

## The Effects of a Creativity Training Program on Students' Initial Perceptions of Creativity: The Case Study of Mohamed First University, Morocco

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### Abstract

Incorporating creativity in education is widely accepted to be a necessity in today's rapidly changing world. However, in the case of Moroccan educational settings, it is noticed that schools continue to be characterized by traditional and conventional instruction. It is true that some students excel in traditional teaching delivery; however, creative learners are neglected and at risk of being rejected. Understanding the nature of creativity and putting it into action are of paramount importance for students to pursue creative opportunities in their own life. This study aims at (1) assessing 22 Moroccan Master's students' general perceptions and attitudes towards creativity; (2) improving students' creativity by introducing them to a list of creativity techniques; (3) evaluating how effectively the proposed creativity training workshops have influenced students' initial views of creativity. The study used questionnaire inquiry data analysis to collect both quantitative and qualitative data. The findings reveal that students hold positive attitudes towards creativity in education. More importantly, the study shows how the proposed creativity training workshops have positively affected students' initial perceptions and attitudes towards creativity.

**Keywords:** Creativity techniques, effects, higher education, perceptions, teaching for creativity

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## 1. Introduction

Creativity is a central source of meaning in our lives. Almost everything that is valuable, important, and human is the result of creativity. When we are creative, we feel we are living more fully than during the rest of our life and we come close to the perfect fulfilment we all aspire to achieve in life (Csikszentmihalyi, 1996). Until recently, creativity has been synonymously associated with artists and gifted individuals who have changed the world with their inventions and discoveries. Recent changes in perceptions have led us to think of creativity as something we all possess to varying degrees and which can be encouraged, nurtured and developed. (Adam, 1999; Sternberg, 2003; Miszta, 2007; Sawyer, 2012; Lehrer, 2012). Education is viewed as the most influential place to inculcate students with creative thinking to prepare them for the challenges we are facing. However, it needs to be acknowledged that in modern classrooms, teaching methods have become increasingly monotonous and objective in the transfer of knowledge. Teachers seem to share their knowledge objectively and do not necessarily let students experience the process through which discoveries are made. Understanding the nature of creativity and putting it into action have significant outcomes for both teachers and students. Teachers are likely to adopt different creative approaches and model them to have the most impact on their students. As for students, introducing them to creative approaches and techniques helps to shape their creative thinking processes to pursue creative opportunities in their own life.

The participants in this study consisted of 22 Moroccan Master's students studying at the Faculty of Letters and Humanities, Oujda, Morocco. The study intended to (1) assess students' general perceptions and attitudes towards creativity; (2) introduce students to a list of creativity techniques to help them break away from conventional ways of teaching and learning. A post-training evaluation questionnaire was addressed to the participants to evaluate the extent to which the creativity training workshops have positively influenced their initial attitudes and perceptions of creativity. The aim of this research was to find answers to the questions below:

- What are the students' general perceptions of creativity?
- To what extent does the proposed training in creativity positively affect students' general perceptions and attitudes towards creativity?

## 2. Literature Review

### 2.1. Defining creativity

For a long time creativity has been considered as something mysterious and creativity itself has been related to artists, gifted and intelligent individuals who have changed the world with their inventions and discoveries. As a matter of fact, the word 'genius' was used more often to refer to a creative person. Some 60 years ago, a psychologist, J.P. Guilford insisted that creativity could not be understood solely in the context of intelligence and genius. Thus, taking creativity out of the circle of giftedness and intelligence, and giving it a scientific dimension helped researchers to provide new insights to the concept. When defining creativity, researchers put an emphasis on two elements, namely: novelty and utility. The National Advisory Committee on Creative and Cultural Education (1999) describes creativity as an "imaginative activity fashioned so as to produce

outcomes that are both original and of value" (p. 29). Robinson (2011) insists on actively producing new things as a sign of being creative. Creativity involves taking actions in a given field. In Robinson's words, "people are not creative in the abstract, they are creative in something: in mathematics, in engineering, in writing, in music, in business, in whatever" (p. 115). In tandem, Csikszentmihalyi (1996) states that "creativity is any act, idea, or product that changes an existing domain or that transforms an existing domain into a new one" (p. 28). By domain he means the body of expertise in a field.

