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Storyboarding an Animated Film: A Case Study of Multimodal Learning Processes in a Danish Upper Secondary School

By LISBETH FRØLUNDE, *Danish School of Education, Aarhus University, Denmark*

This paper applies notions of transformation to the analysis of data on semiotic processes related to making an animated film. The data derives from a study conducted in an upper secondary school in Copenhagen with students (18 years old) participating in a week-long workshop. The paper applies the concept of transduction with a focus on film storyboards: how students transform ideas when working with different modes (audio, visual) of representation. Data includes discourse analysis of semiotic processes and texts, referring to Social Semiotics and the methodology of Mediated Discourse Analysis. Conclusions highlight transformation as relevant for learning to reflect on media and the implications for teaching, given the increasing influence of visual modes of communication.

INTRODUCTION

The background for this research is the paradigm shift taking place as we transition from a focus on the written word to the visual as the prevalent mode of communication and representation. This shift is made possible by digital technologies. Mitchell terms the transition a “visual turn”, a pictorial or iconic turn (2005, p. 5). In this paper, I examine the overarching shift through a close study of how 18-year-old students produce an animated film. The data presented here was collected from an art class in a Danish upper secondary school in 2005–06. The full case study and the arguments for developing multimodal design competence are presented in my PhD thesis (Frølund, 2009). My study is mainly inspired by Social Semiotics, which has an interest in understanding how people communicate and create meaning with a wide range of resources or modes; in that sense, communication can be described as multimodal (van Leeuwen, 2005; Kress & van Leeuwen, 2006). Viewing filmmaking as a multimodal text and process has implications for thinking about learning. A number of empirically-based studies on young people’s filmmaking are emerging, for instance, on animation and live-action film production in British schools (Burn & Parker, 2001; 2003; Burn & Durran, 2007), Scandinavian contributions (Erstad et al, 2007; Gilje, 2008; Lindstrand, 2006a; 2006b; Öhman-Gullberg, 2008) and recent international perspectives on digital storytelling (Lundby, 2008). Perspectives from the aforementioned studies include questions on how media production experiences impact learning and identity. The studies integrate different forms of discourse

analytical approaches in various combinations in order to study the social world and share an interest in applying social semiotics (Kress, 2003; van Leeuwen, 2005; Kress & van Leeuwen, 2006). I have collaborated with Gilje, Lindstrand, and Öhman-Gullberg (2008–2009) in the research project Making a Filmmaker on how young Scandinavian filmmakers learn to make film (Frølund et al., 2009; Gilje, 2009; Gilje et al., in press) (see www.multimodalfilmmaking.tk). This paper explores the complex process of designing film with multimodal texts and applies mediated discourse analysis (MDA) to track semiotic processes of design. The goal is to explore learning and literacy processes taking place in the filmmaking process with a focus on storyboarding.

The paper has three parts: 1) introduction to application of theory and methodology, 2) presentation and analysis of data, and 3) discussion of findings and implications for teaching practice. I present two types of data: transcripts with stills from video data and one storyboard made by four students in a film group. In the analysis, I discuss how the students work with a combination of different modes, using the concept of transduction.

THE USE OF THEORY AND METHODOLOGY

Social Semiotics informs the understanding of discourses, literacies and texts (Kress, 1997; 2003). I am inspired by researchers in Social Semiotics who take a process view on interpreting how signs and symbols alter across modes, applying the notion of transduction (Kress, 2003) to study the semiotic process during design and production. According to Iedema (2003), one limitation of multimodal analysis is that it considers the complexity of texts or representations “as they are,” whether film, sound, or virtual, computational texts. Iedema believes it is important to take a multimodal approach to the creation of meaning that complements textual analysis with a more dynamic view of social processes.

I apply MDA in order to explore the active process of design and how it involves choosing semiotic resources in order to gain further insight into how new meanings are invented in the process of multimodal design. MDA considers texts in their social and cultural contexts with the aim of exploring the actions individuals take with texts and the consequences of those actions. It is a theory and methodology related to Critical Discourse Analysis (Fairclough, 1995; Scollon, 2001) with a contextual focus; it endeavors to move beyond verbal data and “mere” textual analysis for social research. It is generally useful for research in the areas of linguistics and ethnographic research, and it is applied in the humanities and the field of education.

