

An Application of RID[®] on Management Education

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Abstract— This paper presents an application of Radical Innovation Design[®], a new method of knowledge management for steering the innovate projects from their earlier phases to the prototyping phase. We introduced this method for the first time on management education. This application is structured in three successive phases: Teaching, Coaching and Evaluating, with some changes introduced in the original method. We found that the ambition perimeter of management students is as wide as their counterparts in engineering, but they are weaker in conceptual solution or prototyping phase because of their epistemological and ergonomic backgrounds and school field equipments.

Keywords— Radical Innovation Design[®], knowledge management method for innovation, management education, intermediary design objects, Algeria.

I. INTRODUCTION

According to Yannou and Zimmer 2011[1], the literature review on knowledge management methods for steering the innovate projects from their earlier phases to the prototyping phase has been developed from decades and they are taught with a partitioned manner [2],[3], [4], [5], [6]. Professor Bernard Yannou argues that we must develop a methodology that encourages co innovation and co synergies between all the fields in the company. He developed the RID[®] methodology at the Ecole Centrale Paris ECP since the academic year 2008-2009 as a pragmatic solution for this chasm.

Today, Management Education reformers in the world advocate for an increasing innovation learning outcomes in the curricula of the future managers [7], [8].

As responsible of all the innovation courses at the management department of Annaba University in Algeria, I have applied the RID[®] methodology during the year 2010-2011 to students of management department, with some changes according to their epistemological genesis. In the period mentioned above, this methodology has not been taught anywhere on management education.

Presented by its inventor as a methodology, I will present RID[®] here as a knowledge management method for innovation after have been studying its aim and scope.

This paper presents the experience of the application of Radical Innovation Design[®] for three classes of Management department at the University of Annaba in Algeria from

October 2010 to June 2011 and its comparison with the initial experience realized with Professor Bernard Yannou at ECP in 2009-2010.

It is structured as follows: I present in section 2, details about the RID[®], and in section 3, the methodology adopted to apply RID[®] at the management department of Annaba University with materials used in this experience. In section 4, I show the results of this experience and will compare them with the initial experience at ECP. I will give analysis, and propose a model for the improvement of innovation skills for students of management in section 5. At the conclusion (section 6), I will draw together the results and their consequences and will indicate the limits of this experience.

II. RADICAL INNOVATION DESIGN[®]

Today, the innovation phenomena in the companies is described as a sequential process that begin from product planning ordered from marketing and top managers. Then, designers offer briefs for the new product and finally, engineers deal with the conceptual design. (see fig. 1). This process leaves the innovation perimeter of the innovate project members in companies so strait because they lose the potential for innovation throughout working in silos .

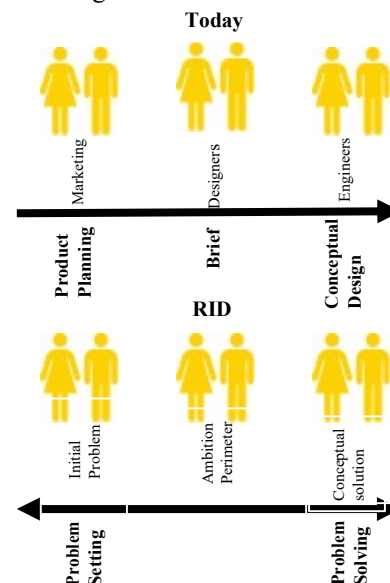


Fig. 1 The methodology of Radical Innovation Design RID[®]

-adapted from [9], p84-

RID[®] presents a new way to deal with the silos phenomena observed in the innovation projects of companies. It is a rigorous knowledge management method for innovation offering a wide range of tools to boost the potential of innovation group work in order to increase the probability of creating value in a company ecosystem. This can be steered in the early stage of the innovate project.

One principle of RID[®] is that everyone in the group work of innovate project participate in decision-making process and creative effort either at the determining initial problem or at the creation and sharing of the ambition perimeter and conceptual solutions.

This can be made using two complementary stages: *Problem Setting Stage*; which enhances the definition and understanding of the problem shared by all the group work, and *Problem Solving Stage* in which we will converge collectively to create a solutions with a high level of : profitability, radical and workable concept, innovation and utility [10],[11].

