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THE INTEGRATION OF CREATIVITY MANAGEMENT MODELS INTO UNIVERSITIES'VIRTUAL LEARNING COMMUNITIES

Literature Reviews

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Abstract

Given the access of an increasingly higher number of individuals to virtual learning networks, the issue of creativity management becomes extremely important, especially for schools and universities. In the specialized literature, participating in virtual learning communities has several advantages, including: permanent access to information, high educational performance and increased creativity, and also better-developed professional identity (North and Kumta, 2014; Boulay and van Raalte, 2014). In the Romanian literature, there are few studies that aim directly at the relationship between the participation in virtual learning networks and creativity and innovation management models, especially in higher education institutions. This paper aims to study the ways in which creativity and innovation management models can be used in virtual learning networks in order to achieve better productivity at both individual and organizational levels, taking into account several best practices from this field and their possible implementation in Romanian educational institutions.

Introduction

This paper includes a presentation of an efficient approach that stimulates creativity within universities. One of the most used methods to sustain creativity is the preparation and instruction of the employees.Through the selection of creative individuals, it is possible to form creative teams,with the purpose to explorebetter their creative capacities. In this way, the knowledge and creative abilities could be integrated from the beginning. In doing so, it will be created the specific framework for sustaining the creativity.

In fact, virtual learning communities are very different and each person has his own creative potential to be explored. Managers and team leaders should promote and sustain the ideas changing. Moreover, they should discuss with their colleagues about their problems and propose solutions.

Creativity is the capacity to develop new ideas, solutions and linkages, but also the capacity to manage with hem in a new and different way. In doing so, creativity increases the number of alternatives and chooses the best option.

Edward de Bono (2010) considers that lateral thinking focuses on discovering ways to reach the main objective and to choose the best way to reach it. The managers can improve the work activity so as to become more competitive.

In order to help regional governments to support business development and creativity, it will be necessary to elaborate an innovative measurement agenda and increase the capacity to measure innovative inputs, efforts and impacts. Polices can shape innovation in creative industries by acting on the three major drivers of competitiveness in the sector. Those drivers are: people - by supporting the development of a creative workforce, places - by shaping creative communities on the basis of local and regional strengths, and production clusters - by fostering the creation of firms and institutions targeted to creative industries (OECD 2011 Regions and Innovation Policy, OECD Reviews of Regional Innovation, OECD Publishing, 2011, pp. 68).

Representative methods of creativity management in the field of e-learning

Creative solutions are a necessity for the economic and university environment. The researching and findings for creative solutions should be a continuously action. A professional usage of the creative technics leads to profitable solutions and increases the knowledge of the creation.

In literature, there are a lot of models for improving the creativity. Starting with the well-known "brainstorming" and "Six hats" methods, scientists discover many similar methods to stimulate creativity in companies.

The field of creative technics and models could be structured in three categories: associative technics, analogies and illustrative technics, and systematic procedures. It is necessary to choose the right method that should be adapted as much as possible to the particularities of each situation.

The first category of creative method is associative techniques, which includes techniques as brainstorming, clustering, mind mappingandbrain writing pool.

Brainstorming technique is used to stimulate the participants to cooperate and discover new solutions. This method follows a set of objectives. For instance, it is more important the generation of new ideas than their quality. Moreover, it is forbidden to discuss about someone's idea. It is a win-win game.

Regarding the characteristics of a brainstorming session, the main ones are: the group should be between five and seven persons, the session begins with a short presentation of the problem and its objectives, the group should be heterogenic and it is very important to create a motivating workspace atmosphere.These sessions of brainstorming could have different structures: individual brainstorming, anonymous brainstorming, teaching brainstorming, constructive-destructive brainstorming or imaginary brainstorming.

Another method subscribed to brainstorming is 6-3-5 method that gathers six participants, who must write down threeideas in five minutes. Between each round, there is a small break. After the break, the paper of the first member is moving to the next person who should write his own contributions on someone else's paper, and so on for each person. This process is made during 30 minutes. At the end, there are written down about 108 ideas. Moreover, after the process of creation is done, each person is evaluating the ideas and marks the three most important solutions.