The main influences for my adaptation of MDA describe discourse in relation to analyzing communications, for example, over virtual (Internet) and physical, material media (Scollon & Scollon 2003; 2004; LeVine & Scollon, 2004). I am inspired by an approach using video stills for video analysis (Norris 2002; 2004; Jones & Norris, 2005). Van Leeuwen (in LeVine & Scollon, 2004) confirms the significance of the visual mode in discourse analysis. The MDA approach overlaps with Social Semiotics (reviewed in Scollon & Scollon, 2003).

Methodologically, storyboarding is analyzed herein by applying MDA to explore the multimodal actions (Scollon, 2003) occurring in the classroom. The film storyboard is approached as a blueprint for a film but also a sequential visual text similar to the comic strip (McCloud, 1994). Analytically, I view the teachers as facilitators of storyboarding and highly relevant in terms of student activities, but I place the students in the foreground. I place the impact of the teacher's facilitation in the background but discuss the pedagogical approach with a focus on storyboarding at the end of this paper.

I look for 'transduction practices' in my data. The term transduction is used in Social Semiotics to refer to a process of shifting modes, such as "a shift from a modal kind, from a general schema (realized in one mode) to its instantiation in another mode or modes" (Kress & van Leeuwen, 2001, p. 51). The process of transduction refers to the general principle of semiosis - that every act of realization involves processes of choices and transformations and "is itself transformative" (ibid). I apply the above definition of transduction to my filmmaking data as an analytic tool for understanding how the students chose to design their semiotic modes, decided on the ideas for the content and sequential structure, and how they arranged the ensemble of modes in a narrative film structure. When a new ensemble was being designed, the students transformed meanings by juxtaposition, for example, in the use of the specific sounds and images. During storyboarding, the students transduced their main ideas across modes and transduced again from storyboarding to the production of sounds and images edited into the final animated film. Storyboarding is one aspect of a complex multimodal filmmaking design process that occurred in a week-long animation filmmaking workshop in this case study. I focus on a particular group working on an animated film entitled *Out-breakers* (which also translates as escapees). The Danish title is *Udbryderne*. I study how the students communicate in a variety of modes: their words in conversation, written words, their gestures, and images.

The data captures the process of designing the films, highlighting how students transduce (or transform) ideas across semiotic modes, such as from storyboard to their final film. The storyboards combine visual and written modes, resembling comic strips. Yet they are also complex, functioning as blueprints and assisting students in planning the film. Storyboard design is preparation for film production—just as an architectural blueprint is a plan for a house (Kress & van Leeuwen, 2001). A storyboard as a text uses modalities such as drawings, written words, numbers and other signs that aid in the representation of position of sequences. The semiotic analysis reveals how storyboards follow layout conventions (such as reading top to bottom and left to right) like a comic strip. I use the term panel, a comic-art term (McCloud, 1994, p. 66), for the small, rectangular, framed images used in the storyboards. I use numbers 1–12, to refer to the panels of the *Out-breakers* storyboard (see Figure 3).

Through MDA methodology, I explore embodied, situated design actions

as discourse, along with texts as discourse. However, I need Social Semiotics to analyze texts as symbol systems, since it offers depth and detail for analyzing texts, such as the storyboards and finished animated films, as visual modes of discourse. Analysis focuses on what function the storyboarding served, as indicated in group discourse (such as oral discussions, gesturing, etc.).

PRESENTATION AND ANALYSIS OF DATA

The first type of data herein consists of two transcripts of spoken conversation and embodied action in a film group. Transcripts include still frames captured from video data. The second type of data is a storyboard made by the same film group. Before provided the data, I will provide some background on the film production process, the film group and their film.