The action and the concrete products are what make the difference between imagination, creativity, and innovation. Koestler (1964) maintains that the creative act takes place when a person "uncovers, selects, re-shuffles, combines, synthesizes already existing facts, ideas, faculties, skills. The more familiar the parts, the more striking the new whole" (p. 120). Hence, creative people are capable of "combining previously unrelated domains of knowledge in such a way that you get more out of the emergent whole than you put in...each new synthesis leads to the emergence of new patterns of relations" (Koestler, 1980, p. 344).

For our purposes, it is vital to establish a definition of creativity that makes sense within the context of this study. By fusing Koestler's definition and definitions identified in the literature, it may be argued that creativity is the imaginative process of rearranging (combining, synthesising, selecting wisely) already existing elements (ideas, domains, facts, faculties, skills...etc.) to produce something new (novel, original, unique) and useful (adapted to the needs for new approaches and new products) by which a symbolic domain in the culture is changed.

## ***2.2. Teaching for creativity***

Schools should act as platforms where students learn to combine and rearrange existing knowledge, things and ideas to produce something new and valuable (Sternberg, 2003). It is highly important to mention here that teaching for creativity is not a teaching method, but rather a teaching philosophy through which multiple teaching techniques, styles, and models can be modified or generated to help students develop their creative skills. Practically speaking, teachers can teach for creativity by simply providing a positive, safe and motivating school environment where students are encouraged to believe in themselves, take responsibility for their issues, focus on solutions, and find opportunities and new perspectives for further development (Rogers, 1954; Amabile, 1996; Sternberg, 2003; Nickerson, 2010; Metcalf, 2003); Snyder, Lopes, & Pedrotti, 2011). With this in mind, teachers act as facilitators of students' success, by helping them internalize positive beliefs about their personalities, abilities, and responsibility for learning. Additionally, students are at their most creative when they are doing what they love to do. Teachers, therefore, need to encourage students to find their own niche (Treffinger, Schoonover, & Selby, 2013). Dozens of experts in the field of creativity argue that teaching for creativity takes various forms (Bandura, 1982; Amabile, 1996; Gruber & Wallace, 1999; Sternberg, 2003). First, students should have the guts to surmount their obstacles and take risks. That is to say, teachers should encourage their students to analyse, critique their own ideas, and redefine problems to see them in another way

(divergent thinking). Second, students should take into consideration that learning is a lifelong process that takes time. Thus, students need to learn to allow time for the process of creative thinking to take place. If they always rush, they will have difficulty generating creative solutions. Third, knowledge is a double-edged sword. Despite of the fact that creativity favors the prepared mind, knowledge can impede creative thinking. Teachers have to be careful to dismiss students' views simply because the views happen not to fit into their own knowledge. Finally, students' mistakes are their sources of learning and creativity. Making mistakes help students generate further ideas and solutions to the problem they are facing. However, if mistakes are stigmatised, students will have trouble being creative.

On another scale, telling students 'to be creative' does not usually yield results. Some special techniques are required to help students use their brains in a different way - to change their usual thinking process. Therefore, providing students with a number of creativity techniques is of paramount importance to reawaken their creative spirit to start combining in beautiful and useful ways. Using visual thinking is one of the best methods to help students represent, deconstruct and reconstruct new information, problems and insights (Michalko, 2001, 2006). In this respect, various creativity techniques may be used to enhance creative thinking like brainstorming, brainwriting, braindrawing, mind mapping, SCAMPER, the six thinking hats and analogies (Bisociation, Synectics).

