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Observe and explore: empirical studies about learning in creative writing and the visual arts

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Chapter 6

DISCUSSION AN ESSAY

If we want to enhance creativity in the artistic production by students, we should focus on both creative processes and creative products. We assume that process learning, results in more creative products. We aimed at designing and testing an intervention which stimulates creative processes: observational learning. In two experiments (chapter 3 and 4) we have demonstrated a gain in creative performance for visual arts. We also demonstrated some changes in the creative processes of the students for both visual arts (experiment 1 and 2) and for poetry writing (experiment 1). In chapter 2 of this thesis we described students' poetry writing processes. It would have been preferable to carry out a similar study on processes in visual arts production, but only small scale informal studies were done. As a consequence, not so much has been said about processes in visual art production, the relationship between students' processes and the creativity of their products, the relationship between processes in the observational learning videos and process learning, or the effect of the intervention on the process-product relationship. In chapter 4 we reported that the correlations between process and product creativity were different from what we expected. Therefore, we would like to elaborate on this issue in this chapter. Furthermore, we wish to link our experiments to current developments in art education theory and practice, as the theoretical frameworks used in the previous chapters discussed creativity theory in general, modelling and example learning. We think this is an appropriate place to discuss the possibilities, chances and challenges for observational learning in educational practice.

1. PROCESSES AND PRODUCTS

So far not much has been said about students' creative processes in visual arts. The second chapter of this thesis deals with student processes in poetry writing, but what about student processes in visual arts? In the preparation of the observational learning videos for experiment 1 and 2 and during the experiments we observed students at work, and in doing so observed differences in processes between students, albeit in informal research circumstances. It seems useful to dwell on the behaviour we observed and the construction of the videos based on this.

Beittel (1972) provided us with clear descriptions of drawing strategies. He distinguished three general strategies of adults: the divergent, the spontaneous and the academic strategy. The difference between the first two strategies is very clear and easily visible at the start of the process. A person using a divergent strategy starts with a small detail seemingly without any preconceived idea of the finished drawing in mind. The drawing develops part by part. A person using a spontaneous strategy quickly starts to sketch an overall picture. This person has a vague idea about the final appearance of the drawing, however, the medium and technique are open to discovery.

Both the divergent and the spontaneous strategy are creative and open to exploration. When using the divergent strategy, the technique does not vary very much, but the theme has to be discovered. When students are using the spontaneous strategy, the theme is fixed, but the technique has to be discovered. It appears that people trained in art can easily switch strategies and this has no consequences for the quality of the resulting product.

The third strategy, the academic strategy, is considered less creative. A person who applies this strategy generally starts with heavy contours that fix the entire work immediately. There is no room for exploration. In fact a preconceived idea of the final work exists in the mind of the person before the process starts and no interaction with the work-in-progress takes place. Beittel (1972) calls this process static. It contrasts with the more creative, divergent and spontaneous, strategies which involve interaction as a dialogic process between the work in progress and the drawing person. Beittel (1972) suggests that children and novices often use the academic, static strategy.

We observed secondary school students using an academic-like strategy. Possibly, we can also call the poetry writing strategy of the linear, non-revising writers as described in chapter 2 an academic strategy, as these writers are not in interaction with the developing poem. Once written, the poem hardly changed and the process was extremely short.

The pre-test in experiment 1 consisted of a collage task. 72 tenth grade students had to construct a human figure out of geometrical shapes within 30 minutes and without any teacher help. They were provided with coloured paper, wall paper, scissors and glue. 40 students started to cut a round head out of coloured paper immediately. From the think aloud protocols we collected we know that they decided beforehand that the shape they were going to cut out was going to represent the figure's head. Then the next part of the body was made. Each shape they cut out, represented one particular part of the body. Once constructed, the work in progress hardly changed. While working on this task and thinking aloud one of the students, Anne, said:

[...] I start with a circle, the upper part of the figure is a head [she cuts out a circle and gives it a place on the background paper]. For the body I am going to use a square [she cuts out a square].

Anne continued like this for the arms, legs etc. until the figure was finished. No changes were made and the process was very short.

