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From earth to space—Advertising films created in a computer-based primary school task

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Abstract: Today, teachers orchestrate computer-based tasks in software applications in Swedish primary schools. Meaning is made through various modes, and multimodal perspectives on literacy have the basic assumption that meaning is made through many representational and communicational resources. The case study presented in this paper has analysed pupils' products in which they made multimodal meanings in a film-editing software application. The task was to make advertising films for planets in the solar system. The analysis of the advertising films has been conducted using the visual grammar framework involving three metafunctions: the *representational, interactive and compositional*. The findings show how the digital features made it possible to compose film clips with a variety of modes of expression but also the impact of social and cultural influences on the pupils' products. The representations were made in order to communicate and the representation of ideas was inspired by the advertising genre of Western society. From a pedagogical view, the impact of the instructions and the teacher's design on pupils' meaning-making needs to be taken into account and further discussed.

Subjects: Social Sciences; Communication Studies; Education

Keywords: primary education; digital resources; multimodal communication; social study

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Anne Kjellsdotter works at the Department of Pedagogical Curricular and Professional Studies, University of Gothenburg, Sweden. Her research interests concern the use of digital technologies within primary school education with focus on interaction and pupils' multimodal competences. The data comes from digital classrooms that focus on the creation of products that consist of several modes in combination such as image, sound, written and spoken language and which challenges what the concept of literacy entails in an educational setting. Anne's research studies have explored how teachers and pupils orchestrate digital resources in relation to the subject content and pupils' development of communicative skills. Her wider research interests include the impact of the social and cultural relationship between pupils and teachers' orchestration of ICT and the institutional prerequisites in operation.

PUBLIC INTEREST STATEMENT

During the last decade, the number of computers and other digital devices in primary schools has increased. Teachers are designing computer-based tasks in software programs, in which images become the central mode for expression. The study presented in this research paper has explored in what way nine-year olds make advertising films of planets in the solar system using a type of film-editing software. The pupils had not been explicitly instructed how to conduct or understand the genre of advertising. Although, the advertising films were similar to media travel advertisements found in Sweden and other Western societies. The results point to the social and cultural influences on pupils when making the advertising films, which means there are consequences for the design of school tasks that include fostering the pupils' abilities to understand the purpose of media advertisements.

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1. Introduction

In Western cultures, there are certain linguistic traditions, and learning how to write and read has traditionally been done through formalised print-based teaching in schools (Merchant, 2007; New London Group, 2000). Today in contemporary media, laptops and tablets allow new transformations and combinations of communicative modes. In other words, screen-based activities including software applications, websites and wikis, offer new ways to make meaning, challenging the authority of traditional print-based learning (Jewitt, 2014; Kress, 2010; Merchant, 2007).

Previous educational research studies stress the communicative competences that are needed by the citizens of high-tech societies and have highlighted how we communicate with each other in different ways mediated through the choice of modes of expression and media (various technologies) in the early twenty-first century (e.g. Bezemer, 2016; Bezemer & Kress, 2016; Burn & Parker, 2003; Hillman & Säljö, 2016).

However, digital technologies challenge the school contexts of literacy practices and research studies have explored in what way pupils interact with the digital tools and the affordances of multimodal resources (e.g. Bebell & O'Dwyer, 2010; Edwards-Groves, 2011; Flewitt, Messer, & Kucirkova,2015; Jewitt, 2006, 2008, 2014; Kress, 2010; Mavers, 2003; Miller & McVee, 2012). Certain studies in social semiotic research address learning potential in relation to the ways in which pupils make visual representations (Björkvall, 2014; Kress & Van Leeuwen, 2006).

This research paper is a contribution to the research field of information and communication technologies (ICT) in education and is a result of a larger study in a primary school practice. Previous results from the study have shown that the patterns of interaction during the group processes varied (Öman & Svensson, 2015) but the products, produced by different groups of pupils, were similar in a technological way i.e. the pupils used the same modes of expression. More specifically, the aim of this paper is to make a detailed analysis of the same products by using the framework of visual grammar (Kress & Van Leeuwen, 2006) in order to distinguish the ways in which the pupils make multimodal meanings.

The nine-year-olds in the study presented here, interacted with the digital tools and the affordances of multimodal resources. The task was to make advertising films for planets in the solar system using a film-editing software, in which the image is a central mode for expression.

In Western society, advertisements are frequently used in magazines and on marketing-oriented websites. Advertising is influenced by the social context and reveals social values. Children are consumers and influence their parents in purchasing decisions, as well as being used in the promotion of products (Carvalho, 2013).

In the composition of the advertising for a product or a service, the sign-makers interpret and select messages according to their communicative needs and interests. To do this, they have to take into account functions such as: the *information value*, which depends on the position of the elements; *colours* as signifiers; and *saturation*, which communicate different meanings depending on their value (Kress & Van Leeuwen, 2006).

