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It Is Time to Observe the Creative Process: How to Use a Creative Process Report Diary (CRD)

ABSTRACT

Although the first research on the creative process was based on interviews with the aim of identifying the main stages (macro-process), in the last 50 years researchers have focused more on the analysis of micro-processes, i.e., the mechanisms underlying the generation of ideas. This interest in the micro-processes is partly a result of the tools available to researchers to carry out rigorous studies on the creative process. In this article, we present a useful and relevant analytical tool for macro-processes to assess the creative process in a natural context and when it occurs. Here, the reader will find advice on establishing a research protocol for the creative process by using diaries. Examples of diaries and results are presented. The advantage of this tool is that it enables a direct, rich, and inexpensive assessment of the creative process. Thus, the ecological validity of the diary method is particularly high.

Keywords: creative process, diary, self-report, ecological validity, factors.

The objective of the present article is to provide researchers in creativity with a methodological framework and suggestions for how to put in place a direct and complete observation of the creative process. A direct evaluation overcomes the limitations of the interview method, in which the participants reconstruct their process retrospectively; a complete evaluation based on both a description of the process stages and the associated characteristics overcomes the limitations of divergent thinking tests. The methodology, the tools and the evaluations must be as close as possible to the real situation in which the participants usually develop, i.e., in the context in which the knowledge and skills assessed are practiced and/or acquired, to ensure a good ecological validity.

THE CREATIVE PROCESS

The creative process is defined as “a succession of thoughts and actions that leads to original and adapted creations” (Lubart, Mouchiroud, Tordjman, & Zenasni, 2003, p. 85). It is often described by two levels: the *macro* level, which refers to the major stages of the process, and the *micro* level, which describes the mechanisms underlying the generation of ideas. Thus, the models considering the whole process, from beginning to end, are macro-processes while cognitive functioning, or a mechanism of processing specific information, designates a micro-process.

The first macro-model of the creative process was proposed by Poincaré (1908) based on the self-analysis of his own scientific activity, particularly his “mathematical inventions”. He described the creative process in four phases, which he named conscious work, unconscious work, illumination, and verification. Wallas (1926), based on an analysis of the literature, also proposed a creative process model in four stages named preparation, incubation, illumination, and verification. Since then, authors have failed to agree on the number of stages in the process or their sequence (Amabile, 1988; Busse & Mansfield, 1980; Carson, 1999; Doyle, 1998; Goswami, 1996; Lubart, 2001; Ochse, 1990; Osborn, 1953; Runco & Dow, 1999; Treffinger, 1995). Depending on the study, process macro-models contain between three and nine stages. These differences are more the result of differences in the populations studied and in the creative fields than in the methodologies. Artists, scientists, designers, musicians, scriptwriters, etc., do not all use the same creative process (Botella & Lubart, 2015; Glaveanu et al., 2013). Moreover, the level of fine detail of the stages is not the same for each model. This absence of consensus for a model could, in part, lead to a lack of interest in this level of description. Finally, the historic model of Wallas remains the best known description for researchers

in creativity because it represents the lowest common denominator, i.e., the most consensual and the most generic model used systematically, regardless of the creative field considered. This Wallas model was recently discussed by Cropley and Cropley (2012). They examined how this model may explain both creative and innovative processes. In this perspective, they reiterated that the macro-process described by Wallas (1926) was first divided into seven stages: preparation, activation, generation, illumination, verification, communication, and validation. Based on this, they propose a social/psychological phase model of innovation where for each creative/innovative phase they indicate potentials, functional, personal, emotional, motivational, and contextual factors that may promote each stage. For example, they suggest that preparation, illumination, verification, and validation stages should be supported by convergent thinking whereas activation and generation stages should be supported by divergent thinking. Based on this model, Cropley, Cropley, Chiera, and Kaufman (2013) developed and tested the Innovation Phase Assessment Inventory (IPA) that focuses of the 42 nodes, i.e., the combination between the seven process phases and six important dimensions (process, personal motivation, personal properties, personal feelings, product, and the press). Both the model and the inventory present the advantage to articulate the macro- and the micro-processes approach of the creative process.