### 3. Methods

#### 3.1. Participants

The 22 participants who responded to the questionnaires were all students studying for a Master's degree in Educational Technology at the Faculty of Letters and Humanities in Oujda, Morocco. The majority of the participants (16) are aged between 20 and 30 years old. The gender distribution indicates that 9 of the participants are male while 13 are female. 18 of the respondents are students, three are teachers and one respondent is a teacher inspector.

#### 3.2. Procedures

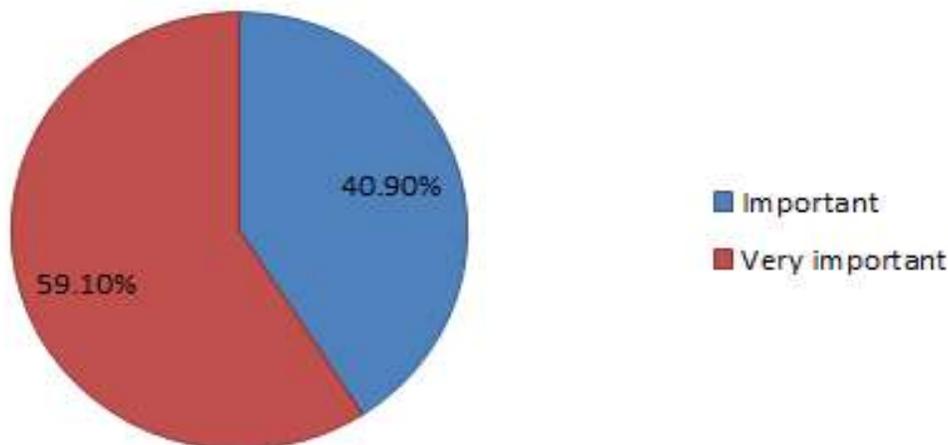
This research study used a mixed methods procedure for collecting, analysing, and "mixing" both quantitative and qualitative methods in a single study to better understand the research problem (Creswell, 2012). Mixed methods research was a good design to use in order to build on the strengths of both quantitative (scores) and qualitative data (open-ended questions) to develop "a complex" picture of the research questions. Dealing with one type of research was not enough to address the research problem or answer the research questions.

First, the researcher administered a survey to 22 Master's students to assess their general attitudes towards creativity in education. Second, students underwent the creativity training where they were introduced and taught about how to use a list of techniques to develop their creative thinking. Finally, a post-training evaluation questionnaire was addressed to the participants to evaluate the extent to which the creativity training course has positively influenced their initial attitudes and perceptions of creativity.