In the research of Carvalho (2013), advertisements in six editions of a Portuguese magazine have been analysed with the help of the categories of visual grammar (Kress & Van Leeuwen, 2006). The magazine was aimed at children from six years of age, and the analysis shows among other things an attempt to form a connection between the child and the representations in the advertisements in various ways with, for example, colours, clothing, harmony, status and lifestyle. Carvalho (2013) points to the importance of analysing and understanding what is communicated in advertising. Consequently, pupils need to have the skills to analyse and understand the purpose of advertisements and in order to achieve this; Carvalho suggests that the visual grammar developed by Kress and Van Leeuwen (2006) may be a valuable instrument.

Research studies have also explored the importance of teacher instruction and of guiding pupils in the use of digital tools in order to create potential for learning (Hennessy, Deaney, & Winterbottom, 2007; Kennewell et al., 2007; Warwick, Mercer, Kershner, & Staarman, 2010) and also the relation between the "what, how and why" of the content of subject domains in relation to the digital technologies available to teachers (Hudson, 2007).

However, the pupils in the study presented here had not been explicitly instructed about how to construct or understand the genre of advertising. The task was to advertise a planet in the solar system by using a film-editing software. The theoretical foundation of this study presumes that pupils' meaning-making is dependent on the available resources but also upon the social and cultural contexts. The premise for the classroom task is the teacher and pupils' orchestration of the task and the unit of analysis is the product (the advertising film), created by the pupils in small groups. In order to distinguish pupils' multimodal meanings, the analysis of the advertising films has been conducted using the visual grammar framework involving three metafunctions: the *representational, interactive and compositional* (Kress & Van Leeuwen, 2006). The study in this paper has explored the question:

What multimodal meanings are created in the products made by pupils using film-editing software?

2. Theory, data and methodology

2.1. Multimodality and the social context

In this study, digital media offer ways to re-design elements already designed in a previous process. Meaning is made through various modes, and multimodal perspectives on literacy have the basic assumption that meaning is made through many representational and communicational resources, of which language is one (Kress & van Leeuwen, 2001). From a multimodal perspective, different modes such as: image, sound, text, speech and gestures are organised sets of semiotic resources for meaning-making and communication (Jewitt, 2008, 2014; Kress, 2010). The multimodal meanings arising from a social context could be distinguished by the metafunctions in the framework of visual grammar (Kress & Van Leeuwen, 2006), which allowed a systematic description of the analysed data presented in this paper.

The data was collected from a situated primary school practice, from a sociocultural perspective in which learning is seen as a development that is connected to the situation and the setting. In this sense, every context has its own conditions for learning, and communication is closely connected to the context. From a sociocultural perspective, learning takes place in a situated practice through the actions of individuals or groups and is not understood simply as an individual process but also as a process mediated by the use of cultural tools (Säljö, 2005; Vygotsky, 1978; Wertsch, 1998). This approach includes the idea that literacy is understood in the context of the social practice in which it is acquired and used (Barton, 2007; Barton & Hamilton, 1998; Street, 1984). The development of the concept of literacy cannot be isolated from the development of society (Barton, Hamilton, & Roz, 2000). This may be set in contrast to other perspectives, e.g. a psychological-cognitive approach that views literacy as a cognitive ability.

2.2. Representation, communication and design

From a multimodal perspective, representation and communication are distinct social practices. Representation focuses on interest and engagement with the world and making meaning of that world. Communication focuses on the desire to make that representation available to others (Kress, 2010). In the design and production process, the sign-maker seeks to make a representation of some object that arises from the cultural, social and physiological history of the sign-maker in relation to the specific context in which the sign-maker produces the sign (Kress & van Leeuwen, 2001). This concept of Design includes teachers as designers of tasks and environments in order to achieve learning. The teacher designs multimodal learning tasks, and pupils as meaning-makers select and

integrate these various modes of meaning in relation to the available resources and affordances of different modes and digital resources (New London Group, 2000).

2.3. Making advertising films

The setting for the research was a third-grade classroom, located in an urban primary school that employs digital technologies for pupils' use. The public school is situated in a middle-class area in the south of Sweden where the school children come from different cultural and socioeconomic backgrounds. The study as a whole focused on the work of nine-year-old children, grade three, and the school project, "Space". The aim of the project was that the pupils should learn about the planets in our solar system by using various forms of digital technology in the learning processes. Over the course of ten weeks, different classroom assignments, both individual and group work, were implemented. The class being studied consisted of 29 pupils, 13 boys and 16 girls, and there were three teachers in total involved in the project work of this class, a main teacher and two supporting teachers. The main teacher was teaching the class during this study.