The two transcripts record real time during the first day of the pre-production phase (out of five film workshop days in school). Each of the transcripts on storyboarding is described and analyzed below with a discussion of storyboarding presented at the end. The transcripts of the storyboarding process indicate social interactions in the discourse, such as how two students, Dea and Emil (pseudonyms), were the main speakers, but two other students in the group (Out-3 and Out-4) join the discussions to a lesser degree. Out-3 joins in a bit but Out-4 rarely speaks. Below are stills from the film (Figure 1) and a synopsis of the film. The final *Out-breakers* film can be viewed online: <http://stream.dpu.dk/public/lif/outbreakers.wmv>

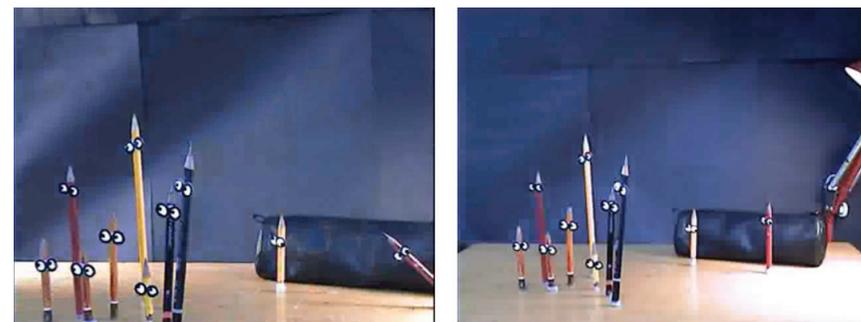


Figure 1. Two stills from the animated film *Out-breakers* showing pencil figures.

The synopsis is based on how the students explain the film narrative. The film is about a group of pencils who want to 'escape from a pencil case' or school 'as prison' and find their way to freedom. The pencils represent 'school students' and a human hand is 'the Master', who puts the pencils in the pencil case. The pencils 'play dead' when the Master is near.

The stop-motion animation technique – called pixilation – uses a mix of drawings on paper and physical objects such as pencils and a table, as well as part of a human body (an arm).

INTRODUCTION TO TRANSCRIPT 1

In the Transcript 1 data (below), the group discussion revolves around the organization of their ideas for a narrative progression of the main idea of escape or “breaking out.” In the latter part of Transcript 1, the students Emil and Dea turn the discussion toward planning the actual film production. (Their bodily actions are written in parenthesis.)

Transcript 1

Dea: OK, but we say that this picture is where they all lay still and the hand comes, right?
Yes.

Several: (laughing)

Emil: Or maybe a pencil should come up here?
No.
That would be too much.

Dea: Yes.

Emil: Just the one about how they do that.

Dea: Then you know that they are trying...

Out-4: Yes.

Dea: OK.
Um.

Out-4: Is the next one the one with the zipper...?

Dea: From here.

Out-3: Then they get shut inside, right?

Dea: ...You see the big pencil case and zipper.
And then you know that they get shut inside.
And then you see that it gets zipped.
Last picture.
There is a total close-up.
Yes.

Out-4: Then it jumps.
(Dea is drawing.)

Dea: Clap [Slam]
(Dea claps her hands)

Dea: Haa, haa, haa.
Oh, how totally awesome, man...

Emil: OK.
Our figure design we already talked about.
Background, we also discussed that.
When we are going to animate and all that.
Background sound and all that.
Yes, um, well, we can't really actually go about doing it...
Our good story, we have that pretty well under control.

Dea: So we should go about it like this.

So we should try to write it all down
and write the sounds down [on the storyboard or on another list].
So we have all those things?

Out-4: Oh, right, yes.

Out-3: Yes.

Dea: We might as well do all the background work we can do ahead of time.