#### 4. Results and discussion

##### 4.1. Students' general attitudes towards creativity (questionnaire 1)

##### 4.1.1. How important is creativity in education?



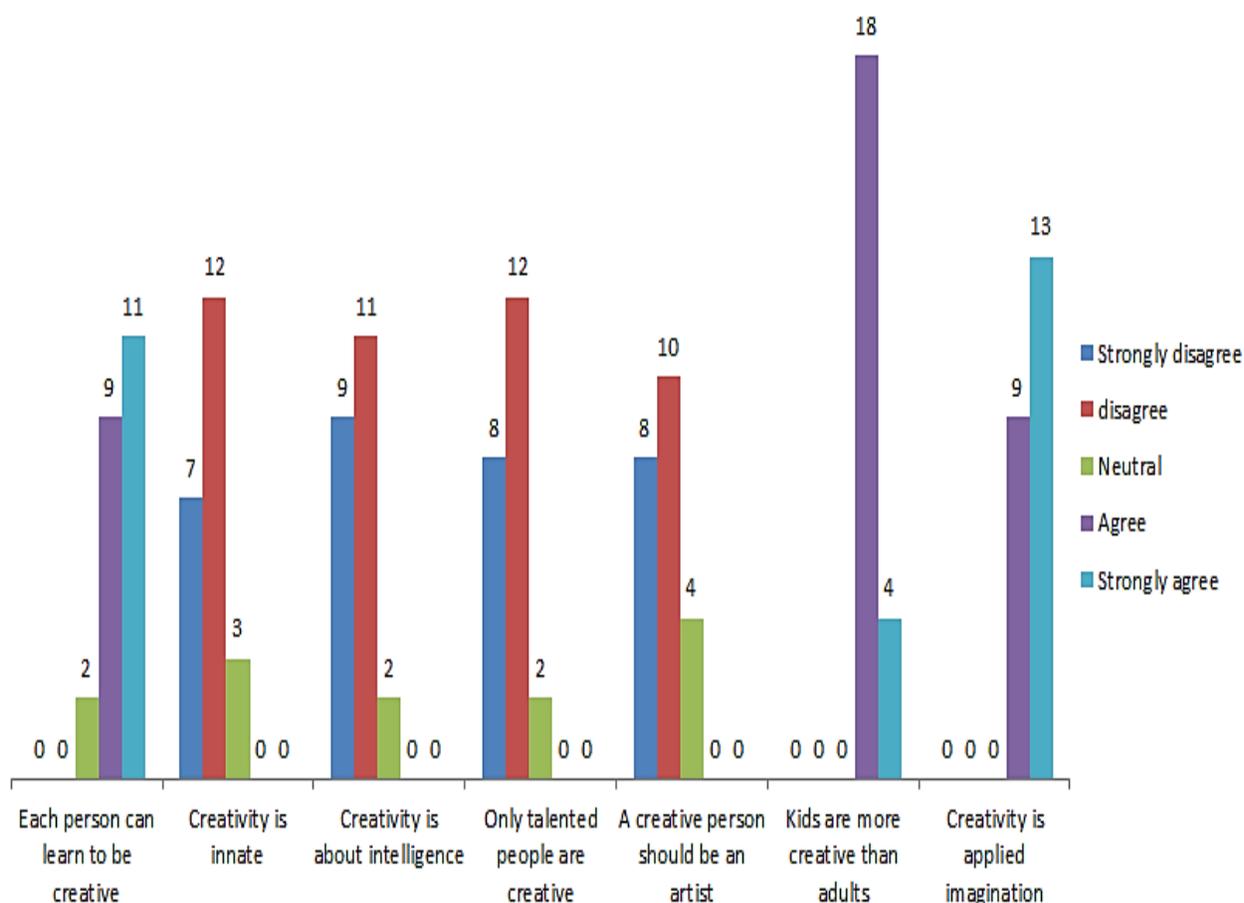
*Figure 1.* How important is Creativity in education? (Questionnaire 1)

As can be seen in figure 1, all the participants agree that creativity is important in education.

##### 4.1.2. Why is creativity important in education?

According to the respondents, creativity helps society to maintain its continuity and improvement. Societies become more productive and innovative. This goes hand in hand with previous findings in the literature (Cropley, 1990; Ryan & Deci, 2000; Conner, DeYoung, & Silvia, 2018). One respondent pointed out that “thanks to creativity, learners feed their minds with new and original ideas and perspectives; they become better problem solvers and actively involved in the process of their own learning”. A good number of the respondents pointed the importance of creativity in developing imagination, self-confidence, self-esteem, problem solving, perseverance, self-motivation, flexibility and adaptability. One participant shared the view that “a successful education system is a system where the use of creative ways and techniques of delivering information is encouraged”. Another respondent added that “learners’ positive perceptions of their feelings have a strong influence on their learning and academic achievement. Creativity helps create positive school environments which allow each student to feel worthy and to build autonomy” A significant number of the respondents stated that through the use of creative approaches and techniques teachers are likely to develop new methods, new tools and new content for the benefit of students to improve their performance. One of the respondents believed that “creative techniques and approaches simplify and facilitate learning since students are encouraged to take risks and make mistakes”. Another participant noted that “creativity helps to improve students’ academic performance”