This approach of the creative process, by micro-processes, examines the cognitive mechanisms of the process. The two most studied micro-processes are divergent thinking and associative thinking (Martindale, 1981, 1999; Mumford & Porter, 1999; Runco, 1991, 1999; Simonton, 1980, 1990, 1999). Divergent thinking is the capacity to produce many different ideas (Runco, 1991) while associative thinking is the capacity to make links between different ideas (Simonton, 1999). These two micro-processes are indispensable for creativity. This interest in micro-processes has no doubt been favored by the development of the notion of divergent thinking as an intellectual process (Guildford, 1950) and by the measures constructed by Torrance (1962) to assess these aspects of the process.

Although these two levels of description (macro and micro) have been studied independently in the literature, they are in fact complementary in understanding the complexity of the creative process. Due to their specificity, the micro-processes only correspond to a restricted time in the creative process while the macro-models sometimes do not describe the stages of the process. In fact, the micro-process approach focuses on the study of mechanisms (mainly cognitive) that are not directly observable or accessible to conscious thought. They are latent processes whose existence is confirmed by the study of behaviors and performances. In contrast, the macro-process approach requires the creator to be aware of the stages, to be able to access them by thinking and, following the example of Poincaré, to describe them more or less spontaneously. Several authors have provided more details of the macro-creative process by including knowledge and motivation (Runco & Dow, 1999), personality traits and emotional processes (Russ, 1999) or affects (Shaw, 1989, 1994).

A RELEVANT TOOL TO EVALUATE THE CREATIVE PROCESS: THE DIARY

In any case, determining the stages of creative processes requires a tool that can identify them quite accurately, while respecting their sequence as far as possible. This tool must be able to ascertain the number of relevant and significant stages, their sequence, and their interactions and it must also allow factors to be added that describe the creative process more finely (such as knowledge, motivation, personality traits, and emotions).

To date, studies on the macro-process have been limited by the methodology used: the analysis of accounts and interviews (Botella et al., 2013; Doyle, 1998; Mace & Ward, 2002) or case studies (Wallas, 1926). Yet, during interviews, the subjects reconstruct their creative actions in reverse, i.e., they describe the route they took to arrive at a production but they do not talk about the routes they took without success and the crossroads they encountered. Wallas (1926) noted, however, that during the process of creative resolution, it is possible to return to the first phases. Thus, if an idea reveals imperfections at the time of verification, another idea might hatch in order to resolve this problem. The interview method restricts the modeling of the dynamism of the creative process. Yet, this dynamism (feedback and overlap between the stages) is essential to creativity. Vinacke (1952) thought that the ability to pass from one stage to another of the creative process facilitates access to cognitive and affective processes. In addition, Krashen (1984) observed that the best writers do not just follow a linear approach but proceed with many feedbacks to earlier stages. It therefore seems important to provide researchers with a direct method of measuring the creative process while it is occurring. Finally, as noted by Leplat and Hoc (1981), "Since subsequent verbalization bears on a past activity, it necessarily involves the subject's memory. Recall is not passive: it is

a reconstruction that is more or less reliable” (p. 744). To counter this limitation, some authors have advocated the use of simultaneous verbal reports, i.e., where subjects produce verbal reports on their work activity as it is unfolding (Ericsson & Simon, 1980). Yet, such methods raise various issues, such as distortions of the activity induced by simultaneous verbalizations or omissions of facts due to temporal pressure (Mollo & Falzon, 2004).

Hence, a preferable alternative may be to elicit verbal reports consecutive to the activity itself, by relying on external artifacts to support reflective activities. Most often, the artifacts that are used in this way are either audiovisual recordings of past behavior, or objects produced by the work activity itself (Cahour & Licoppe, 2010). This approach makes it possible to increase the reliability of the data collected through verbal reports, as it avoids distortions related to the analyst’s subjective interpretations of the situation or inaccurate reports on the part of the worker; but it also improves the effectiveness of the reflective activity (Mollo & Falzon, 2004). Indeed, when workers are temporally and physically removed from the environment of the task, they can concentrate on analyzing their own past activity.