ANALYSIS OF TRANSCRIPT 1

In Transcript 1, I am primarily interested in how the group talked about and enacted the transductions among modes, such as how the group tried to work out the integration of the visuals and sounds in their film. One example is how the sound of a clap is used by Dea to accompany the visual image and communicate what she calls “where it jumps,” which I believe refers back to the main idea of representing pencils breaking out. The group discusses jumping in their selection of audio and visual elements. Dea talks of using sound to strengthen the effect of the pencils jumping, perhaps inside or out of the pencil case, when she says clap (or slam) and claps her hands loudly. The clap appears to be correlated to the idea of using the sound of a door slamming, but this is ambiguous. The group has also discussed whether to use the sound of a zipper and footsteps as part of an ongoing discussion of which sound effects are to be used in the film. After the clap, Dea smiles, laughs in what sounds like a mocking laugh (haa, haa, haa) and says “Oh, how totally awesome, man.” She communicates her interpretation of the film effect (of sound and image) when she claps her hands loudly, smiles and laughs. I interpret these actions as an embodied demonstration and reaction to the effect of sound. She communicates to her group that she anticipates that a combination of audio and sound would be “awesome” as a unique code for the semiotic ensemble of the *Out-breakers* film.

The film group is storyboarding and trying to transduce modes and transform ideas. One way this experimentation is accomplished is by the performance of sound, as in the clap example. This experimentation is done while they negotiate the plans for how their film synopsis, i.e., their written idea for the narrative about breaking out, will be made into a film. The narrative is transduced, or crosses between modalities, as they work on visual ideas in the form of storyboard drawings. This transduction is structured by the panels and sequencing of the storyboards. For example, when Out-4 asks, “Is the next one the one with the zipper...?” and Dea answers, “From here...” (while Dea points to a panel on the storyboard). The group discussion about the narrative sequence refers to the storyboard and the film, such as when Out-3 asks, “Then the pencils are shut inside, right?” After which Dea remarks, “And then... you know that they are shut inside and then you see that it gets zipped.” She then refers to the last storyboard panel as being a “total close-up” and to plans for using a type of shot. This exchange is exemplary

of the way in which the group simultaneously discusses and integrates modalities with the narrative flow of story while its members draw plans on the storyboard. Dea is particularly interesting because she voices a practical approach to the act of transducing multiple modalities as she draws the group's film ideas onto the storyboard. Dea talks of how the storyboard can function as a plan for the film's production and suggests that they make a list of what must be prepared (props and sounds) in order to produce the film. At the end of Transcript 1, she says, "So we should go about it like this, so we should try to write it all down and write the sounds on...we might as well do all the background work we can do ahead of time...." Dea indicates that she wants to transduce the mode of the storyboard as a blueprint to the realization of storyboarded ideas through a practical production orientation of filmmaking (as action) and film result (final film text).

INTRODUCTION TO TRANSCRIPT 2

The stills below show the students working out ideas for their *Out-breakers* film. Three group members are present, but only Emil and Dea speak. They discuss the second, more detailed storyboard that Dea is drawing, based on their first, smaller storyboard. The *Out-breakers* group and the art teacher previously discussed how to include more close-ups in the group's second storyboard. In the following stills, the students discuss sequences for the final film and how to shoot the film, while Dea draws Panels 9 and 10 of the second storyboard. Figure 2 (below) shows video stills, side by side, that indicate Dea's quick movements with her drawing pencil as she points and says, "These two here." In the background, placed in front of Emil, is the first *Out-breakers* storyboard.

Transcript 2

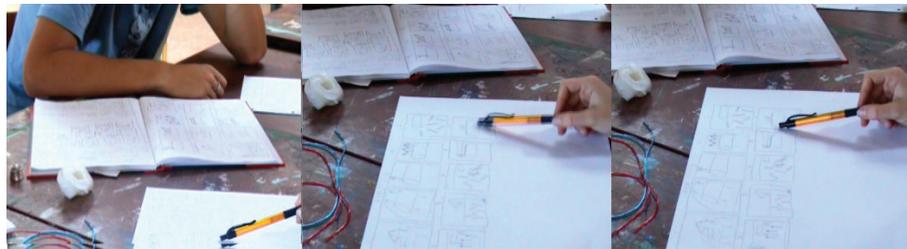


Figure 2. In the foreground, Dea is seen moving her hand with drawing pencil between the two panels, numbered 9 and 10, of the second *Out-breakers* storyboard.