Brain writing pool is another creative method, where the participants are exposing their ideas on a round table discussion. The session is about 40 minutes and it has between four and eight participants. The moderator writes the problem on a flipchart, so every participant can see it. Then, the moderator is given two-three papers that contain a few solutions to members, in order to stimulate them and give an idea. Then, each member receives a paper on which they should write their own opinions and solutions for the topic.

Clustering method is based on an associative oriented procedure. The idea begins with an expression of a certain concept or a feeling that stimulates ideas and correlated feelings. This method is used frequently to create new solutions and bring smart ideas, starting with informing the members and by updating the knowledge and research from the field. It is useful that this session is held in an open environment, so that it does not

exist any constrains for participants that may limit their creativity. This procedure begins with plotting the main idea in the middle of a whiteboard and then, the idea is circled. Afterwards, the discussion begins and the moderator should write the participants' ideas, and circle them. After the paper is filled with key words and ideas, the members start making correlations between them. If any member considers that his idea could be correlated to someone else's idea, he will draw a line between them and create linkages.

Mind Mapping method is used frequently to highlight associative structures in the process of creation new ideas. This technique uses both cerebral hemispheres, making more obvious the associative structures of the individual's thought. This method has a largespectrum of possibilitiesthat may include different planning, from a weekly plan to structuring and preparing a dissertation. The process starts with a small description of the problem and then, the problem is written on a transversal Mind Map as a symbol or keywords. From this nucleon, ramifications start and above them,there are notions mentioned, representing subordinated themes. In each point of ramification, it should be a single notion or description. More ramifications could be made from this point.It is better if the members use different colors to draw. Graphics elements facilitate a rapid understanding of representation and stimulate the creativity. A Mind Map could be enlarged anytime. The Mind Mapping method is much more structured than Clustering Method. Regarding Clustering method, the process it develops itself using a free association process. On the other hand, using Mind Mapping method,from one idea starts another one and the map is developed continuously.

The second category is illustrative techniques and analogies, which includes views, stimuli-words and plastics comparisons.

The view method is a very creative technique. It assumes to use imagination and anticipation in order to reveal the perfect solution. The participants should imagine exactly how the perfect solution should look. This method stimulates the participants to adopt and implement the perfect solution. The persons who apply this method frequently reach their goals more rapidly than others.

The method of Stimuli-Words defines the problem and the purpose. For this session, the moderator will need cardboards, pencils and one dictionary. The moderator opens the dictionary at any page and chooses a word. The participants will express their opinion about the correlations between this word and the problem. There is a creative effect based on the linkages between these elements. This method correlates aspects that have nothing in common.

The third category of creative methods is systematic procedure, which gathers morphologic matrix, Osborn method, inverse method, the six hats method and Walt Disney strategy.

The morphologic matrix is a strategic method used to discover new ideas and to give an overview. The problem is divided into small subordinate units, which are analyzed as individual situations, and then the members offer solutions for each unit. The specifications, characteristics and aspects of each problem, will be written on the left side of a paper. In the right side, there is a big foursquare with small four squares inside it, filled with alternatives and solutions. It is very important the definition of the problem and its description. This session lasts no more than one hour and it can gather between four and seven participants.

The Osborn Method has a catalogue for questions, divided in nein groups of interrogations. The groups of questions may be structured in: a different way of usage, adaptation, modification, increase, decrease, reconfiguration, inverse, combination and transformation. This method is recommended when the moderator is trying to develop an existing idea. It is very important this procedure runsuntil the end of the process, when the participants have nothing else to add or contribute with.The result is an important number of raw ideas, which should be arranged and processed in a more advantageous solution. The problemshould be analyzed using the structure of the set of questions.

Regarding Inverse Method, all problems are overturned, so the situation is entirely changed. New solutions and ideas will appear, which were unseen until now. The problem is written exactly overturned, and each member should propose solutions to solve it. At the end, the proposals are transposed correctly and adapted to the true problem.