This is particularly interesting in the study of creative activities, as these typically lead to the creation of many traces (e.g., Vinck, 2011). These might include the objects produced at the end of a creative process—e.g., a novel, a work of art, a product, etc.—but also those produced during that process—e.g., sketches, drafts, or mockups. Creative workers routinely make use of such artifacts to guide their creative process as it is unfolding (e.g., Purcell & Gero, 1998; Suwa & Tversky, 1997). But from the point of view exposed above, they could be used to structure reflective activities on past creative work.

- Whereas simultaneous verbal reports run the risk of distorting the structure of the creative activity and underlying process, autoconfrontation methods make it possible to mitigate this risk.
- Whereas using the end product of the creative work as a trace to elicit verbalizations may cause the creative workers to focus only on the route leading to that product, using its intermediary products is likely to lead to a more valid description of the creative process.

INCREASING ECOLOGICAL VALIDITY

Developing a direct method of evaluating the creative process involves adopting an “ecological approach”, which corresponds to a field study. The notion of ecological validity is not new (Brunswick, 1947). The objective is to avoid, as far as possible, placing the individual in “artificial” conditions (Brewer, 2000). Research in the field is distinguished from research in the laboratory by the exploration of natural situations that, by definition, are not designed for research and that represent complex situations (Richelle, 1982). It enables phenomena to be observed and evaluated in the natural environment where they occur.

In the framework of studies on memory, Bronfenbrenner (1991) showed that works in the laboratory could lead to different results from those in a natural situation. In another context, Niedenthal, Krauth-Gruber and Ric (2006, 2008) underlined the importance of research on natural emotions as they correspond to what the experimenter tries to reproduce in the laboratory. Moreover, emotional states, which are related to a short and intense emotional reaction in response to a stimulus (Ekman & Davidson, 1994; Frijda, 1986; Luminet, 2002; Scherer, 2000), are difficult to remember accurately when they were felt a long time ago. Memories change our perception of earlier emotions.

In the creativity domain, field studies about the creative process have mostly been developed in the area of scientific creativity (Dunbar, 1995, 2001; Giere, 1988; Nersessian, Kurz-Milcke, Newstetter, & Davies, 2003). These works are largely based on the direct observation of behaviors associated with the creative process (Klahr & Simon, 1999). Leclerc (2005) highlighted that direct observations of the creative process enable: (a) the ecological validity of the results to be improved, (b) the observation of the process in its natural environment, (c) a longer period of work than is possible in laboratory studies, (d) the completion of interpretations expressed by other approaches (qualitative for example), (e) the examination of environmental, social, and motivational factors surrounding the phenomenon, and (f) the discovery of other factors potentially associated with the creative process.

Many years ago, Patrick (1935, 1937, 1938) proposed a solution to the direct observation of the creative process. With the aim of validating the model of Wallas, Patrick implemented a methodology based on diaries that the participants regularly filled in. A similar method using repeated measures was used by Feist (1994). Although rarely found in research on creativity, the diary method is more common in the field of emotions as it ensures a good ecological validity. Thus, the methodology, the tools, and the evaluations tend

to be better adapted to the real and customary situation of the participants and not the reverse. This ecological approach has the advantage of respecting the context in which the creative activities are practiced.

DESCRIPTION OF THE CREATIVE PROCESS REPORT DIARY (CRD)

In order to analyze the creative process(es) while respecting a certain ecological validity, we propose the use of a Creative process Report Diary (CRD). There is not just one type of CRD but several as it represents, above all, a research method of repeated measures rather than a tool. In this section, readers will find examples of CRDs already tested in the field, which they can use as they stand, as well as suggestions (see Appendix A) and recommendations for building their own CRD adapted to their research conditions.