Dea Yes.
 These two here
 can be in the same cut
 where you just hear someone going out.
 That we can actually shoot it, to put it bluntly.

Emil Yeah.

Dea Without help from sound, maybe, right?
 Emil That's it.
 You can't do all of that in one
 where you both
 have to see it and then
 back and...

Dea No.
 Emil The click
 and then in on all that
 and then get the pencil?

Dea No, yeah...
 Emil To get the eyes
 and all that there.

Dea No.
 Emil Because it doesn't have that in the beginning, right?
 Dea No.
 Emil And the idea in the beginning is that
 it has to lie completely still?

Dea Yes, yes...
 Emil So that then, all of a sudden, it smiles and then...
 Dea Uhm.

ANALYSIS OF TRANSCRIPT 2

Emil and Dea talk about Panels 9 and 10 of the storyboard in terms of what they want to represent in the film. They also get into detail about how actually to organize and shoot the film scenes. I am interested in how they talk about these semiotic choices while drawing the storyboard. I believe that the *Out-breakers* students worked with storyboarding as a blueprint and as an active forum for formulating and debating their ideas. They are composing these sequence of the film narrative (in the panels with scenes in the storyboard) and how to shoot the film.

Dea moves to the practical film production, how to shoot the film frames. When Dea talks of "cuts," she refers to a concept of making continuous shots or film takes. (She seems to be thinking of shooting a live action film.) So when she says, "...can be in the same cut... that we can actually shoot," she is planning how to shoot their narrative sequence during the film production. Emil argues that shooting the beginning of the film with the middle scenes (represented by Panels 9 and 10 of the storyboard) will not work when he says, "You can't do all of that in one." Emil argues that it cannot be shot this way because eyes are put on the pencil figures later in the film. He says, "Because it doesn't have that in the beginning, right?" ("it" refers to pencil figure). Emil realizes that animation has to be shot differently.

Emil brings their discussion back to the intention of the film and the narrative progression of the pencil figures as they change from dead (and still) to alive (with eyes) when he says, "And the intention in the start is that it has to lie completely still."

Dea attempts to plan the realization of their intentions in the time available for production, “That we can actually shoot it, to put it bluntly” and Emil answers, “Yeah.” When Dea says, “Without help from sound, maybe, right?”, Dea and Emil are exploring possible alternatives for how visuals and sound will work together and are adjusting their semiotic choices in terms of the premises of this context for film production (time, materials, shots, etc.). They are using the storyboard as a semiotic tool for thinking about how to design their unique ensemble of sound and image in their finished text.

ANALYSIS OF THE DATA ON THE PROCESS OF STORYBOARDING

My analysis of the data on the process of the composition of the storyboards in the *Out-breakers* group during the pre-production phase concerns two dynamically related actions of meaning-creation:

- 1) Embodiment of multiple modalities in communication between students about composing ideas on a storyboard
- 2) Transduction of modes of communication. Storyboarding contributes to making semiotic choices about how to design a film using an ensemble of modes for their film text.

The embodiment of multiple modalities when composing a storyboard was indicated in how the *Out-breakers* group arrived at their plans for integrating sound, lighting, visual effects, etc. The *Out-breakers* group used verbal and embodied modes of discourse in making the multimodal storyboard when, for example, Dea clapped her hands and laughed and used the slang expression “awesome” about the anticipated effect of image and sound.

The transduction of modes involves working out the means (visual, audio, etc.) for constructing the meanings in the film that are drawn by the students onto the storyboard to create a blueprint. The group thereby selected audio and visual resources of sound and lighting that were the most appropriate to represent the intended ideas in the film and that considered how other people would view their film.

INTRODUCING THE STORYBOARD

In this presentation of data on the storyboard for the *Out-breakers* film, the storyboard is approached as a visual text, similar to sequential comic strips but also as a blueprint for a film. I am interested in studying the storyboarding process in order to track how the group did transformative semiotic work (transduction) especially in regards to using sound and visuals. I also explore, once again, how the students transduced their main ideas for their films from the static medium of a storyboard into an audio/visual ensemble of the animated medium of film.

