How Can The Observation of the Dynamic Process of Pupils Help Them in their Process?

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Summary

Beghetto and Corazza (2019) proposed to study creativity through a dynamic perspective. But how can one observe and teach a dynamic creative process to pupils? In this paper, we propose to start by observing the creative process of pupils directly during their class to understand what they really do and, then, to use these observations to try to adapt the teaching to pupils.

Keywords-component: Creative process Report Diary (CRD), Pupils, Images, Multivariate factors, Project pedagogy.

I. Introduction and Aims

Since more than twenty years, researchers on creativity have defined it as the ability to produce new and adapted ideas (Lubart, Mouchiroud, Tordjman & Zenasni, 2015; Runco & Jaeger, 2012). But recently, Corazza (2016) proposed to add the term "potential" in the definition: "creativity requires potential originality and effectiveness" (p.262) indicating that it is a dynamic concept. A production can be not creative at time but be creative after.

The "dynamic perspectives on creativity" offers a new way to study creativity (Beghetto & Corazza, 2019). The consequences of this new definition is to rethink all the concepts in the creativity field, as the creative process. What is a dynamic creative process? Based on a literature review of dynamic processes outside and inside the creativity research field, Botella and Lubart (2019) defined the dynamics of the creative process "by its components itself, their organization, their combination, the successive interactions it maintains with the environment, the unfolding nature of a phenomenon over time and its cyclical nature." (p. 272).

But researchers on creativity have still to face two difficulties: (a) how to observe it; and (b) how these observations could help pupils during their process? The aim of the present paper is to propose a tool to observe the dynamic creative process in pupils' class and to discuss the impact of such tool on learners. For that purpose; we will take an example with pupils realizing a project consisting of invention of character from space with modeling clay.

II. The Creative process Report Diary for pupils

Botella, Nelson and Zenasni (2017) proposed a tool to observe the dynamics of the creative process: the Creative process Report Diary (CRD). A CRD can be entirely adapted to the population studied and to the questions of interests of the researchers. Generally, a CRD includes two parts: one on the stages of the creative process; one on the factors involved in this process. But a CRD was mostly conceived for adults. How to adapt it to pupils?

Based on previous published and unpublished studies using CRD in various populations as artists, engineers, students, teachers, etc. (Botella et ., 2017; Glăveanu et al., 2013), we will start in this paper by presenting an adaptation of a CRD allowing the observation of the dynamic of the creative process associated with multivariate factors (cognitive, conative, emotional and environmental factors) for pupils. For that purpose, instead of text describing each of the twenty stages retained or twenty factors, we built images with a professional designer familiar with creative process (see Figure 1).

Figure 1. Example of image adpated for pupils in the CRD

III. Observations: The Space project

We used this CRD pictured and adapted for children with a class of 16 pupils (10 girls, 6 boys; aged from 10 to 11 years old). During their Creative and Manual Activities, pupils had 5 lessons to build a character from space and to write a story on him/her/it with an initial situation, a surprising event and a

changed situation. At each lesson, pupils have to check the stage(s) and factor(s) they used during the lesson.

Among the twenty stages presented in the CRD, results indicated that many pupils checked stages of documentation (81%), constraints (81%), insight (81%), inspiration (69%) experimentation (63%) and definition of the problem (56%) during the first lesson whereas at the last lesson, pupils reported more associative thinking (88%), insight (81%), realization (81%) questioning about the project (69%), verification of their ideas (63%), and judgement (56%). Examining especially the transitions between the stages, results indicated that the most frequents transitions were from definition, questioning, and documentation to realization, and from inspiration to benefiting from chance.

Finally, with a correspondence analysis crossing stages and factors, we examined which multivariate factors are the most important for each stage revealing a multivariate profile for each stage. Results indicated a high involvement of fear, doubts and surprise in the selection stage, and intuition and perseverance in the definition stage.

Such results showed that creative process is dynamic: pupils did not engage the same stages at each lesson, many ways and transitions between the stages are possible, and each stage is associated with specific multivariate factors. It is obvious and very important to allow teachers to understand the implications of such dynamics.

IV. Teaching of the Creative Process

Based on these observations, we will now propose some ways of how to help pupils in their creative process. The first aspect concerns the development of pupils' creative process supported by professional gestures of expert teachers. In fact, we observed that the expert teachers introduce references (photos, books...) to encourage the search for creative ideas in lesson 1, and in lesson 5, the children evaluated their creative ideas in relation to their own production. The evaluation of ideas is carried out individually and collectively. Indeed, the expert teachers use the collective explanation of knowledge which makes it possible to move from "doing" to raising awareness of the different knowledge mobilized by students. This contributes to learning for students. We observe also that the multivariate profile of the stages indicates that the selection is associated with fear and that children feel doubts and surprise. In this study, we noted the need to introduce a real change in teaching practices that does not sufficiently take into account the relationship between emotions and learning. Many studies had already examined the role of emotions on creativity (see David, 2009 for a meta-analysis) and the climate is also important to not induce emotions inhibiting the learning (Govaerts & Grégoire, 2014). This research therefore could participate to modify the representation of this articulation between emotion and learning.