This type of process often results in prototypical images (Finke, Ward, & Smith, 1992), see for example Figure 1. We know from developmental studies on drawing that children tend to start with the head when drawing human figures (Freeman, 1980). Does this have any consequences for the creativity of resulting products? In fact the process resembles the poetry writing process of the non-revising, linear writers as described in chapter 2, because it is a short process, linear, step wise and no changes are made to the work in progress. The process seems also similar to the divergent strategy as described by Beittel (1972): the student worked step wise, part by part. In fact this process was not divergent, since the student had a prototype in mind. No discovery took place, the students simply constructed a human figure as they thought it was supposed to be. It appears to be a rather static process: the solution was on the student's mind before the process started. No discovery in medium, technique or theme took place; there was simply no interaction between the student and the work-in-progress. As a result, these students performed rather poorly, they scored 58 (mean score) on a 0-200 scale. Students who did not start with the round head first had a mean score of 82 on the same scale. The difference between the groups was significant ($F(1,70) = 9.974, p = .002, \eta^2 = .125$). So, already the first step in the process (circle head or not) appears to determine the final score to a large extent.

Figure 1. Stereotypical figure produced by Anne.



Beittel (1972) found that the task influenced the strategy use of the participants in his experiments. People may have a preference for certain strategies, but use of strategy is also task dependent. A still life task encouraged a divergent strategy, whereas a task to draw from mind elicited a more spontaneous strategy. This differs from what we found in chapter 2 on poetry writing and from what Kieft, Rijlaarsdam, and Van den Bergh (2008) found for writing strategies in expository writing. They concluded that there are at least two effective strategies for writing as well but that these are rather stable personal characteristics in expository writing. Possibly, the diversity in artistic tasks causes one student to apply different strategies for different tasks.

Beittel (1972) has studied performance on different artistic tasks but one specific medium for drawing, namely ink. This medium does not allow for thorough changes once the drawing has been made. This must have influenced the drawing strategies as well. One may wonder then whether and how the strategies Beittel identified can be observed in collage making or design tasks in our experiments.

As we learn from Beittel's subsequent studies, which were published in the same book (1972) one specific drawing strategy does not determine the quality as both the divergent and the spontaneous strategy are effective. It is the interaction between the work-in-progress and the producer which enables creative discovery. So, there is it is not one good strategy, the difference between creative and non-creative performance seems to be the extent to which interaction takes place between the maker and the work in progress. We have seen this interaction in the stronger students in our experiments as shown in the following example.

To give another example from the collage task (pre-test experiment 1: collage of a human figure out of geometrical shapes). Of the students who did not start to make a round head, some started to cut out several geometrical shapes obviously without having their purpose in mind yet. So, these students started by doing: simply making the shapes before thinking what they would represent. After cutting out the shapes, they started composing the human figure by arranging and re-arranging the geometrical shapes. During this arrangement, it became apparent which shape(s) was going to represent which part(s) of the human figure. For example: Marloes (Figure 2):

'I think I just cut some squares and triangles and then I will fit them together'. After cutting the shapes she says: 'Let's see how I will put this together. These two are quite different, so they have to be separated, otherwise it becomes too much, here I have a triangle.' [...] 'The patterns here [on the wallpaper] can be used as a shape, because this is in fact a kind of curl, a kind of circle when I cut it out'.

Chantal started sketching and kept on sketching most of the time. As the sketch developed, just after half of the process time, the central idea of the collage was discovered, Chantal (Figure 2):

'They [the little balls] bubble up from the tows and then it continues, like a chemical kind of thing [...] and then it has to burst, I have an idea!, let's see..'

A third student, Michael (Figure 2), started with the background: a diagonal composition with mirrored shapes in the background. This diagonal and the mirroring inspired him to design the human figure.

The students in these examples were open to discovery; their artistic problem was discovered during their work process. Maybe they even sought discovery, by creating preconditions for discovery: studying materials and working on the background. The material (patterns on wallpaper) and/or the work-in-progress (sketch or background) provided new ideas to continue. So, a dialogue was taking place between the students and the work-in-progress based on what Beittel called 'idiosyncratic meaning'. He calls it idiosyncratic because it is very personal meaning as we see clearly in the case of Chantal. This idiosyncratic meaning inspires transforming actions. Feedback from the work-in-progress in its turn shapes the idiosyncratic meaning and subsequently the new plan.