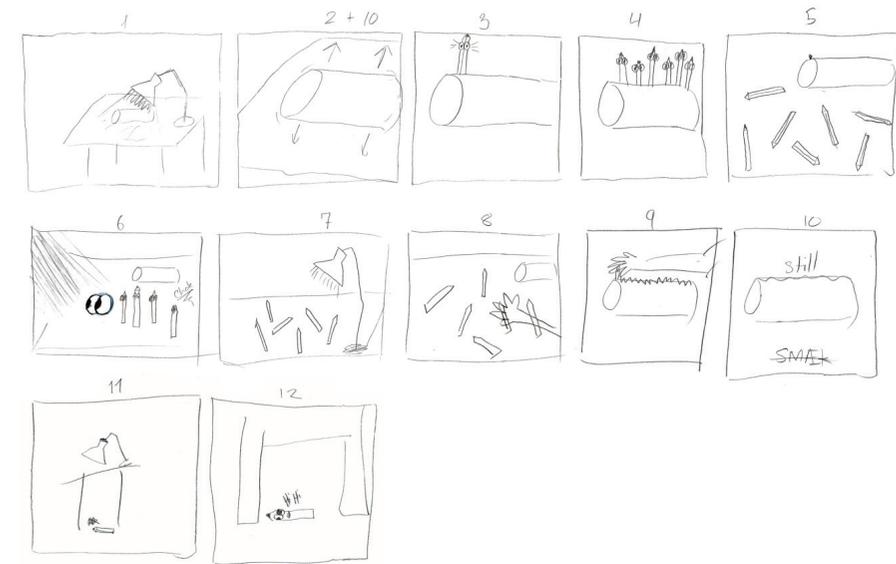


Figure 3. The storyboard reproduced above is approximately 30% of its original size and is the second version of the *Out-breakers* storyboard. I use numbers 1–12, to refer to the panels, as marked on the *Out-breakers* storyboard by the students.

ANALYSIS OF THE DATA ON THE STORYBOARD

The analysis concerns how this storyboard represents the main filmic idea of entrapment and breaking out toward freedom. I explore how the storyboard refers to multiple modes and how it braids together the visuals and sound. It also indicates the overall temporality, as movement over time, and tempo of the film. I present two examples below of how the storyboard constructs meaning and is used for planning, thereby transducing meanings, in a multimodal ensemble of semiotic resources to represent movement over time.

First, the movement of pencils creates the illusion of life or animates the pencils. Movement is described on the storyboard by means of instructions drawn in the panels that notate figure movement. The numbers “2+10,” written above Panel 2 of the *Out-breakers* storyboard, refer to plans for shooting the film as Dea and Emil discussed (in Transcript 2). Panel 2 has arrow symbols pointing up and down to graphically indicate the movement of the pencil case in order to create the effect of the pencils inside the case coming alive (or becoming animate rather than inanimate). Panel 10 has the word “still” written on it, which I find indicates an instruction to start the shot with a still (static) pencil case, then later to make it move (as if shaking). Panel 10 has similarities to Panel 2 in the use of camera distance and the central placement of the pencil case.

Second, the design of a multimodal ensemble over time is indicated by the icons used for sound and light in Panel 6 of the *Out-breakers* storyboard (in Figure 3). The icons, or drawn representations of eyes, etc., indicate the

juxtaposition of sound, motion and visuals planned for film production. The large eyes in this panel show the direction of the gaze of the pencil figures and are used to show vectors between the pencils graphically and the use of ambient sounds for the film. The intended meanings of the *Out-breakers* group and the main idea of entrapment are carefully planned and drawn on the storyboard in order to integrate the audio and visual modalities. Note that the *Out-breakers* storyboard references audio in Panel 10, where the word “SMÆK” is crossed out, perhaps due to the discussion of using lighting versus sound effects, as I observed previously. The word smæk may refer to the sound of a zipper or a door slamming, which was embodied as Dea’s clap. I interpret this as ambiguous, since smæk is written in the same way that comics use words such as BLAM or VROOM to indicate ambient sound and to signify events occurring beyond what is depicted in the panel. The word “hihi” written on Panel 12 presumably refers to the intended use of laughter for the pencil figure at the end of the film. The modality of sound was referred to in relation to the *Out-breakers* storyboard but listed separately by numbers that corresponded with the storyboard and were discussed in the group during the storyboarding process. In summary, the *Out-breakers* storyboard uses a rich visual grammar and written words to show how to transduce audio and visual modalities over time.

