basis for finding solutions. Thus, collective engagement was required by

the group as a basis for legitimizing the solution. Finally, the rest of the group found a rental agency with cars available in a town near Paris. However, to get there they had to travel via suburban train lines, including those partially affected by the railway strike, in the midst of a "withdrawal" movement from Paris due to the Easter holidays. As if these more general difficulties were not enough, the students also faced specific difficulties such as communicating in French in a situation where speed to resolve the issue was very important, and bearing in mind that, at that time, the demand for car rentals was much higher than the supply. But, even when they had obtained enough cars to transport everyone, difficulties of coordination, leadership disputes and the lack of consensus remained. The group decided to make their journey together and to travel through the same route in the four rented cars, following the principle of collective solution. Due to the decision that the cars should go together to Barcelona, group cohesion was only obtained when its members resolved to establish a criterion for legitimacy of leadership. Colleagues who were driving were charged with the responsibility of deciding the route to be followed. Through communication among these leaders, the social interaction between everyone was established in a new form and free of tension. What stood out in this movement was the gradual transformation of the aspects that generated tension into an attitude of cooperation by requiring a collective solution. Impelled by this, they exploited new ways of thinking which enabled them to make decisions in a loosely structured situation. Given what they had to overcome, students combined a cooperative learning mode with an analytical interpretation of incidental situation. So, another learning mode that stood out in the experience of these students was learning by cooperation (Handley et al, 2006).

The reports show that the learning experience was significantly different to these 16 students as they were not a group before the incident. The inherent tensions of the incidental situation brought together difficulty of consensus, failure during the trial and error attempts, emotional conflicts between colleagues and lack of coordination. This situation *presents at hand* (Weick, 2004) created interpersonal tensions, demonstrating that this incident was a milestone as a learning situation. Facing that, they decided to cope with the situation applying a collective principle that bounded their participation in seeking solutions. This principle stated that any solution had to be collective, that is, had to be built together and ought to be considered as a good solution by everyone. Social interaction was established in a novel pattern of participation in collective action by sharing meanings between them (Handley et al, 2006).

"At first everyone wanted to impose their ideas. Everyone was tense, it was a stressful situation and when it was solved, the first feeling I had was, 'good, now

I'm getting out of here, I'm running away and getting out,' trying to work it out individually, but we really defended the idea that we had to stick together. We would travel through an unknown country; in an unknown situation and it made no sense for us to let each one take his own way. There were N paths, so we said 'Let's go by one path', 'which way?', 'I don't know, nobody knows, but we should go together, right? Let's make the same journey.' And it was very important to have done that." (Interviewee 3). The emotional tension, coupled with co-operation has promoted the gradual increase in freedom of expression of perceptions, feelings and ideas among the group. Through social interaction, they received information about themselves, about others and about the situation (Warhurst, 2011). Students emphasized that learning by cooperation changed their social interactions, increased their willingness to learn from colleagues, from the situation and from their own reactions.

"A problem was necessary to bring people together and it was great! This experience, all I'm telling you, that I learned, it was all after that. After the split, there was such a cooperation, I think that both for intellectual and behavioral learning, it was much better!" (Interviewee 2) "We had some very important life experiences at the time of the transfer, leaving Paris for Barcelona, which was the climax of the problem. It was really neat how things were solved. We arrived in Barcelona strengthened." (Interviewee 3) "because we went through bad moments during the journey, due to the volcano. And then during the trip, people started talking to each other and managed to talk about it again. I remember that during the trip we said: "wow, five adults, managers, directors, needed five months to sit and talk about what had happened and it was something so strong, that people began to cry" (Interviewee 6)