Figure 2. Collages by Marloes, Chantal and Michael.



Marloes

Chantal

Michael

Getzels and Csikszentmihalyi (1976) explained the same process in similar words and provided empirical evidence. According to them we often face 'presented problem situations': the problem has a known formulation, a routine method of solution and a recognized solution. A person follows established steps to meet requirements of the situation. Artists, however, first have to *find* their problem before they can start solving it. They need to find out what their piece of art is going to be about. This process is what Getzels and Csikszentmihalyi (1976) called 'problem finding'. The 'problem' in this sense is not a commonly troublesome situation as we understand the word 'problem' in daily speech, but it is an artistic problem or challenge; an (inner) conflict that needs to be expressed graphically (an example from their study: unresolved feelings about life and death).

Getzels and Csikszentmihalyi (1976) studied the relationship between students' problem finding behaviour and the creativity of the resulting product. They observed fine arts students' still-life drawing activities under experimental conditions (think aloud and videotapes). Students first had to compose a still life arrangement before starting to draw it. Getzels and Csikszentmihalyi found that students who interacted more with the still life objects before the actual drawing started, produced work that was evaluated as more creative and original than the work by students who quickly took some objects and started drawing. This is similar to what we saw in the case of the collages: some students started to explore the geometrical shapes, while other already seemed to know what each shape would represent.

Problem finding did not only take place in the preparation stage, but also during later stages. Students who produced more original work kept on exploring and re-defining their artistic problem, whereas students who produced less creative work hardly changed their initial idea of the final product. According to Getzels and Csikszentmihalyi, problem formulation and problem solution proceed simultaneously. The problem should not be preconceived and the solution not predetermined; the problem should be defined in the solution process.

So, different students solve different problems: presented problems and discovered problems. For example, Anne (Figure 1) solved the problem: how can I produce this human figure that is as realistic as possible while using geometrical shapes? Chantal (Figure 2) started to solve the problem: how can I use geometrical shapes to produce something visually interesting? Halfway the process she found her problem: bubbles are flowing upwards and burst inside the person. There has to be a colour contrast: warm and cold and a certain direction. So, students solve qualitatively different problems and their problems seem to be influenced by task perception or task definition. Anne immediately gave herself the task of producing a realistic figure, while Chantal found her problem by being in interaction with the work; by sketching geometrical shapes she found her artistic problem.

The interaction with the work-in-progress, materials or still life objects seems crucial to find an original artistic problem. We observed that some students shut down all options for discovery by working with very inflexible plans. The artistic problem is known and the solution exists as a preconceived idea in their minds. Then there is no real dialogue between the maker and the work-in-progress. These students immediately start to carry out their idea and the feedback from the work-in-progress consists only of detection of success or failure to conform to their fixed plan. As a result many of these students were quite disappointed with their work; they did not manage to produce a visually realistic figure with geometrical shapes.

The more flexible the plan, the more room there is for dialogue. As soon as students had flexible plans or open, unfinished plans, feedback from the work-in-progress provided them with new ideas to change or complete their artistic problem and as a result their plans. This resulted in discoveries as we saw in the case of Marloes, Michael and Chantal. These students were open to new ideas which sprang from the materials, the technique or the work-in-progress.

Bar-on (2007) described the interaction between the maker and the work-in-progress for the production of clay works. In this case, the interaction consists of thinking strategies on the one hand and doing strategies on the other hand. Bar-on has shown that this interaction leads to meaning making through reflection. She (2007) distinguished a planning and an associative strategy. Participants who used the planning strategy held a mental image of what they were going to make from the start of the process and this plan inspired them to transform the clay. Participants with an associative strategy started with doing. This resulted in a transformation of the clay. In response to this 'emerging form' the creator started to explore the clay in different ways to find meaning. Some participants mixed both strategies and alternated doing and thinking constantly.