The empirical material presented in this paper was collected from small-group work where the aim was to design advertising films about the planets, using the editing software *iMovie*. The distinguishing feature of this kind of software is that it provides various modes such as image, sound, text and speech, where the image is the primary mode for production. The image could be a downloaded image from the Internet, an uploaded photo or a photo from the gallery. In addition, there were other laptop features, different software and the Internet, which were available resources for meaning-making, all with their affordances, possibilities and constraints.

The company behind *iMovie* and the ideas behind the development of this software are not being addressed here. The aim is not to evaluate the software: the focus of the analysis is the redesigned products designed in small-group interactions with the meaning-making modes provided by the digital resources.

2.4. The teacher-designed task

The main teacher had designed a computer-based learning task, and according to the teacher, the aim of this task was to "make advertising digital presentations on the planets in the solar system". This was linked to the Swedish syllabus and the aim of working with texts that combine different modes, e.g. film, interactive games and web pages, and the goals of the science syllabus concerning "Space" (Swedish National Agency for Education, 2011). The Swedish curriculum does not explicitly mention teaching of a particular type of text but states in a more general sense that teaching should include a variety of different types of texts (Swedish National Agency for Education, 2011).

The pupils in the study had not been explicitly instructed about how to construct or understand the genre of advertising and the pupils did not ask any questions about the genre during the introductory lessons. The task was rather open-ended in the sense that there was no single "right answer", there were few instructions and the children were allowed to explore the software. The children were divided into six groups of three to four children where each group was responsible for one planet. According to the pupils, none of them had worked with any editing software prior to this school project.

During the task, the pupils were given one laptop per group and some of the groups were placed in the main classroom and other groups in small rooms next to the classroom.

The teacher introduced the software over the course of three lessons by using the whiteboard in combination with digital technology (projector and computer). The purpose of the introductory lessons was to provide a brief overview of the software, to demonstrate the key features such as text, image and sound. The teacher did not use the task structure to guide and mediate pupils' interaction with the digital tool during the introductory lessons. The advertising film as a genre was not introduced, nor were the rules and procedures for group talk and actions.

The teacher's instructions concerned the digital media rather than the subject content of advertising. According to an interview with the teacher, reflections upon the advertising genre as a subject matter were not commented upon, the teacher focused on the features of combining visual, auditory and linguistic modes by using digital technology in relation to "Space" in line with the Swedish syllabus. Selected image repositories on the Internet were introduced where the pupils could select images to include in the film projects.

2.5. Data collection and analysis of the empirical data

In this study as a whole, the data was collected through a micro-ethnographic approach by the use of video recordings (Baker, Green, & Skukauskaite, 2008). To enrich the data, formal and informal interviews were also conducted with both pupils and teachers. Undertaking fieldwork at the same time as video recording provides an opportunity to talk to the participants and discuss aspects of the material environment or any issues that might have arisen (Heath, Hindmarsh, & Luff, 2010), which was a good complement to the video recordings. Altogether the data corpus totalled 28 h of video material and 13 h of video data for the research, which has been partly presented in previous papers. Previous findings have distinguished differences in ways of orchestrating available resources that had consequences for learning opportunities (see Öman & Sofkova Hashemi, 2015; Öman & Svensson, 2015).

The data analysed here consist of pupils' redesigned film products, in total six films. The first step in the analysis of the findings presented here was to get a preliminary view of the redesigned advertising films designed in the small-group processes. The first overview of the advertising films showed similarities in the design choices of modes and the next interesting question was to analyse the multimodal representations made as a result of the choice of these modes. To do this, the film products had to be analysed in detail, using the visual grammar (Kress & Van Leeuwen, 2006) for the composition of each film clip as explained in the subsection *Analytical lenses*. The framework allowed a systematic description of the findings presented in this paper.

2.6. Analytical lenses

The theory of social semiotics (Hodge & Kress, 1988) highlights that all sign-making is social. A sign-maker has a social interest in communicating and is driven to represent something in the world. Communication is not only dependent on the available semiotic resources but also upon the social and cultural contexts in which we communicate (Burn & Parker, 2003; Hodge & Kress, 1988).

Kress and Van Leeuwen (2006) elaborated a visual grammar that stems from systemic functional linguistics, as theorised by Haliday (1978). The theory aims to explain how the form of language is determined to fulfil the purposes arising from a social context. Building on Halliday's concepts, Kress and Van Leeuwen (2006) propose an analysis of multimodal texts from a semiotic landscape including modes of communication from far back in time to modes of expression used in society today.

> Semiotic modes, similarly, are shaped both by the intrinsic characteristics and potentials of the medium and by the requirements, histories and values of societies and their cultures. (Kress & Van Leeuwen, 2006, p. 35)

Kress and Van Leeuwen (2006) adopted from Haliday (1978) the theoretical notion of "metafunction": the *ideational*, the *interpersonal* and the *textual* metafunction. In their visual grammar, the ideational is expressed in terms of the *representational* metafunction, the interpersonal as the *interactive* metafunction and the textual as the *compositional* metafunction.