The method of the six hats is dedicated to groups and has a specific symbolism. As the name says, there are six hats of different colors (white, red, black, yellow, green and blue). Every hat has a set of solutions for the problem. The members can change between them the hats, in order to discover new possibilities and solutions. Each color has its own signification. The white hat represents the analytical thinking and neutrality. The person who wears this has collects the information without evaluating them. There are mentioned only numbers and facts, not personal opinions. The red hat represents personal sensitivities and subjective opinions. There is no restriction regarding the emotions: it can be accepted both positive and negative ones. The black hat represents all the rational and objective arguments thatexpress doubt, fear and risks. It is not about feelings. The yellow hat represents positive and objective information and aspects, as opportunities and advantages, hopes

and purposes, which are important in decision-making. The green hat represents new ideas, creativity, innovation, and alternatives, beyond the existing ones. The blue hat represents the control, order and organization. It is very important to note the impressions and results along the process.

Walt Disney method is a very efficient method; it is used to adopt an unusual reasoning or idea and improve the knowledge. It is recommended to analyze the situation from tree different perspectives: dreamer, critic and realist. Every participant will adopt these perspectives. In the first round, the members will identify the real problem. Then, each participant will express his opinion from the perspective of a dreamer, critic and realist. In the second round, the members will define and analyze the problem and the purpose.

Potential models of creativity management and their implementation at the level of virtual learning communities

The first model takes into account many variables that are involved in the process of building an identity, at the university level: informational and socio-emotional support, occupational identity, group identity, lack of face-to-face alternatives, norms, personal identity, occupational, commitment, professional networks and employee performance (in our case, student and teachers). From this model is apparent the relationship between personal identity the occupational identity that are mediated by the development of a sense of virtual community. We hypothesize that the development of a strong sense of virtual community can lead up to a better individual and occupational identity. This idea is partially supported by highlighting the main benefits that the participation in virtual communities has especially for students and young professionals (Blanchard, Askay and Frear, 2010; Boulay and van Raalte, 2013; North and Kumta, 2014):

• *Occupational commitment* (Meyer et al., 2006; Redman & Snape, 2005; Ritekka, 2005; Van Knippenberg&Sleebos, 2006 apud Blanchard, Askay and Frear, 2010); the members of virtual learning communities may have an increased occupational commitment. Occupational commitment is defined as the commitment to the actual work an employee does (Meyer et al., 1993).

• *Building better professional networks*; according to Blanchard, Askay and Frear, by participating in a virtual learning community, members have the potential to interact with other similar professionals from around the country or region (Blanchard et al., 2010). This could widely increase the contacts a professional has to provide information for his or her job (Stewart 2005; Wasko and Faraj, 2005 apud Blanchard et al., 2010)
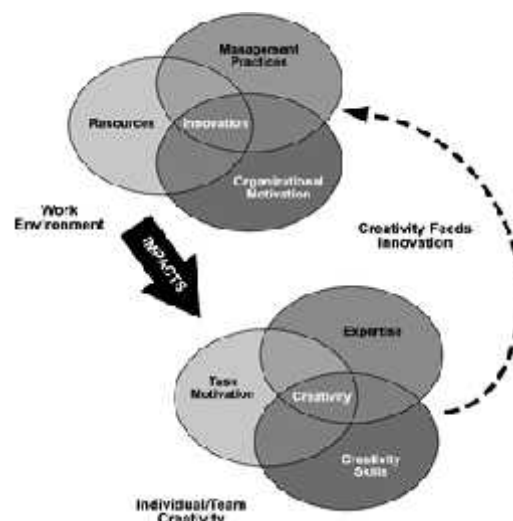
• *Better student performance* – students can increase their professional social capital through these networks (Oh, Chung, &Labianca, 2004; Putnam, 1996; Wellman, Haase, Witte, & Hampton, 2001 apud Blanchard et al., 2010).