Bar-on also found that some participants used one strategy for one product and the other strategy for the other. She suggests that the participants who mix both strategies are the most flexible ones. So, very similar to Beittel (1972), Bar-on concluded that the creator influences the material and he is influenced by the material:

“These dialogues between creator and the material can be seen to exemplify individual ways of ‘making sense’ in the interaction between sensing, feeling, thinking, and doing and the material in which structure, process, content, and meaning intertwine.” (2007, pp. 234-235).

It is likely that this interaction is different for different art forms, as one domain is more physical than the other. As visual work entails working with materials such as paint or clay, this may lead to unexpected results or small ‘accidents’ which may happen to be small discoveries if recognized. These kinds of discoveries seem less likely in writing, according to Beittel (1972):

“The needed flexibility [for dialogue and interaction] is aided by the ambiguity and less collectivized nature of images and visual configurations as compared with verbal symbols.” (p. 51).

However, the interactive nature of the process seems not so different from the writing process, which is also interactive, cyclical and iterative. Flower and Hayes (1980b) describe a Plan-translate (into written text)-review cycle. The text produced forms part of the task environment and influences subsequent actions. This feedback from the text produced is even more important in the knowledge transforming model for writing as designed by Bereiter and Scardamalia (1987). Ideas can be retrieved from the mind (top down), but even more important in creative work seem to be ideas that arise from the materials and the developing work (bottom up). The student has to learn to see his/her own production in several ways and allow for ideas to arise bottom up. Galbraith (1999) presented an interactive model of the writing process, also describing bottom up and top down processes. As the task is more creative and discovery is aimed at, more importance should be attached to bottom up processes. But what is the ideal balance between planning and openness for feedback from the developing product?

Cannot there be an inflexible but good plan from the beginning of the process? Maybe experienced artists hold complete plans, but these seem to be based on previous work. It is likely that the work is no real endpoint, but will lead to new ideas for

new works. So learning and new discoveries may take place from one work of art towards the next as well as within one single work of art (Beittel, 1972). Some people even seem to be able to be in dialogue with a mentally represented 'work-in-progress'. Nothing is externalized for some time and suddenly the complete piece is finished, as goes the famous Mozart story. Mozart seemed to compose a piece of music in one single act without any revision, while Beethoven filled many notebooks. Probably, in the Mozart case, the dialogical interaction with 'the work in progress' has taken place, but in his mind.

We expected students to interact more with the work as they learned during our experiments. However, this interaction is hard to quantify. For this reason Beittel used the case study method. In both experiments (reported in chapter 3 and 4) we aimed at quantifying process learning and we found some differences between the experimental and comparison condition, such as more revision and more brainstorming, but these activities did not correlate with product creativity. The reason may be that it is hard to measure and quantify this interaction. It may take place within one product while it develops, but it may also take place in the sequence from one drawing to the next. The measures we used may have been too rough to grasp this entirely. Besides, there does not only seem to be a difference in quantity of interaction, but also in quality. If a student is only interested in copying, there is interaction, but it is limited to checking whether the copy resembles the original closely enough. This may explain why we did not find a correlation between process results and creativity of products.

In the second experiment (chapter 4) we used the Sapp (1995) model as a starting point for designing the observational learning videos and for analysing the process results. The model describes an ideal creative process in art as an alternation between divergent and convergent stages. This is consistent with the literature on creativity: both divergent and convergent thinking are considered important components of creative behaviour. The model is also consistent with teaching in art education; students are often required to produce a certain number of sketches (divergence) and make deliberate decisions (convergence) before starting to work on the final product. Strict interpretation of the model, however, may overlook the fact that students may explore while working on the final product. Within one single drawing much interaction with the work-in-progress may take place as shown by Beittel (1972). Besides, it seems that it is not just divergent production which guarantees good works of art. Top down generation by itself is not likely to result in discoveries. Processes which inspire the plan bottom up are crucial. Therefore, different directions of divergent thinking (bottom up and top down) should be included in the Sapp model as well as the relative importance of the first stages. It is crucial that the task should not be approached as a 'presented problem', since this problem perception is unlikely to change and will lead to little interaction and, as a result, rather stereotypical images.