#### 4.1.3. Students' general perceptions of the nature of creativity



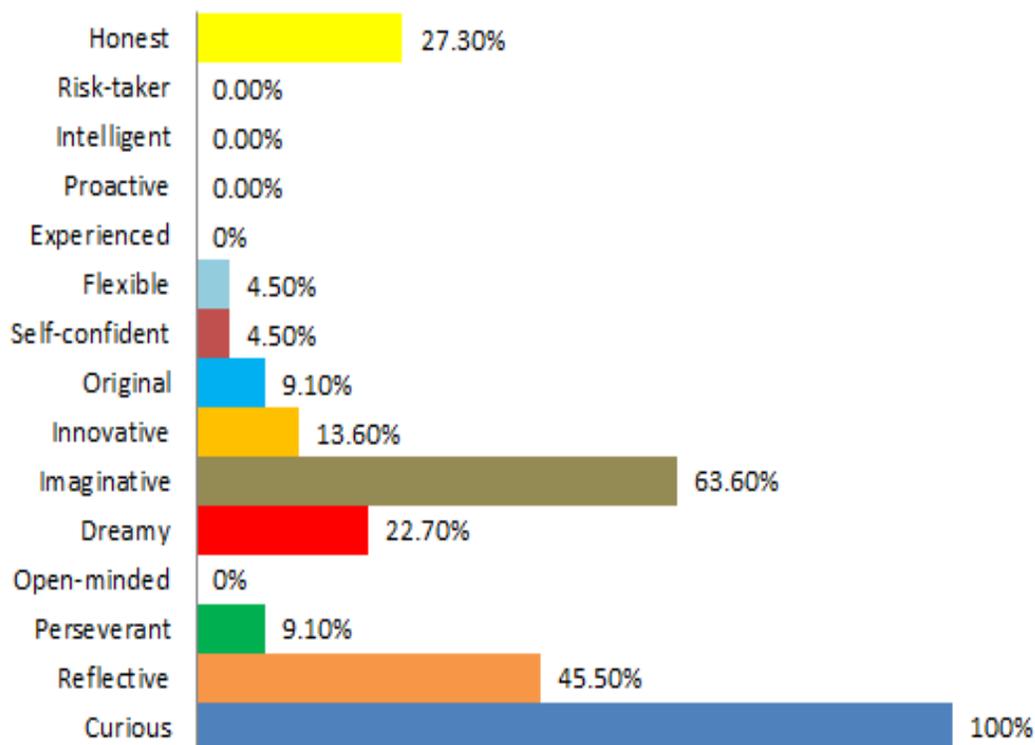
*Figure 2.* Students' general perceptions of the nature of creativity

It is important that the majority of the respondents reported that each person can learn to be creative (20) and that creativity is innate (19). Most participants (20) agree that creativity is not about intelligence. The majority of the respondents (18) said that to be creative is not to be a great artist or a genius. All the students agree that kids are more creative than adults and that creativity is imagination put into practice.

It can be concluded that the responses provided above support the assumption that everyone can learn to be creative; creativity is a potential inscribed in every human being (Davis, 2004; Lehrer, 2012; Adam, 1999).