In this context, learning by reflexivity helped to overcome conflicts and maintain collaboration. Feedbacks and interpersonal exchanges promoted the increase of self-knowledge through questioning and through the resolution of interpersonal conflicts. Individual differences were being connected by empathy in building these collaborative solutions. So, this experience increased their reflexivity and self-reflexivity upon underlying assumptions and competitive interests in the process of decision-making (Cunliffe, 2009; Eriksen, 2012). "I received negative feedback for having acted in a more individualistic way in the search for a solution and I now consider that there are other ways of doing things." (Interviewee 1 "The necessity of a concrete problem, which was going from Paris to Barcelona, made the group, somehow, unites. After that, everything changed because the paradigm of prejudice broke, the stigmatization of people, you could see what each one of them had to offer. And you begin to learn with that. But this was only possible after the split and the split happened

on the occasion of a problem" (Interviewee 2). "From the volcano on, from then on it was perfect. We remained in such a great interaction! Then all those people who started out, like, 'I am so-and-so,' 'I'm X', 'that one there has experience in whatever', somehow so snobbish, then we all became equals and in the evening we would get together to relax, to enjoy and we'd say to one another 'Gosh! I didn't like you,' you know? So, it was pretty cool. From then on, everything, even the classes we had, my God, it was totally different!" (Interviewee 4) "I can tell you that a situation that I think drew much attention was what happened, that everyone had to come together as one team, or the thing wasn't going to work, it was one thing that I started to question within the firm. If I think I handle it or that I can do everything, it's not going to work. Now if I start using everybody for the process to succeed, that, I think, was what the volcano really has taught us" (Interviewee 4).

The incidental situation earned connotations of significant learning experience for having provided the students new ways of: (a) perceiving and interpreting situations (past and present), (b) dealing with interpersonal conflicts and (c) cooperating and interacting. As a result, the experience of incidental learning promoted new ways of thinking, leading them to challenge adopted assumptions, rearticulate ideas and modify their actions significantly. And this apprenticeship promoted the recognition of the value aggregated by incidental learning to the formal learning that MBA students expected to obtain in the MBA (Vazquez and Ruas, 2012; Weick, 2004). Table 1 summarizes our results.

The incidental learning situation, started by the volcanic ash, proved to be an external interruption about which MBA students were impelled to do something in an *unready to hand* event (Weick, 2004). Time pressure, need of updated information, need to rebook hotels during a holiday, transportation collapse, foreign language and conflicts between colleagues could be listed as some of the challenges they had to face. How a situation most likely to be seen as a harmful occurrence, could be reported as one of the most significant learning experiences for them? A response that can shed light to this question was given by one of the MBA students:

*"I would say that it was a real game - not virtual but real game - and we had an amazing experience. I want to draw attention to the team spirit reached by awareness and coordinated actions dealing with this unique situation. By our own expertise, we wouldn't have reached the same results. This experience strengthened our friendship, but more than that, all individual knowledge about planning, readiness and strategic analysis were mobilized to balance what would be better for the group given its costs and consequences. All of it under time pressure. If we had planned a business game to our MBA*



**Table 1.** Synthesis of MBA students' learning experience in an incidental situation

Empirical findings	Engagement in action	Decision- making process	Learning process
Plenty of information available about the volcano and the difficulties to traveling by train or car.	<i>Unready to hand</i> situation	Systemic view bounded for messy data	Reflective observation
Two kinds of decision were made by students: (1) Some decided to live Paris immediately, and (2) Some interpreted that the ash would dissipate on time to live Paris by air.	Looking for solutions by improvisation and trial.	Deliberative reasoning	Reflection
Affective reaction when they figured out that they did not have previous expertise or means to rapidly solve the problem in a more structured way.	Control of affective reactions	Group decisions	
Two competitive ways of acting: to find a collective solution or to solve the problem individually. The prevalence of the first lead them to a significant relational experience.	<i>Present at hand</i> situation	Leadership was legitimated	Active experimentation
Feedbacks on ways of acting. Exam of underlying assumptions and decisions outcomes of the experience. Inquiry allows them to deal with conflicts and tensions questioning their options, knowledge, means and choices.	Adoption of collective principle	Principle of 'what one decides matters to the whole group'	Cooperation Reflexivity