The second model that can help integrating the creativity management models in universities' virtual learning communities was presented by Amabile in 1997. In this model, Amabile presents the interaction between innovation and creativity by considering the first one as a construct related to the work environment, composed of: management practices, organizational motivation and resources. The latter includes individual and team's expertise, task motivation and creativity skills.

The model proposed by Amabile highlights the importance of correlation between two dimensions: the first one consisting of: university's vision and values, educational strategy, efficiency of management structures, academic culture, institutional identity, technical infrastructure and educational resources to the second that includes: educational potential of both students and teachers, particularly the digital learning potential (undervalued by many universities today), the continuous development of students and teachers' digital competences, using collaborative digital

Figure No.1 – Impact of the organizational environment on creativity model proposed by Amabile (1997) learning in courses and research projects, integrating formal and informal learning by extending academic study into the home environment by using various devices that help maintaining a permanent connection between the members of the study group.

Creativity management optimization at the level of university

On the basis on the models presented above, we can suggest the following general recommendations for universities:

• The *research and development projects* financed by the European Commission (Erasmus+ or European Social Fund) are one of the main sources of financing the universities. Taking into account the low rate of developing new projects in

Romania, it is extremely important to enable both student and professors to write good applications. This can be done by organizing workshops, interdisciplinary study groups and by teaching efficient methods for project development, sharing best practices etc. It is also extremely important for the management structures (key people like the Rector, vice-Rectors, deans and heads of departments) to understand the benefits of having such projects. A special department for European projects, assuring translation work, having a clear co-financing strategy are good measures in this particular aim.

- Developing a virtual learning community has some *technical requirements* too: enabling wireless access points in university's building and campus is essential, followed by using an adequate learning environment. All students and professors should have *intranetprofiles, groups and institutional emails.* One way of doing that is by using *Google apps* at the level of University that also brings the excellent Google services very close to the study platform. A very important aspect for developing good virtual learning communities is *offering access to international research databases* like EBSCO, Thomson-Reuters Web of Science, Science Direct, etc. not only from university's library, but from all the campus, based on individual MAC or IP addresses.

- Beside the website of the University (that does not help much in terms of collaborative learning), it is very important to create *virtuallearning communities for researchers* (students and professors). One way to do that is by using *Mendeley* (www.mendeley.com). The website and the application mentioned above requires the participants to create profiles with their research interests, papers and short biographical descriptions in order to interact more efficiently. It also offers a way to organizing research papers and generally pdf files in libraries, create study groups based on a specific topic and search through academic literature. Overall, Mendeley is an excellent strategy when it comes to connecting people with common research interest at the level of university. Another option can be also www.researchgate.com.

- Related to researchers' networks, implementing the use *of learning management systems* (LMS) such as Schoology, Canvas, Openclass or Edmodo (primarily addressed to elementary education, especially suited for primary and preschool pedagogy specialization in order to help the students develop their digital competences). Other alternatives could be Moodle or Blackboard.

- This application brings into attention another topic especially important in social sciences: *the software needed for proper scientific work*, for example SPSS and Microsoft Windows

and Microsoft Word. The University needs to be aware that almost all the students use computers and must help them to acquire the necessary software licenses with academic discount. At this level, two general solution can be identified: a) the commercial solution – offering Microsoft Windows operating system and Microsoft Office plus IBM SPSS or Minitab or b) the open and free software solution: OpenOffice, LibreOffice and PSPP (a clone of SPSS for basic to advanced statistics work). However the decision, the University must encourage the widespread utilization of these application by all the researchers groups. In the case of PSPP and LibreOffice it is recommended to organize *interdisciplinarytraining sessions and workshops* in order to educate students and professor on using them.