III. METHODOLOGY

I will explain the methodology adopted to apply RID[®] at the management department of Annaba University in Algeria through a detailed planning and a sequential adopted framework. The materials used in this experience are: the Intermediary Design Objects IDO's, the micro-actions and the evaluation sheets. Finally, I will compare the results of this experience with what I have seen in the 2nd year class CIPS course on October 2009 at ECP taught by Professor Bernard Yannou.

A. The detailed Planning

The RID[®] was taught at the management department of Annaba University in Algeria from October 2010 to June 2011, where three classes were concerned: Bachelor 3rd year class on entrepreneurial management EM, Master 1st year class on Quality and Innovation Managements QIM and Master 1st year class on Strategic Management SM. RID[®] has been taught during a number of sessions contained in the innovation engineering course planned for each class. This course lasted one semester.

TABLE I
DETAILED PLANNING OF THE APPLICATION OF RID[®]

Class	Oct 10- Feb 11	Feb 11- Jun 11	Students Number
3 rd EM	Innovation engineering course entitled: The entrepreneur and Innovation.		36
1 st QIM	Innovation engineering course entitled: Innovation Management.		23
1 st SM		Innovation engineering course entitled: Creativity and Innovation.	25

B. The sequential adopted Framework

I have adopted a sequential framework divided in three separate stages;

1) *Stage-1 Teaching Stage*: At this stage, I taught the RID[®] method for the three classes mentioned during two sessions of 3 hours. Materials used: a slide shows and a data show. I have taught to these classes how they can use a mind mapping software to steer a common shared value concerning the innovate project and to conduct efficiently the ambition perimeter. I have also taught them the functional and value analysis tools.

2) *Stage-2 Coaching Stage*: I started to coach the group works created at the end of the Teaching stage to innovate a new product or service on a field proposed or selected by the students themselves. This stage takes 4 sessions of 3 hours. The materials used are: the Intermediary Design Objects IDO's such as :the problem setting mind maps , the Knowledge books in which we capitalize our new knowledge of the problem. We use a different knowledge books such as: trends book, technologies book, concepts book and inventions book. Briefs, plans, cardboard product bodies, slides and physical models and simulation software models are also an IDO's used in this stage for all classes. We used also the micro-actions as urgent actions that we need to improve our knowledge or ability to learn and understanding a highly specialized field. At the end of this stage, the ambition perimeter of students became very high.

3) *Stage-3 Evaluating Stage*: At this stage, we evaluate the conceptual solution proposed by all the groups of three or four students. The evaluation criteria are based on: the speed of execution, levels of deepening, mastering and originality. The materials used here are the evaluation sheets. This stage may take 2 to 3 sessions of 3 hours.

IV. RESULTS

In this academic year 2010-2011 at Management Department of Annaba University in Algeria, we have identified the following innovate projects through three classes: the doll that makes prayer, the boat car, interactive puzzle, innovate crib, 2 videogames, toys for people with disabilities, new package of yoghurt, new office equipment, 4 innovate chairs, 2 toys, a baby spoon, new toothbrush, new bathroom equipment, new razor and a new billiard stick.

A. The Intermediary Design Objects IDO's

As an intermediary Design Objects, all the students have made a problem setting mind maps (see fig.2) , a trend books, invention books, concept books and technology books like shown in fig.3 and briefs as shown on fig.4.