#### 4.1.4. Characteristics of highly creative people

### What are the most important characteristics of highly creative people ? (Choose only three characteristics)

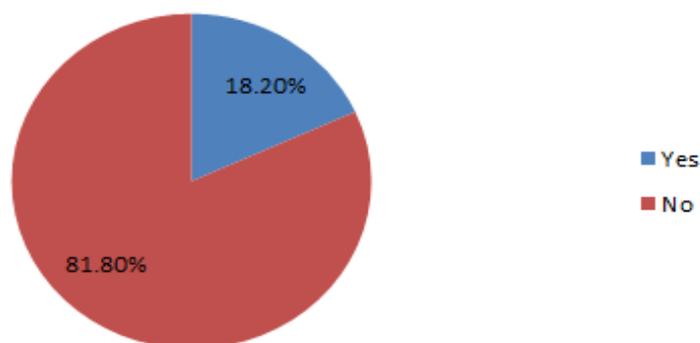


**Figure 3.** The most important characteristics of highly creative people.

Creative individuals share many characteristics. They are curious, perseverant, open-minded, dreamy, wandering, imaginative, innovative, original, quiet, sensitive, energetic, ambitious, flexible, experienced, courageous, proactive, intelligent, connectors, and risk-takers. When asked about the most important characteristics of highly creative people, participants responded that creative individuals are mainly curious (100%), imaginative (63,6%), reflective (45,5%) and honest (27,3%). These findings were consistent with those suggested in the literature on the characteristics of highly creative people in education (Wallas, 1926; Eysenck, 1997; Ryhammar & Brolin, 1999; Dacey & Lennon, 2000; Michalko, 2001, 2006; Cheung, 2014). Cheung (2014) examined preschool teachers' perceptions of creative personality important for fostering creativity. The results showed that the characteristics of being imaginative, curious, reflective and flexible were considered the most representative of a creative teacher.

#### 4.1.5. Barriers to teaching for creativity

**Does the current education promote students' creativity?**



*Figure 4.* Does the current education promote students' creativity?

When participants were asked if the kind of education they engage in promotes their creativity, 81,8% of students answered 'No'. Students identified many barriers that hamper the creative process. These barriers can be summarised as follows:

- Fear of failure
- Overcrowded classroom
- Fear of change
- Fear of ridicule and mistakes
- Lack of freedom
- Lack of self-confidence
- Lack of commitment
- Lack of equipment and materials
- Lack of support and suitable learning environments
- Negative assumptions
- Over Control
- Negative judgment
- Routine
- Social problems

Our experiments are in line with previous findings in the literature (Adam, 1999; Puccio & Cabra, 2010). Additionally, teachers have the potential to stifle opportunities for creativity by being overly didactic or prescriptive, discouraging fantasy or by having low expectations about what students are able to achieve. Other barriers arise from political and economic structures—lack of funding, poor pay for teachers, functionalist summative testing, teacher or school target regimes,

traditional transmission methods of learning, and analogue uses of digital technologies (Tegano, Moran, & Sawyers, 1991; Banaji et al, 2013).

#### 4.1.6. Undergoing creativity training

The participants were asked if they have ever attended any creativity training. Only two students had the chance to undergo creativity training. When students were asked if they are motivated to undergo creativity training, they were all prompted to take part in this kind of training.

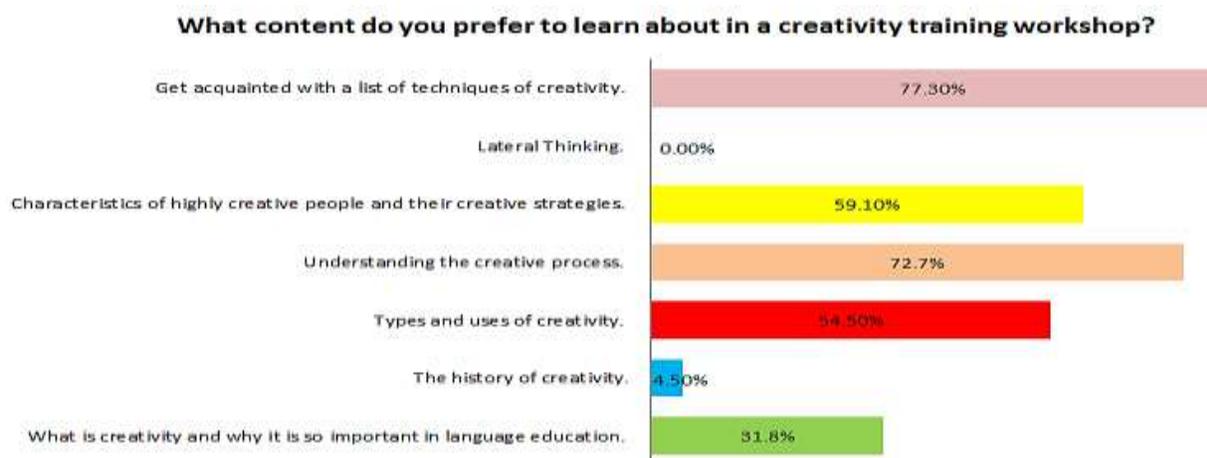
#### 4.1.7. Reasons that make students interested in undergoing creativity training