DISCUSSION OF FINDINGS AND IMPLICATIONS FOR TEACHING PRACTICE

Findings from my analysis of the video data indicate that storyboarding is a valuable resource for transducing semiotic intent. (This is clarified when viewing the finished film.) The data analysis suggests that the students sought to find the permeating qualities in their films and to explore how meanings unite form and matter. The students in the *Out-breakers* group discuss how to control the composition, or how to build a unified semiotic code through the transduction of motion, light, sound and so on. Storyboarding offers a forum or platform for transduction that supports the process of gathering, concretizing, reworking, discarding or keeping ideas. These activities exemplify how complex and multilayered the composition of a multimodal text is. The *Out-breakers* group transformed a vast vocabulary of symbols, signs and icons as they discussed how to construct their multimodal ensemble.

The storyboards functioned as blueprints for the filmmaking process and offer, through the affordances of static representation, guidance in resolving transduction and in braiding together modalities.

I find rich potential for engaging students in reflection on the construction of multimodal texts and semiosis based on this study. The learning potential is exemplified by storyboarding. As my analysis suggests, the students’ work with designing films includes transducing modes in storyboarding and using multimodal (gestural, visual, verbal and audio) communication. The students are thereby involved in semiotic and reflective processes while designing and interpreting signs. The activity of storyboarding helped students to discuss their intent and helped them to structure how they

worked out their ideas. The discussion led them to concretize ideas as they considered them. The storyboard makes film ideas explicit, tangible and available for dialogue between the students and between student and teacher. Thus, the students could give and receive responses and thereby alter ideas on the storyboard, which functions as a forum for active, inquiry-based (experiential) learning, referring to the pragmatic approach to learning by doing, attributable to Dewey (1934; 1938), among others.

Kress (1997) notes that it is important to stress “that print/writing must not be sidelined” (p. 154) in education, for all modes are important; I agree with this. My interest is to encourage the already existing competence and fundamental interest of children and young people in multimodal forms of texts. Filmmaking appears to offer opportunities for gaining competence (or media literacy) that is relevant in light of the paradigm shift toward the visual modes of communication.

DISCUSSION OF STORYBOARDING IN RELATION TO TEACHING PRACTICE

I have debated the pros and cons of storyboarding with several film and media instructors, who have voiced counterarguments against the value of storyboarding. I present the arguments here primarily to raise questions about the teaching practice of storyboarding. I see storyboarding as a practice applicable to media and art education but, more generally, to planning any type of multimodal communication. Two counterarguments or reasons for not using storyboarding in instruction are:

- Storyboarding is obsolete, given that editing images and sounds is easily accomplished with digital software
- Storyboarding constricts the flow of creative ideas

The first reason, that storyboarding is obsolete, seems to have some merit. For instance, in traditional animation, the hand-drawn processes were very time-consuming and required detailed planning before shooting. This changed with the introduction of digital tools. Yet, today, even professional animators still use storyboards to plan for 3D digital animation because storyboarding assists in planning the flow of the narrative as well as in editing scenes. The second reason, that storyboarding constricts the flow of ideas, does not fit with my findings. The affordances of digital media readily allow viewers to surf, for example, an array of digital TV channels or to browse the Internet and receive fragments of narratives. Therefore, storyboarding can serve pedagogically to focus the students on working with their main idea and planning out the unique semiotic code as well as selecting the right images and sounds appropriate to the communication of that idea. Film ideas can still be altered in the process, as observed in the case study. My conclusion is that storyboarding is not outdated; rather, there may be an

even greater need for practices that frame multimodal composition in our digital age in which young people can surf and cut-and-paste from digital resources.

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