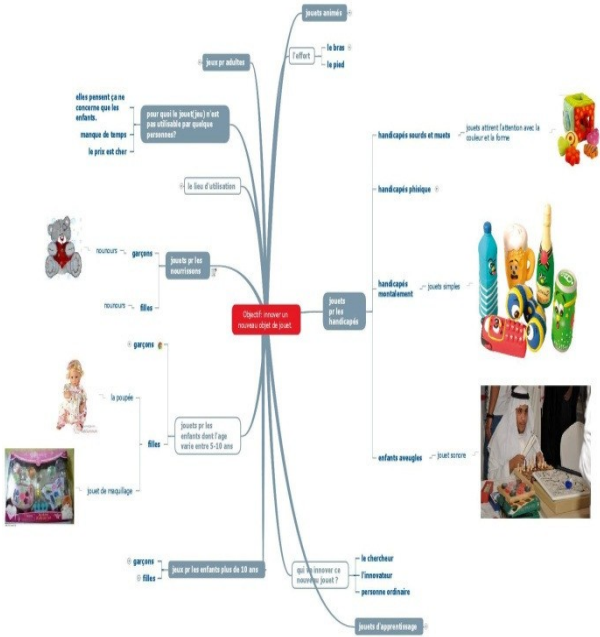


Fig. 3 Examples of a knowledge books

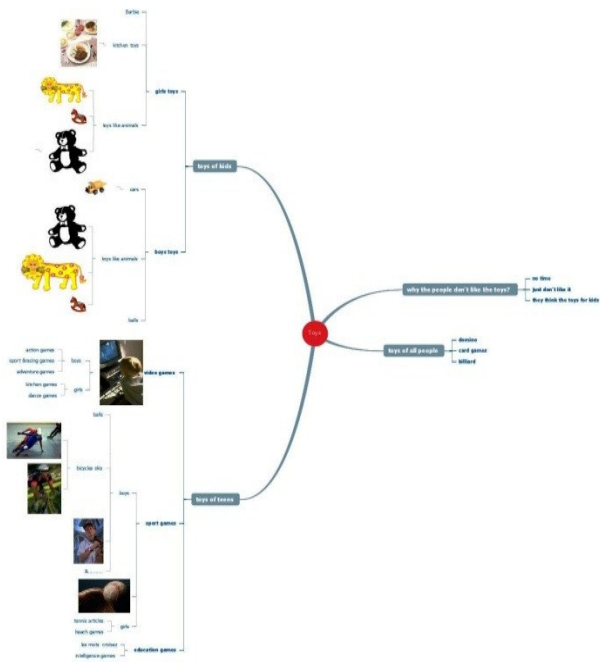


Fig. 2 Examples of a problem setting mind maps

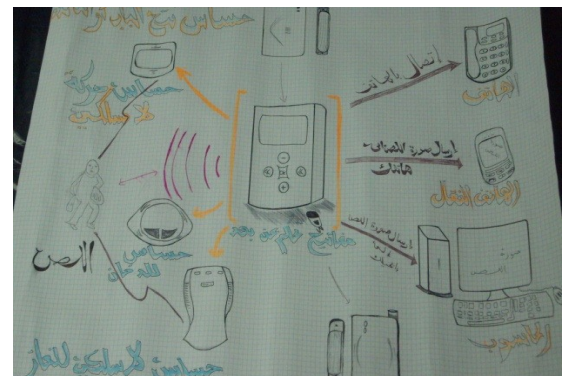


Fig. 4 Examples of a briefs.

B. The Micro-Actions

As micro-actions, a lot of students have made a video for an interview or a real investigation on Annaba stores or with users of the product. This has increased their level of understanding of the product ecosystem. I have preserved all videos made as micro-actions.

C. The Evaluation sheet

This evaluation sheet enables us the evaluation the whole innovation effort of the students after they presented their models (see fig. 5).

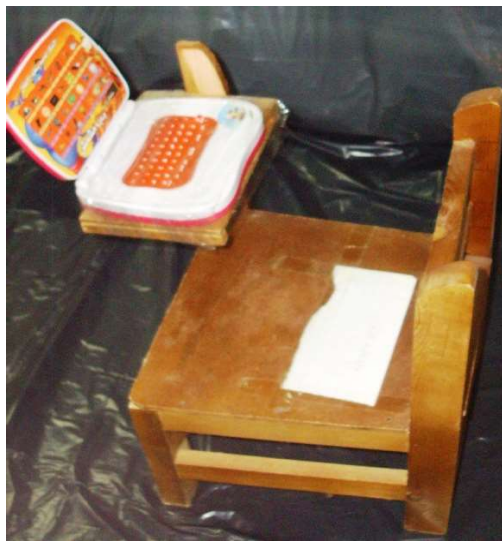


Fig. 5 Examples of models in wood.

It allows us to dress the student evaluation graphs as presented in fig. 6.