The respondents highlighted many reasons that motivate them to undergo the creativity training. Such reasons may be summarised as follows:

- Creativity is a path to flourishing. Students have the opportunity to explore a new field of study.
- Develop their creative skills and learn new techniques to be creative.
- Students learn to think differently, look for new, original and appropriate solutions for daily problems.
- Personal development.
- Develop the know-how.
- Bring up new ideas and adapt them to different situations.
- Develop other thinking skills like problem solving and critical thinking.
- Use new and useful methods of thinking.
- Be prepared to deal with unknown future challenges.

#### 4.1.8. The creativity training workshops contents

It is important to note that the majority of students (77, 3%) were motivated to get acquainted with a list of creativity techniques. Furthermore, the respondents preferred to understand how creativity functions (72, 7%) and were also eager to learn about the characteristics of highly creative people (59, 1%) and their creative strategies (see figure 5).



*Figure 5.* What content do you prefer to learn about in a creativity training workshop?

#### **4.2. *The creativity training course***

The creativity training course lasted five weeks and looked at creativity from different angles: history, types and uses of creativity, techniques and playful activities. More emphasis was put on the creativity techniques since students preferred to learn about them (see figure 5). The course used the flipped classroom pedagogy to help students gain first exposure to new materials outside of class, usually via reading or lecture videos, and then class time was used to do the hard work of assimilating that knowledge through strategies such as problem-solving techniques, discussions or debates. To boost students' creativity, the course was impregnated with playful activities, namely brain teasers, critical thinking exercises, figural and verbal tests of creativity (TTCT). To reach the highest level of Bloom's revised taxonomy, learners were asked to use the creativity techniques they learnt about in the course to design their future research projects.

#### **4.3. *Post-training evaluation (questionnaire 2)***

A post-training evaluation questionnaire was addressed to the students to evaluate the extent to which the creativity training course has positively influenced their initial attitudes and perceptions of creativity.

##### **4.3.1. *What impressed or interested the participants during the creativity training***

The students were satisfied with the course content as it is part of their professional and personal life. According to some respondents, the creativity techniques were effective and helpful to unlock their creative potential to generate original ideas. Other students were contented with the different teaching styles and approaches that were used, namely flipped classroom pedagogy. Some students appreciated problem solving techniques since it stimulated their minds and motivated them to work on solving brainteasers. Other participants found the playful activities very interesting as it helped them to think outside the box (divergent thinking). The concatenation of the course contents and richness of information were motivating factors for some students.

##### **4.3.2. *The Most important creative thinking skills developed during the training***

The students who have undergone the creativity training course reported that they have developed a number of creative thinking skills which we can summarise as follows:

- ***Divergent thinking***

A good number of students reported that they became aware of the necessity to generate creative ideas by exploring many possible solutions (in what ways can I ...?). One student stated, "The techniques of creativity such as brainstorming, brainwriting, braindrawing, and SCAMPER are gainful to let us think in different ways about a problem".

- ***Critical thinking skills***

The respondents believed that creative thinking helps also develop critical thinking skills which enable them to analyse and evaluate factual evidence in a rational, sceptical, and an unbiased way. The respondents felt the importance of asking good questions to find solutions to a problem

(Einstein's method of passing 55 minutes thinking about the problem and 5 minutes thinking about solutions).