The CRD is divided into two parts: the first covers the stages of the creative process and the second deals with the factors that the researcher wishes to include in order to provide more details on the creative process (knowledge, motivation, personality traits, emotions, etc.). In the first part, a list of the stages of the creative process, including a generic term (“preparation,” “insight,” “implementation”) and a sentence or a group of terms to explain the stage (“I collect information or I think about the subject”), is presented to the participant. He/she must then tick whether he/she has done each of these stages or not at a given time. Thus, one or several stages may be ticked at each time. Although we have chosen to use a binary scale for this first part, a Likert scale could also be envisaged. It would have the advantage of being richer in information but the drawback of being more costly for the participants, who would have to assess to what extent they had carried out each stage. The other problem would be that the participants would have to have a greater ability for self-analysis to decide how far they had progressed in a stage. For all these reasons, we recommend using a Likert scale only if there is a small number of stages (less than 5).

In the second part of the CRP, the researcher can measure the factors that he/she wishes to associate with the creative process, such as emotional states (Appendix A, Botella, Zenasni, & Lubart, 2011a,b) or multivariate factors (cognitive, conative, emotional, and social; Appendix B, Botella et al., 2013; Glaveanu et al., 2013). These factors are assessed on a Likert scale or a Visual Analogical Scale at each time. As the principle of the CRD relies on the repetition of measures, it is essential that the participants are clearly involved in the research and that the cost is as low as possible. We recommend no more than 15 stages of the process and 20 factors.

HOW TO BUILD YOUR CRD

The CRD can be built in a top-down or a bottom-up way. With the top-down method, we have built a CRD based on a review of the literature to determine the stages of the creative process (Appendix A). This method of construction has the advantage of being quick but the drawback of not being totally adapted to the population studied. Thus, the bottom-up method of building the CRD consists of carrying out preliminary interviews with the participants in order to identify the stages of the creative process (Appendix B). We recommend relatively short interviews, focused on the objective of constructing the material. These interviews enable the participants’ own words to be used in the CRD (Botella, et al., 2013). Although more costly, the bottom-up method has the advantage of being perfectly adapted to the population studied. If the researcher wishes to compare several creative fields (art and science, for example), the stages can be constructed with both artists and scientists.

PRACTICAL ASPECTS OF THE CRD

From a practical point of view, the CRD is presented in A5-format notebooks, like school exercise books. Each part (stages and factors) has its own page. The last page is devoted to sociodemographic characteristics and supplementary questions (ease of completing the diary, involvement in the research, self-assessment of the creativity of the work, etc.). The studies that we have carried out with the CRD suggest that it is preferable for the subjects to have an entirely free part, which resembles a diary, in which they can note anything they wish on the progress of their project. This free part reduces the probability of the standardized part (stages and factors) producing a feeling of frustration. A content analysis may then be carried out on this open part if the participants are very involved in the research.

PARTICIPANTS FOR A STUDY WITH THE CRD

As the objective of an ecological approach is to take the research out into the field, the ideal would be that experts in their area fill in the CRD. However, this population presents numerous limitations, particularly in terms of acceptance, generalization and inter-individual comparability. Questioning recognized

creators runs the risk of only carrying out a case study. Yet, the interest of the CRD is that it favors inter-individual, inter-group, and inter-task comparisons.

Students in creative fields as art, science, or music, thus seem to be a good compromise. The students are contacted directly in their place of learning (school of art, engineering, design, music academy, etc.) and the research is adapted to their lessons. As their training involves developing creative projects, the research can be integrated into one or several of these projects. The task instructions are thus given directly by the school. The experimenter does not intervene in the choice of the task in order to respect an ecological approach and the real conditions of the students. All the works are carried out in the framework of the students' curriculum, fulfilling the two essential criteria of the definition of creativity: originality and adaptation (Amabile, 1983, 1996; Lubart et al., 2003; Runco & Jaeger, 2012). The originality is represented by a product that has never been made before, while the adaptation is the response to the requirements of the individual's situation; here, the instructions given by the school.

PRECAUTIONS FOR DESIGNING A CRD STUDY

The researcher intervenes as little as possible in the situation and the participants fill in the CRD themselves. At each evaluation, the participants are instructed to tick the stage(s) that they have carried out since the last evaluation as well as the factors that have come into play. There are different ways of collecting data outside the laboratory. Studies on natural emotions envisage three methods (Barrett & Barrett, 2001; Christensen, Feldman Barrett, Bliss-Moreau, Lebo, & Kashub, 2003): (a) answers at contingent intervals, in which the participant fills the questionnaire at regular times throughout the day, (b) answers contingent to events, in which the participants fill in the questionnaire as soon as a specific event occurs, or (c) the participant fills in the questionnaire when he/she receives a signal. In the latter case, the signal may come from a beeper, a laptop, or a watch that the experimenter has previously programmed.