**Source:** Illustration elaborated by authors.

*program, I would say that the volcanic incident is a practical example. In 12 hours we had to decide the path, sequence and tasks, with the risk of harming our educational planning. This situation was critical to mobilize knowledge, experiences and maturity of each one in this organizing structure created by us to cope with a practical situation in which all should participate and be engaged."* (Interviewee 10)

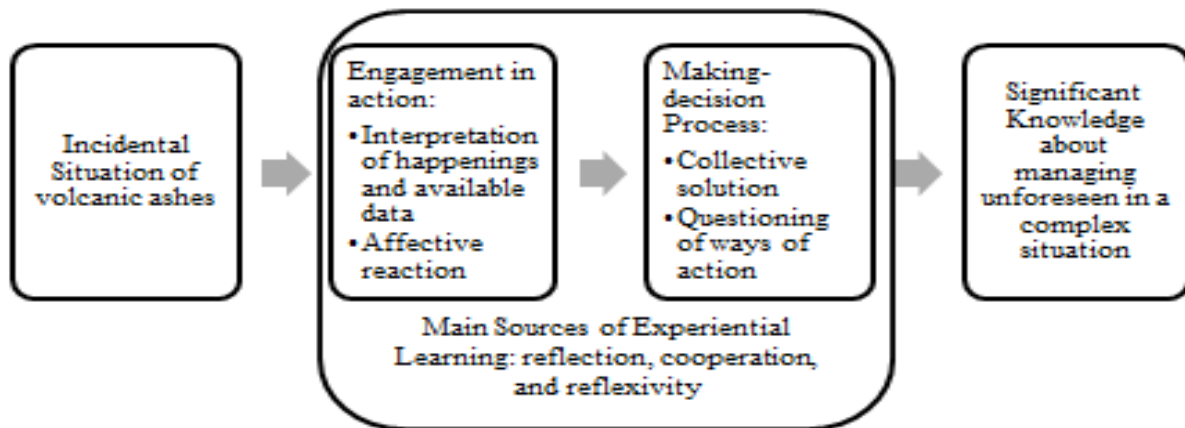
This report shows that the incidental situation was just a learning experience settled within the educational process in the MBA program, especially as it was referred by them as one of its most significant events. This aspect highlights the ongoing learning process, in which significant meanings are being gathered as they become relevant to MBA students' practical coping (Antonacopoulou and Chiva, 2007). The group decision-making process in this incidental situation was valued by them as a learning opportunity to develop their judgment capabilities in experiencing learning modes that enhanced their sense of self-efficacy (Bandura, 1997; Bandura and Huston, 1961). Figure 2 represents their learning dynamics in the incidental situation of volcanic ashes.

It is worth to mention that students continued the formal learning activities of the program in Brazil. They reported that, from the incidental learning in this event in Europe,

their subsequent participation in class was transformed, presenting an increase in the level of knowledge due to changes in interactions and in dealing with interpersonal conflicts. Engagement in educational activities came to have, as a premise, the idea that the process should be collective and that everyone had significant contributions.

## CONCLUSION

This paper aims to characterize the main aspects of an incidental situation and subsequently, increase our understanding about the role of incidental learning in the formal education of a MBA program. We identified two aspects as central in producing significant knowledge to apprentices: engagement in action and decision-making process. Generally, the results show that the provocative and tensioning nature of an incidental situation leads MBA students to produce significant knowledge. Dealing with an *unready to hand* situation, they engaged in action to solve the problems by reflexive observation of messy data. They transform these data and experiences in sufficient knowledge to build an efficient solution to them by using reflection, reflexivity and cooperation as modes of learning. They did that driving their engagement in an active experimentation of *present at hand* problems by improvisation and cooperative behavior.



**Figure. 2** Process of MBA students' learning in an incidental situation  
Source: Illustration elaborated by authors.

The main contribution of this article is to highlight the role of an incidental situation as a learning experience that provoked an open-mindedness' individuals behavior and drove apprentices in experiencing new ways of thinking and acting. Being successful in a complex and unexpected situation as this volcanic ash experience allowed the MBA students to transform their tacit knowledge into efficient solutions involving all of them. Because of this, they produced significant knowledge about managing unforeseen situations using intuition, collective principles and reasoning during their process of formal education in the MBA program.