- ***Idea generation***

The participants had the chance to use the idea generation techniques while asked to design their future research projects. Students worked individually and in groups to come up with a large number of new ideas, and then came the next step to select the best idea which they developed later by using SCAMPER technique. One student revealed that "brainwriting is a good technique to generate ideas individually". Another respondent noted, 'Braindrawing stimulates our imagination and we felt more comfortable when dealing with images rather than texts'.

- ***Time management***

Time management is the process of planning and exercising conscious control over the amount of time spent on specific activities, especially to increase effectiveness, efficiency or productivity. Once done with idea generation, students were asked to plan for their research projects by using mind mapping technique. Students structured their projects to include outputs, process, and timing. One student maintained, "Mind mapping is an excellent technique to structure our research projects".

#### **4.3.3. The attitudes that have been changed after the training:**

A reasonable number of students reported that the creativity training workshops were beneficial as it made them change their vision to the world, namely the way they see things and the way they think about their daily problems. One student reported, "The 'In what ways can I solve the problem' method helped us to look for different perspectives and alternatives for the same problem, and that is the essence of creativity". One student said that the most important attitude which students reinforced in this training was the fact that everyone has a potential to create. Other students pointed out that they changed attitudes towards the way research is conducted. One student noted, "Brainstorming, brainwriting, SCAMPER, and the six thinking hats applied to research process made us generate a great number of ideas which we modified and developed later within team work".

#### **4.3.4. The situations / settings in which students used their newly acquired skills, attitudes and knowledge**

Many students reported that they used the new acquired skills in their daily life. The majority of students felt the necessity to use creativity every day. One student noted that he "used the creativity techniques with his family". This was good sign of transferability. As for students who work as teachers, they said that they started using creativity techniques to nurture their students' creative thinking skills. As far as studies are concerned, a good number of students mentioned that they started using creativity techniques to study differently with more focus on productivity.

#### 4. Conclusion

Creativity is an important human characteristic. It is perhaps best thought of as a process, requiring a mixture of ingredients, including personality traits, abilities and skills. The purpose of the current study was to examine the results of a survey of Master's students' perceptions of creativity. The purpose of the study was to address two main questions:

- What are the students' general perceptions of creativity?
- To what extent does the proposed training in creativity positively affect students' general perceptions and attitudes towards creativity?

Students' initial perceptions of creativity were in line with the previous findings in the literature. The findings reveal that students hold positive attitudes towards creativity in education. More importantly, the study shows that the creativity training workshops have positively affected students' initial perceptions of creativity. The majority of the respondents believed that creativity is a potential inscribed in every human being. Many students reported that they used the new acquired skills in their daily life, at work or while studying. The participants noted also that they changed the way they think, study, and surmount obstacles.

In fact, teaching for creativity can be done simply by avoiding negative beliefs and practices that kill creativity and trying instead to help students establish positive beliefs about their abilities and strengthen their attitudes towards creativity as a life skill. Additionally, providing students with a number of creativity techniques is beneficial to reawaken their creative spirit to start combining in beautiful and useful ways. However, it is to be noted that the proposed creativity training should not be viewed as simply a particular program or the result of applying a fixed set of techniques. Instead, creativity trainings should be subject to revision and extension as we gradually develop a better understanding of creative thought and approaches that might be used to enhance creative thinking.

Numerous countries are now making efforts to infuse teaching curricula and classroom practices with idea generation, problem-based learning, real world inquiry, and innovation. The future of creativity in Morocco is promising. Hopefully, this investigation will lay a foundation for future research in the field of creativity. Educators and policy makers should contribute to design creative curricula that integrate creative and critical thinking skills. Teachers should act as models of creative thinkers to positively influence their students' thinking processes. More efforts should be made to sensitize people to the importance of creativity for social development and well-being.

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