Working with classes of students in the framework of their curriculum, we have mainly used answers at contingent intervals. Although they work individually, the students are often all in the same room. Evaluations programmed by a sound signal could disrupt the progress of the lesson and thus reduce the ecological validity. The students are present in the school during their lesson times and must generally work in these periods. By using answers at contingent intervals, several evaluations can be carried out during their working time. The presence of a researcher is important to remind the students when to fill in the CRD. Although the participants are involved in the research, they are in the process of creating and the researcher must therefore be present to interrupt them and ask them to answer the CRD. The method of contingent answers reduces the comparability but it is preferable if the researcher wishes to carry out a case study.

The difficulty in implementing the procedure is determining the number of evaluations. This means finding the right balance between the quantity of information collected and the cost for the participants. Nevertheless, in order to ensure a detailed analysis of the creative process, about ten measures are needed. Imagine, for example, a class of students who have to work on a creative project for 12 weeks during one lesson each week (Botella & Lubart, 2015). It is convenient to ask the students to complete the CRD at the end of each session to indicate what they have done during the session. Thus, the researcher will collect 12 repeated measures. In another example, the students have 5 whole days to do a project (Botella et al., 2011a,b). The students could fill the CRD 3 times per day (at the end of the morning, in the middle of the afternoon and at the end of the afternoon). We advise researchers not to carry out more than 5 measures per day at the risk of disrupting the students in their work. Thus, the task should be spread over at least 2 days. As the participants are assessing themselves several times during their project on the same stages and the same factors, they do not need very long to answer the CRD. Thus, the cost of participation in the research is low. Nevertheless, this cost may rise if the participant becomes involved in the free part.

ANALYZING THE CRD ANALYZED

The principle of the CRD, based on self-observation of the creative process and repeated measures, provides very rich data, mainly analyzed qualitatively. The free part can be studied by content analyses or graphical analyses depending on the type of data collected, while the standardized parts can be used for inter-individual comparisons (to extract a general model of the creative process) or intra-individual comparisons (to describe the specific functioning of an individual through several tasks). The variations in stages of the creative process and factors over time can be assessed by ANOVA, for example. It is also possible to find out which stage or factor is the most important at each evaluation.

TABLE 1. Example of a transition table

	Immersion	Thinking	Search	Inspiration	...	Total
Immersion	30	28	14	30	...	351
Thinking	25	26	13	26	...	331
Search	14	12	11	16	...	188
Inspiration	29	27	14	32	...	368
...
Total	278	275	144	306	...	

Note. Independently of the time of evaluation, this table presents the frequencies between the stages, i.e., the number of times that one stage led to another.

We particularly recommend the construction of a transition table for the creative process in which the number of times that one stage led to another stage is counted (see the example in Table 1). In this example, when the Thinking stage is ticked at time t_0 , the Immersion stage is ticked 25 times at time $t + 1$. The diagonal is rather uninformative as it corresponds to ticking the same stage again at the following evaluation. To find out whether one stage requires more time than another, it is more interesting to calculate the number of successive evaluations of each stage than to examine the diagonal of the transition table. This table can be constructed for each individual in order to describe their individual process (sum of the transitions between all the evaluations) or for the whole group in order to extract a general functioning of the creative process (sum of the transitions between all the evaluations for all the subjects). A correspondence analysis on this table will then reveal which transitions are the most frequent.

Depending on the type of scale chosen to measure the factors, the researchers can carry out a correlational analysis to determine which factor(s) is(are) linked to which stage. This analysis reveals a profile of the factors measured for each stage of the creative process. Lastly, based on the analysis of the transition table and the correlational analysis, the creative process may be represented graphically (see Figure 1 for an example).