Considering this, we question in what way do these findings which allow us to advance the debate on learning in MBA programs? The discussion that we proposed in this paper was directed at questions about how MBA educators can link their formal learning strategies with aspects of incidental learning that are relevant to enhancing students' knowledge. One important aspect highlighted in our data was the MBA students' engagement to solve the situation. Facing the incidental situation, they could have simply waited in Paris until the problem was solved even taking the risk to be late to some classes in Barcelona. Nevertheless, precisely this engagement on an *unready-to-hand* situation grounded their openness to think differently than they do routinely, that is, by reasoning judgment (Handley et al, 2006; Weick, 2004). Although incidental experience was crucial to engender some aspects in a significant way, solely the unexpected situation would not be sufficient to foster reflexivity and Knowledge. Reflexivity requires an exam of underlying assumptions and decisions, recognition of competing interests in decision-making and inquiry of conflicts and tensions questioning the consequences of decisions regarding ethical or moral ways of acting in a

given situation (Cunliffe, 2009). Interviewers reported that this incidental learning experience was relevant to them because they could enact practical judgments so that knowledge was triggered by ways of acting that solved affective conflicts and increased their sense of confidence and self-efficacy (Antonacopoulou, 2010; Eriksen, 2012; Wright and Gilmore, 2012). We argue that the incidental experience was important to improve the value of the MBA program to students, not as an isolated event but as a meaningful learning experience in which what they learned could be gathered with their practical coping. It is also important because it shows how close a MBA program can get to the 'real-world' of their students.

Therefore, we questioned what key aspects of this incidental situation could highlight the role of the educators while teaching MBA students. We seek to understand how incidental learning could be creatively explored by MBA educators, positively impacting the broadening of knowledge gained by students. Instead of emphasizing a disciplinary knowledge to enhance expertise we will focus on making students think, judge and decide in not so structured contexts of learning, that is, exposing them to opportunities of learning that challenge them to look for solutions using implicit and structured knowledge at the same time. At this point, we discuss three key aspects about this subject. The first aspect regards the provocative nature of the incidents. Tensions and no 'ready-made' solutions impelled the MBA students to engage and to make an effort to create loopholes by improvising, questioning, resolving conflicts, integrating information and producing new knowledge (Weick, 2004). The tensions experienced provoked a cognitive effort to perceive the regularities of situation, making it possible to learn about its implicit characteristics (Runger and French, 2010; Francis et al, 2009). The

incidental learning promoted increased awareness through verbalization of the implicit knowledge captured by the students in the discussion of improvisation and solutions (Sadler-Smith and Burke, 2009; Sinclair et al, 2008). The increase of knowledge produced in action was obtained through the reorganization of the experience and the generalization of what was learnt by the students (Elkjaer, 2004; Nokesand Ash, 2010).

How can students be encouraged this way in an MBA? Obviously we cannot provoke a volcanic ash to produce significant knowledge to them. But, thinking differently can be fostered by building *unready-to-hand* experiences in the class. In planning strategies and pedagogical activities, MBA faculties should acknowledge that tensions are potentially provocative toward meaningful actions of learning and ask themselves about what pedagogical activities could be useful to foster new ways of thinking and competences in their students (Raelin, 2008, 2009; Rubin and Dierdoff, 2008; Vazquez and Ruas, 2012). However, it requires openness to rethink their pedagogical strategies and explore which activities could drive students to produce significant knowledge (Schmidt-Wilk, 2011).

Our interviewees reported that the conflicts they lived in this experience are similar to those faced in the classroom, in the relationships with their colleagues and with professors. Such conflicts are evident routinely in situations such as: experiential activities in which they act in a different role as habitual, and they have to think about the consequences of their decisions; being challenged to create solutions to a dynamic and complex situation similar to what they can face in their practical routine; or collective exercises in which a group does not do well in the proposed activity due to a mistake in the performance of a colleague. So, it is possible that potentially provocative tensions toward meaningful actions in the learning process can be planned by the MBA educator as a strategy to their formal activities.