2. OBSERVATIONAL LEARNING AND EDUCATIONAL PRACTICE

Alexander once used the metaphor of ‘chick sexing’ for learning in ill-defined domains (Alexander, 2011). ‘Chick sexing’ is the work done at large commercial chicken farms: distinguishing new born male and female chickens for different feeding programs. It is difficult to learn this work because the sexual organs of the chickens are located within the body. Therefore, no general rule about the external appearance of male and female chickens can be provided. People learn the skill of chick sexing by observing a senior at work. After seeing many examples, the learner develops a certain ‘feeling’ for chick sexing. So, it seems that for learning in a domain that is not structured by clear rules, observation of many examples may help to develop a certain feeling with it. This may be the case in art education as well.

Intuitively teachers feel the importance of observation and modelling in studio practice. Some teachers encourage students to observe peers and some teachers use modelling to demonstrate exploratory attitudes or activities to students. Observation in real life practice, however, includes mainly observation of overt behaviour. Cognitive activities remain invisible. We believe that observational learning through videos with thinking aloud presented auditorily provides more information as it includes also cognitive activities. Besides, video modelling can show a diversity of approaches by different strong and weak models. This diversity may enlarge students’ strategic repertoire and as a result their cognitive flexibility.

“Cognitive flexibility in complexly structured domains is promoted through exposure to cases, but how is this to be done in formal instruction? In other words, how does one preserve the intrinsic complexity of a domain without overwhelming learners with more detail than they can comfortably handle at their educational level?” (Efland, 2002, p.89).

Observational learning videos can demonstrate individual cases: the interaction between the maker and the work-in-progress, the making and the thinking at any moment in the artistic process, provides rich case material. The dynamic interactions, as described in the previous section, are instructive cases to be included in observational learning videos. There may be various dynamic and effective strategies. The static (or academic) approach can be a contrasting, weak model in observational learning materials. Schön (1983) differentiated between reflection-in-action and reflection-on-action. The models in the observational learning videos demonstrate reflection-in-action while engaged in creative work, whereas observers reflect on the model’s actions (reflection-on-action). This should change students’ knowledge-in-action and subsequently change their own reflective processes in art production.

Contemporary ICT developments allow for many new possibilities in art education. The videos used in the experiments were simple videos which can be filmed and edited by any art teacher or art student in secondary education. An advantage of video for art education is the visual aspect, combined moving image and audio, which allows for detailed process registration.

We do not think observational learning should replace artistic practice. Rather, it can be a supplement to studio work. While students work individually or in collaboration on an artistic task they may occasionally watch the creative process of others.

In the two experiments we have shown that this may change creative processes towards more exploration and it may contribute to more creative products. It may also increase the students' consciousness of their own processes, which may be an important learning result in itself as several students reported in their learner reports:

"I noticed that when I have an idea, I do not really think further to get more ideas."
(student quote- learner report experiment 2)

"Being conscious of what you are doing during designing was good to experience."
(student quote- learner report experiment 2)

In general, after seeing many students at work, we feel that having a final product in mind hinders the students and makes them adopt a more static task approach. Beittel (1972) and Getzels and Csikszentmihalyi (1976) studied adults. Adolescents, as in our experiments, seemed to have more difficulty in holding flexible plans and being in dialogue with the work-in-progress. Therefore, we wonder why teachers often tell students 'what they have to make' or what the final product will be like (a human figure, a still life drawing or a landscape in a specific technique and/or medium). Recent developments in art education propose more open tasks allowing more freedom for students in the choice of theme, medium and technique, without telling them 'what to make'. Can observational learning be effective for this type of art education as well? Can we extend our findings to new practices in art education?

According to several art education theorists, the modernist orientation on art education resulted in the development of a typical 'school art style' (Efland, 1976; Haanstra, 2010). Students learn to perform 'tasks' very different from creative work they make at home and different from what happens in the contemporary professional art world. New approaches to art education aim at bridging the gap between art in school and informal learning in art. Informal learning happens at home or in a specific community such as a graffiti artist community, a band, etc. It is closely related to the students' world and to the way professional artists educate themselves. Very often this type of learning is characterised by apprenticeship and observation (Meewis, 2011). Contemporary ideas about art education promote the inclusion of informal learning practices in formal education (Heijnen, 2011). Observational learning may provide a possibility to implement an informal learning strategy in formal art education. Students can watch the communal artistic process in, for example, street art production through observational learning videos.