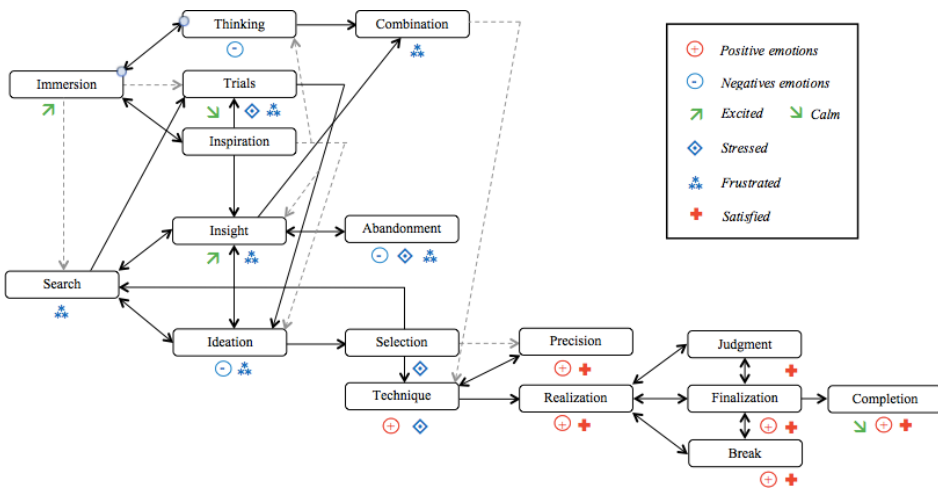


FIGURE 1. Example of the graphical representation of the artistic creative process evaluated using diaries (Botella et al., 2011b). Note. The solid arrows indicate the most frequent transitions between the stages while the dashed arrows indicate the rather less frequent transitions. The weakest transitions are not represented. [Color figure can be viewed at wileyonlinelibrary.com]

CONCLUSION

Considering the lack of consensus about the macro-models of the creative process, partly due to the retrospective method of interviews, and the too great specificity of micro-processes, which thus conceal the great complexity of the creative process, it seems essential to provide researchers with a direct and complete method of observing the creative process. Throughout this article, readers have found advice about the choice of the population to study, the way to build their own CRD adapted to their research context and suggestions for analyzing the data collected by this qualitative method.

The difficulties in implementing such a protocol and the traps to avoid have been highlighted. Hoc and Darses (2008) point out that the ecological approach has several problems such as individual variability and the size of the sample tested. In addition, it is not possible to control the variables influencing a natural situation. The question thus arises of the legitimacy of comparing subjects between themselves (Lewedag, Oller, & Lynch, 1994; Lewis & Gregory, 1987), of the representativeness of the participants and of the method used (Hoc & Darses, 2008). In order to overcome the limitations of the size of the samples and the specificity of the tasks, several groups of students can be tested or the same sample can be monitored during several tasks. The implicit theories of the participants may also influence their evaluations. Despite this limitation, the interview method is a first way to verify the involvement of factors of interest in the creative process. A second way is the CRD itself as the participants cannot recount all the complexity of their process as presented in Figure 1 by only looking at their previous answers.

Although precautions must be taken when using this CRD method, it seems promising and suitable for observing the creative process in a natural situation, especially while it is happening. Moreover, students often work with diaries in schools. Later, some artists keep a studio notebook and scientists have research notebooks; in other words, the diary is a familiar tool for most of the creative populations studied. The CRD method also limits the problem of interviews in which the subjects reconstruct their process retrospectively, embellishing the simplicity of their approach. Inter-individual and intra-individual comparisons are facilitated by this method. As already initiated by Cropley and Cropley (2012) and Cropley et al. (2013), we therefore suggest that researchers working on creativity, and particularly on the creative process, combine the macro and micro levels of description to take into account the complexity of the creative process, including some multivariate factors. It is also possible to combine this method with more classic ones, such as questionnaires and evaluating the creative production, to examine, for example, whether the creative process differs according to personality or the performance of the task. This article gives the reader advice on how to put in place a rich and rigorous research protocol. So, it is time to observe the creative process.