The second point focuses on the introduction of the CRD as a pedagogical tools to foster the creativity in classrooms. Observations of the dynamic creative process of pupils offer now a way to teach creativity centered on the promotion and encouragement of learners' creative identity (Gibson, 2010). In fact, the CRD trains the learners to identify their own creative skills, sensitivity and their strategy of solving problem during a creative task. It also helps the learners to understand the implementation and development of creative skills in practical situations (Craft et al., 2011). Using creative teaching supported with the CRD encourages learners to make decisions about which type of knowledge to investigate and how to investigate it when faced with complex tasks. It prompts learners to question and evaluate their own learning process when solving complex tasks, and to apply their knowledge to new and unknown situations (Jeffrey & Craft, 2004). The introduction of the CRD with a creative teaching focuses the attention of the teacher and learners to allow sufficient time for creative thinking, to develop relevant creative ideas, thoughts and products.

The observation of the dynamic creative process of pupils offers new perspectives for teaching because it: encourages risk-taking, allows for errors, fosters the imagination from a variety of perspectives, and promotes the formulation of hypotheses. In fact, the use of CRD introduced with a teaching for creativity (Lucas, 2001) improves creativity-supportive practices in the classroom, which includes: 1) explicitly teaching for creative thinking, 2) providing opportunities for choice and discovery, 3) establishing a creativity-supportive learning environment, and 4) providing opportunities for students to use their imagination while learning (Beghetto & Kaufman, 2014). Understanding the creative process of learners based on the CRD helps - to foster creativity in school and to develop other cross-cutting abilities, such as the reflective approach, creative thinking, problem solving, cooperation, learning strategies, anticipation, and decision making (Miller & Dumford, 2014).

V. Discussion

As every study realized in real learning context, some questions appear. In first, we can ask if the presentation of the check-boxes stages in the CRD might prompt children either to check boxes for stages/factors that they, in actuality, have not incorporated into their process or they might decide to incorporate these stages (to alter their initial, intuitive approach to the creativity challenge) because they have been suggested by the images/check-boxes. Because it is already difficult for adults to verbalize the stages/factors of their creative process (Glăveanu et al., 2013), we decide to make an inventory of all previous studies we had realized to have a complete panel of stages and factors. But it is still a limitation that children can check a box only because it appears in the list.

In second, we can ask if interview of pupils will help to make an inventory of stages/factors. It could be a path for futures researches. However, it is important to notice that pupils are in class, doing their own production for their Creative and Manual Activities. The goal of the CRD is to preserve an ecological validity, minimising the importance of the researcher in the learning context.

The present paper is a preliminary work on how to improve the teaching based on observations of the creative process of pupils. It will be then important to take into account the individual differences between teachers and their approach.

References

Beghetto, R. A., & Corazza, G. E. (Eds.) (2019). *Dynamic perspectives on creativity: New directions for theory, research, and practice in education.* Springer.

Beghetto, R. A., & Kaufman, J. C. (2014*). Classroom contexts for creativity. High Ability Studies, 25*(1), 53-69.

Botella, M., & Lubart, T. I. (2019). From dynamic processes to a dynamic creative process. In R. Beghetto & G. Corazza (Eds.), *Dynamic Perspectives on Creativity: New Directions for Theory, Research, and Practice in Education* (pp. 261-278). Springer.

Botella, M., Nelson, J., & Zenasni, F. (2017). It is Time to Observe the Creative Process: How to use a Creative process Report Diary (CRD). *Journal of Creative Behavior*. DOI: 10.1002/jocb.172

Craft, A., Jeffrey, B., & Leibling, M. (Eds.) (2001). *Creativity in education.* London, New York: Continuum.

Corazza, G. E. (2016). Potential Originality and Effectiveness: The Dynamic Definition of Creativity. *Creativity Research Journal, 28*(3), 258–267. http://doi.org/10.1080/10400419.2016.1195627

Davis, M. A. (2009). Understanding the relationship between mood and creativity: A meta-analysis. *Organizational Behavior and Human Decision Processes*, *108*, 25-38.

Jeffrey, B., & Craft, A. (2004). Teaching creatively and teaching for creativity: Distinctions and relationships. *Educational Studies, 30*(1), 77-87.

Gibson, R. (2010). The 'art' of creative teaching: Implications for higher education. *Teaching in Higher Education, 15*(5), 607-613. doi:10.1080/13562517.2010.493349

Glaveanu, V. P., Lubart, T., Bonnardel, N., Botella, M., De Biasi, P.-M., De Sainte Catherine, M., Guillou, K., Kurtag, G., Mouchiroud, G., Storme, M., Wojtczuk, A., & Zenasni, F. (2013). Creativity as Action: Findings from Five Creative Domains. *Frontiers in Educational Psychology*, 4, 1-14. DOI: 10.3389/fpsyg.2013.00176

Govaerts, S., & Grégoire, J. (2014). Motivation et émotions dans l'apprentissage scolaire. In B. Galand & E. Bourgeois (Eds.), *(Se) motiver à apprendre* (pp. 97-106). Paris: Presses Universitaires de France.Lucas, B. (2001). Creative teaching, teaching creativity and creative learning. In A. Craft, B. Jeffrey, & M. Leibling (Eds.), *Creativity in education* (pp. 35-44). New York: Continuum.

Lubart, T. I., Mouchiroud, C., Tordjman, S. & Zenasni, F. (2015). *Psychologie de la créativité [Psychology of creativity] (2nd edition).* Paris: Armand Collin.

Miller A., & Dumford, A. (2014). Creative cognitive processes in higher education. *Journal of Creative Behavior, 50*(4), 282-293.

Runco, M. A., & Jaeger, G. J. (2012). The Standard Definition of Creativity. *Creativity Research Journal, 24*(1), 92–96. http://doi.org/10.1080/10400419.2012.650092