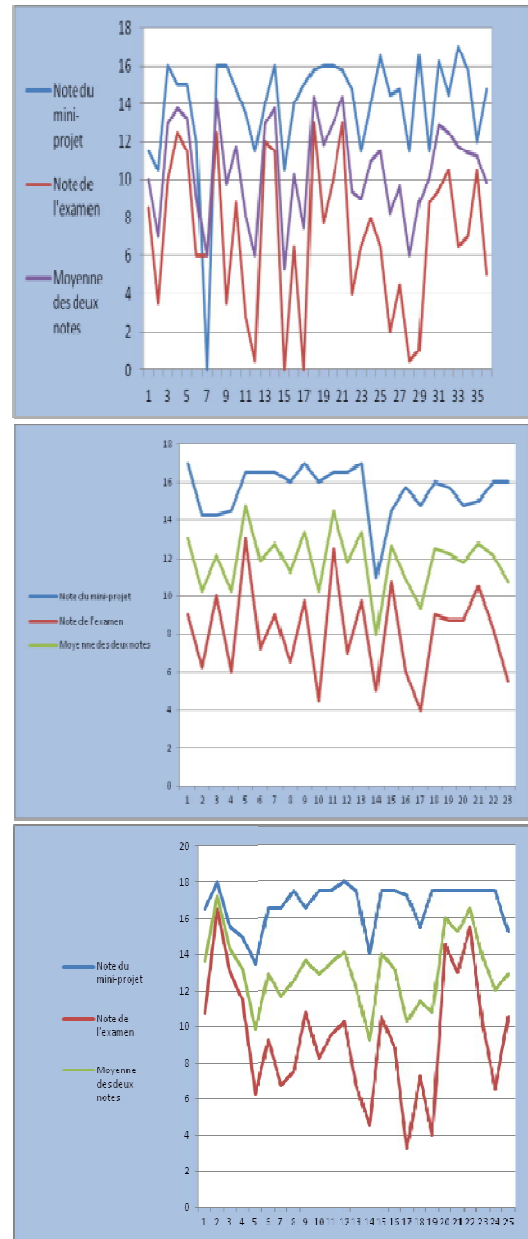


Fig. 6 Examples of the student evaluation graphs.

D. The ECP Course results in October 2009

At that period, I attended the course offered by Professor Bernard Yannou at ECP and I saw real prototypes of new product made by the students of ECP (like two new concepts of chairs prototyped and presented during the class session).

V. DISCUSSION

The results indicate that the majority of students were motivated to innovate or create something new. Their creativity is as high as their counterparts in the ECP. However, their prototyping skills and their ability to provide conceptual solutions is much lower. In my opinion, management students don't have the appropriate tools that will enable them to concretize their ideas. I also noted that ECP contains equipment and materials that facilitate the execution of the prototyping stage unlike the management department of Annaba University in Algeria.

For fostering the innovation power in management education, I suggest the model below:

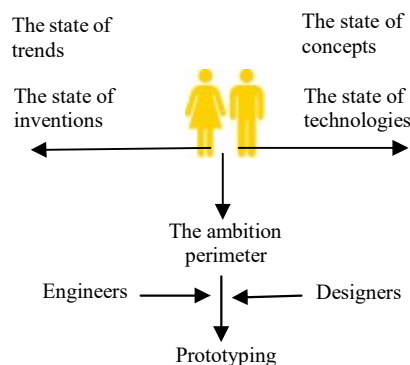


Fig. 7 A model for fostering innovation in management education

This model shows that we can achieve the radical concept and the innovate idea with students in management faculties and schools, but to strengthen weaknesses in prototyping, we can bring conceptual solutions from designers and engineers and we must learn to work with them in order to invent a new concept or product.

VI. CONCLUSIONS

Management students have a great potential to create something new, but their whole life curricula doesn't allow them to make a prototype or bring conceptual solutions. More openness to the areas of design and engineering must be made on management curricula.

A trend towards a co innovation and co synergies should be taught for future managers since their entry into management school.

They must learn a new work behavior to allow them to sustain innovation in companies with designers and engineers.

As it is difficult to generalize the results of one experience at the entire management education, more experiments are needed to validate or not the conclusions of this experience.

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