The second aspect is the emergence of a collective identity from the process of cooperation established because of the breakdowns that emerged during the incidental learning experience. With regard to the adventure in Europe, cooperation was set up by the sharing of identity among the students, giving relevant meaning to shared action. In management education, several formal educational activities are planned to be cooperative, such as games, workgroups, group dynamics, or theatrics. As Warhurst (2011), Chia and Holt (2008) and Handley et al (2006), we argue that MBA educators should foster collaborative learning modes by collective activities in a meaningful way to MBA students' inquiry and questioning of professional identity and actions. Note that the incidental learning caused a shift in the patterns of relationships through identification.

Certain behaviors and postures of the colleagues, then,

proceeded to be admired as a model, generating the process of learning by imitation (Bandura and Huston, 1961). In this context, stand out the role of interpersonal (including some conflicting) exchanges, feedback as a promoter of self-awareness and reflexivity through learning from others (Handley et al, 2006; De Vries and Lukosch, 2009; Cunliffe, 2009).

The last aspect of this discussion was the disclosure of multiple learning modes to confront an incidental situation, through the dynamic combination of reflection, cooperation and reflexivity. The adventure in Europe can be understood as a complex scenario of discoveries capable of promoting multiple learning processes in the students (Runger and Frensch, 2010; Nokesand Ash, 2010). Furthermore, the combination of these learning processes was analyzed by the students as a differentiating factor of the MBA due to the aggregated value of this learning opportunity towards their personal and professional transformation. This fact is observed especially in the way students changed their patterns of cooperation in the classes following the event in Europe.

The production of knowledge through content that is not formally planned and through the implicit perception of regularities is an activity resulting from the multiple learning modes of the students (Francis et al, 2009; Van Asselen et al, 2006; Kuhn and Dienes, 2006) that must be recognized and explored creatively in the activity planning and educational objectives of MBA programs. For elaboration of teaching strategies that balance incidental with formal learning in MBAs, it is necessary to enrich the learning situation by the insertion of unstructured content that can emerge as conscious knowledge through multiple learning modes (Wright and Gilmore, 2012).

The atypical incident of volcanic ash in Europe became 'an adventure' because MBA students faced it as a 'real game' (Interviewee 10) or a learning opportunity. In this sense, they brought the incidental situation into the MBA program seizing and transforming it in meaningful knowledge to their practice. We argue that fostering MBA students to produce significant knowledge in incidental experiences means that individuals dealing with breakdowns (*unready-to-hand* or *present-at-hand* situations) have to transform the reflexive observation and active experimentation of this situation in explicit and relevant concepts likely to be assimilated and generalized into their daily practices. In this context, the pedagogical purpose would be to sustain this heuristic process of accommodation provoked by an incidental learning experience when learners are improvising and innovating optimal solutions. By creating or exploring incidental situations, MBA Educators can enhance the implicit learning process to produce tacit knowledge. Jointly, they should drive their learners to systematize the knowledge obtained in these situations by public reflection,

feedbacks, exposition of regularities realized by them, working on meanings they give to the incidents, problematizing the decision-making process and their subjacent assumptions, etc. Therefore, their apprentices will be lead to foster the tacit knowledge in more structured and/or specialized knowledge by shaping learning opportunities to transform what they learned by accommodation in contents that they can assimilate and generalize to their practice.

Using our empirical data, we highlighted key aspects to address approaches that could be useful to teaching in management education. However, our data is hard to generalize because of the size of our sample and the specific feature of the incident investigated. New research on incidental learning experiences and its role on formal educational is necessary. Also, further studies investigating meaningful learning situations to MBA students and considering their openness to exploit new ways of thinking could foster our understanding of the impact of MBA programs and the educators' teaching approaches.

### Conflict of Interests

The author(s) have not declared any conflict of interests.

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