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APPENDIX A

EXAMPLE OF A DIARY CONSTRUCTED ON THE BASIS OF THE LITERATURE (BOTELLA ET AL., 2011A,B)

PART 1: STAGES OF THE CREATIVE PROCESS

How have you approached this project since the last evaluation? *Tick the suggestion(s) that correspond to what you have done.*

Note that you may have carried out none or several of these stages.

-
- Preparation = *I collect information or I think about the subject*
- Concentration = *I concentrate on the work to be done*
- Incubation = *I leave my ideas to link with each other on their own*
- Ideation = *I think about new ideas*

- Illumination = *Suddenly, I know what I'm going to do*
 - Verification = *I check whether my ideas are achievable*
 - Planning = *I plan my work*
 - Production = *I carry out/compose my ideas*
 - Validation = *I check whether my work is finished*
-

PART 2: EMOTIONAL FACTORS

Instructions: Describe your **average** emotional state since the last evaluation. *Place a line depending on the intensity of your emotion(s).*

*Note that your emotion(s) may be positive **and/or** negative.*

weakly positive	strongly positive
weakly negative	strongly negative
very calm	very excited

APPENDIX B

EXAMPLE OF A DIARY CONSTRUCTED ON THE BASIS OF INTERVIEWS WITH EXPERTS (BOTELLA ET AL., 2013; GLAVEANU ET AL., 2013)¹

PART 1: STAGES OF THE CREATIVE PROCESS

What have you done during the period of work that has just passed? *Tick the suggestion(s) that correspond to what you have done.*

Note that you may have carried out none, one, or several of these activities.

Stage	Description
Definition of the problem	To focus, to explore the theme, the aims, need to create, need to express, challenge
Thinking	To ask, to interact with the work, understand
Documentation	To capture and search for information, to be attentive, to always have the project in mind, to store information, to accumulate, to be impregnated, receptive, available, to observe, to show sensitivity and awareness
Consideration of the constraints	To define constraints, to identify a customer's request, to set constraints for oneself and define one's rules and freedom
Insight	To have an idea, to experience the emergence, the sudden appearance of an idea
Association, associative thinking	Resonance, to play with forms, materials and significations, imagination, daydream, analogy
Experimentation, divergent thinking	To try, modify, manipulate, and test
Assessment	To be self-critical, to stand back, to analyze, reflect, check the quality of a result
Convergent thinking, structuring	To crystallize, to make a prototype, to visualize and structure, to establish order, sequences, to control and organize
Benefit of chance	The luck of the environment, random processes, to be open to chance, to take a walk, to accept accidents and chaos
Implementation	To transpose, make, illustrate, produce, compose, give shape, apply
Finalization, ending	To edit, develop, complete, justify, explain one's work, exhibit
Break	To rest, to digest an idea, to let time pass, to do something else

¹ Please note that these interviews were not conducted especially to construct the diaries.

PART 2: MULTIVARIATE FACTORS (COGNITIVE, CONATIVE, EMOTIONAL, AND ENVIRONMENTAL)

Concerning the period of work that has just passed, answer the following questions on a scale of 1 to 5 (where 1 = not at all/5 = absolutely).

<i>Have you demonstrated...?</i>					
Perseverance	1	2	3	4	5
Discipline/rigor	1	2	3	4	5
Patience	1	2	3	4	5
Perfectionism	1	2	3	4	5
Hard work	1	2	3	4	5
<i>Have you...?</i>					
Dealt with uncertainty	1	2	3	4	5
Adopted a positive attitude	1	2	3	4	5
Shown openness	1	2	3	4	5
Followed your intuition	1	2	3	4	5
Dared/taken risks	1	2	3	4	5
<i>Have you...?</i>					
Discussed with other people	1	2	3	4	5
Sought an outside opinion	1	2	3	4	5
Communicated your ideas	1	2	3	4	5
Convinced other people	1	2	3	4	5
Worked in a team	1	2	3	4	5
<i>Have you felt...?</i>					
Satisfaction/pleasure	1	2	3	4	5
Surprise/astonishment	1	2	3	4	5
Doubts/stress	1	2	3	4	5
Frustration	1	2	3	4	5
Disappointment	1	2	3	4	5