- Also very important is the *inter-platform integration*: combing the use of Google applications with Mendeley, Moodle and social media (i.e. Facebook and Twitter);

- Encouraging the development of *virtual curriculum*: offering students the possibility to view the courses online by using such platforms as iTunesU or Youtube. This is not an expensive strategy, several video cameras for each department would be more than enough to record the lectures and upload them online. These lectures could be included in a more general approach to virtual curriculum that includes: links to relevant online and offline resources, interactive online evaluation tests and short summaries for every chapter. One of the most important aspects of the pedagogical strategy we emphasize is encouraging transversal curriculum, particularly transversal competences in all the courses – subjects of interests for all the researchers.

- Integrating *e-mentorship and e-internship* as new methods for developing students' professional identity, in the context of business-university partnerships. This is a very new approach in pedagogy that can only be to enhance creativity at the university level. A special type of mentoring is e-mentoring, which can be defined as: a relationship that is established between a more senior individual (mentor) and a lesser skilled or experienced individual (protégé), primarily using electronic communications, that is intended to develop and grow the skills, knowledge, confidence, and cultural understanding of the protégé to help him or her succeed, whilst also assisting in the development of the mentor (Johnson & Ridley, 2004 apud Martin & Strung , 2009; Strung & Martin, 2012). Related to e-mentorship and e-internship it is essential to include retired professors and alumni students in the learning process because they possess invaluable knowledge and competences. This *intergenerational approach* would be especially

beneficial in a *blended learning strategy* (online and face-to-face interaction).

• Connecting the virtual learning networks to professional associations and communities of practice.

• One of the most important aspect of developing an efficient learning community (and in particular a sense of virtual community) is the *adherence to a set of basic principles and values*: open communication, dissemination of best practices and the results of research, collaboration between students, professors and researchers from various fields, open access to educational resources and infrastructure.

Peter Senge is a leading writer in the area of learning organizations (such as universities), whose important works *The Fifth Discipline: The Art and Practice of the Learning Organization*, and *The Fifth Discipline Fieldbook: Strategies and Tools for Building a Learning Organization* explain that there are five disciplines, which must be mastered when introducing such an organization (which are especially important for the last point mentioned above):

1. **Systems Thinking** - the ability to see the big picture, and to distinguish patterns instead of conceptualizing change as isolated events. Systems thinking needs the other four disciplines to enable a learning organization to come about. There must be a paradigm shift - from being unconnected to interconnected to the whole, and from blaming our problems on something external, to a realization that how we operate, our actions, can create problems (Senge, 1990, pg. 10).

2. **Personal Mastery** - begins "by becoming committed to…lifelong learning," and is the spiritual cornerstone of a learning organization. Personal Mastery involves being more realistic, focusing on becoming the best person possible, and to strive for a sense of commitment and excitement in our careers to facilitate realization of potential (Senge, 1990, pg. 11).

3. **Mental Models** - they must be managed because they do prevent new and powerful insights and organizational practices from becoming implemented. The process begins with self-reflection, revealing deeply held belief structures and generalizations, and understand how they dramatically influence the way we operate in our own lives. Until there is realization and a focus on openness, real change can never be implemented (Senge, 1990, pg. 12).

4. **Building Shared Visions** - visions cannot be dictated because it begins with the personal visions of individual employees, who may not agree with the leader's vision. What is needed is a genuine vision that elicits commitment in good times and bad, and has the power to bind an organization together. As Peter Senge highlights, "[b]uildingshared vision fosters a commitment to the long term" (Senge, 1990, pg. 12).

5. **Team Learning** - is important because currently, modern organizations operate on the basis of teamwork, which means that organizations cannot learn if team members do not come together and learn. It is a process of developing the ability to create desired results; to have a goal in mind and work together to attain it (Senge, 1990, pg. 12).

In recent years, many grassroots organizations, including universities, have run up against the brick walls of strategies and mindsets that no longer serve them. Senge's book helps explain why working harder in the same old ways won't help. He makes an effective case that organizations and individuals need to undergo a profound shift of mind in order to handle the complexity of our world and increase our capacity to create a better future. In conclusion, the models presented above could be very useful resources to optimize the current creativity management models in the field of higher education in order to achieve better results in the knowledge society

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