Emery (2002) clearly summarized modernist and postmodern orientations on art education. The modernist orientation includes the idea of 'art for art's sake':

"(...) students are encouraged to explore visual imagery without the need to depict narrative content." (Emery 2002, p. 34).

Furthermore, western principles such as the theory of composition and colour are assumed to be universal. In contrast, the postmodern approach stimulates pluralism, critical thinking and art for meaning:

"(...) postmodern artists are concerned with meaning rather than formalist composition or technique." (Emery, 2002, p. 70).

New approaches to art education, such as Visual Culture Art Education (Duncum, 2002) and altermodern art education (Donders, 2010; Klatser, 2010), place more emphasis on meaning making aspects in art education. Can observational learning be effective for this new art education?

Postmodern and other, 21st century, orientations in art education are accompanied by very open and complex tasks and student directed learning. Students may define their own tasks and have the option to collaborate in a creative process. Some orientations are very process oriented as the creative process is valued more than its outcome. Students are free to choose what they want to do, where they will work and what materials they will use. It is suggested that students should learn to work like professional artists and engage in a process without having specific goals and experimenting playfully. For example, in the case of an altermodern art education project titled ‘D. out of the blue’ (Donders, 2010), the only stimulus was a poem:

*Help, D. out of the blue.
He is from a virtual world.
Give him a real life
in this world.*

In this project, students were allowed to work outside the school building, on the streets, interacting with the audience. As art education turns more towards meaning making combined with a process oriented and student centred approach, it seems that new methods of instruction have to be developed. How can we teach students to work like artists? How can we teach them to be critical in a postmodern sense? How can we teach students to perceive a product as a temporary stage in an ongoing artistic process? And this is even more complicated: how can we teach students to do so without imposing it on them? Beittel (1972) argued that especially self discovered feedback and evaluation criteria enhance learning in art. Observational learning helps students to develop evaluation criteria and process consciousness necessary to develop their own feedback. We believe that observational learning may work well in contemporary art education which fosters process approaches and meaning making, as students are confronted with many such processes (Efland, 2002). Observational learning is a way to demonstrate processes, strategies and attitudes without telling students explicitly what they have to do.

The videos we created (and mentioned in chapters 3 and 4) were closely related to the post-test tasks. In actual art classes and more open and complex tasks, the processes in the videos and the processes of the students will diverge more in for example, theme, artistic medium or technique. We do not think this is problematic, because what students need to learn is rather abstract: interacting with work-in-progress. However, there is more transfer and more cases may be needed to reach effects.

It is not necessarily so that a producer of educational materials or the teacher should produce observational learning videos; it may be a useful experience for stu-

dents to produce their own process videos. Editing and selecting important moments (critical incidents) in the process may foster process learning and enhance consciousness of the creative process. It may even replace the writing of process reports, which students sometimes need to make in Dutch art classes. Making short process documentaries may be a more visual and logical reflection on the artistic process than writing.

In the two experiments (reported in chapter 3 and 4) we used peer models. Possibly artists' processes may function in observational learning videos as well. In many art classes, works of art are studied, but not the process of the artist. It can be interesting to ask artists to register their work process for educational ends. Contemporary art is sometimes considered 'difficult'. It is quite conceptual and as a result both teachers and students have difficulty in dealing with contemporary art works. Maybe the creative process helps to reach understanding of contemporary thinking in art.

Figure 3 shows a video still of a situation we encountered in a studio art class. It shows that observing models is not an unusual activity for students these days. A girl is at work in an art studio class situation and decided by herself to search for a video on the internet. She was working on a finger camera project with a self-chosen theme (she chose 'the swan lake') and decided she needed an origami swan. She walked to the computer, searched for a video about the making of an origami swan and imitated the steps demonstrated in the video. In this case the student used observation to learn a specific technique through imitation. When students are involved in their own individual artistic processes and in need of a specific technique, it seems obvious for them to use instructive videos. Young people are producers and observers of such videos. It is only a small step then to include cognitive process videos in the art curriculum.

Figure 3. Video still: student uses observation to learn a technique⁷.



⁷ Photograph by Christine Breeveld.