The *representational* metafunction—Semiotic modes offer various choices in which people, things, places, ideas and their relation to each other can be represented (Kress & Van Leeuwen, 2006)
Representational meanings may be divided in two groups: participants and carriers (Kress & Van Leeuwen, 2006)
(i) *Represented participants* are those who constitute the subject matter of the communication and could be categorised as: • individuals or groups, which signifies singularity or plurality • cultural, biological or a combination of the two. Cultural categorisation includes attributes such as clothing and hairstyle. Biological attributes can be used to create ethnic stereotypes
(ii) *Represented carriers* focus on the person who is the carrier and the attributes are what create the meaning
The *interactive* metafunction is connected to communication. Modes offer choices for representing different interpersonal relations that will be favoured in one form of visual representation between producers and viewers and/or between represented participants (Kress & Van Leeuwen, 2006)
The interactive metafunction can relate to:
Gaze—represented participants could look at the viewer with a demand or an offer. The former requires something of the viewer and the latter is represented as contemplation
Distance—a close shot, a medium shot or a long shot of the frame of the image, which suggests the level intimacy with the viewer
Angle—the horizontal and frontal angle could show relations of involvement among the participants in interaction. The vertical angle could show power between the represented participants. In a high angle, the represented participants seem small, which gives power to the viewer, while a low angle does the opposite
(Kress & Van Leeuwen, 2006)
The *compositional* metafunction—semiotic modes must have the capacity to form complexes of signs, which cohere internally with each other and externally with the context in and for which they were produced. The representational and interactive elements are related to each other through interrelated systems (Kress & Van Leeuwen, 2006)
Information value—the meanings assigned to the location on the page (left, right, top, bottom, centre or margin). In Western countries, elements located on the left are already known to the viewer while those on the right are the opposite, something new. Elements on top of the page are related to emotions, ideology or the essence of information and those at the bottom relate to more specific and real documentary information. In the centre is the core of information in relation to the margins, which hold elements that are dependent on the centre
Salience—the elements can, for example by means of foreground, size, sharpness, brightness, colour, attract the viewer to different degrees. Colours are signifiers with many communicative uses, such as in advertising or in the entertainment media, having significant symbolic value in the given social cultural context, e.g. red may be associated with warmth/energy, blue with cold/calm/distance (Kress & Van Leeuwen, 2006)
Saturation–the scale from the most intense version of a colour to the softest. The value goes from maximally light (white) to maximally dark (black). High saturation may be seen as positive or adventurous but also as vulgar. Low saturation may be seen as subtle and tender but also cold or moody (Kress & Van Leeuwen, 2006)
Framing—the elements could be visually associated or visually separated from each other by the use or lack of, for example, frame lines, empty spaces and contrast

Images involve participants, both represented and interactive. People, places or things are represented in the image and the producer communicates with the viewer in and through the image (Kress & Van Leeuwen, 2006).

Images and texts have different relations to each other (Kress & Van Leeuwen, 2006). They could either *extend* existing information by adding new information (i.e. the text could extend the image or the image could extend the text) or repeat/*elaborate* on already given information, by illustration (the text is foregrounded) or by anchorage (the image is foregrounded).

The data collected in this study, the creation of advertising films, has been analysed with the use of Kress and Van Leeuwen's (2006) visual grammar metafunctions: the representational, interactive and compositional. The findings will be discussed in relation to the social context in which the pupils have designed and produced the redesigned products.

3. Research findings

First, the findings indicate that all six advertising films consisted of the same modes of expression: visual, auditory, spatial and linguistic. Further, the analytical framework (Kress & Van Leeuwen,

Table 1. Film clips from the small group for Jupiter. Transcriptions of modes of expression.

Film clip number	Visual image/colour	Auditory music/sound	Spatial position/movement	Linguistic writing
1. 	Image of Jupiter Yellow-red background. White letters	Space sound	Zoomed image filling the screen Centred text	Come to the (lower case) biggest and the most beautiful planet in the solar system!! (upper case)
2. 	Image downloaded from the Internet. Multi-coloured background. White letters	Space sound	Zoomed image filling the screen Centred text	Go to the red spot and have a bath!!
3. 	Image downloaded from the Internet, a blue navy rocket/missile. White letters	Space sound	Zoomed image filling the screen. Text moving from left to right	Go with the fastest rocket Space express!!!!!
4. 	Image downloaded from the Internet. A luxury hotel in gold. White letters	Space sound	Zoomed image filling the screen Centred text	Live in the newly built hotel (upper case)
5. 	Image downloaded from the Internet. A blue swimming pool. White letters	Space sound	Zoomed image filling the screen Centred text	Have a bath in the indoor pool!
6. 	Image downloaded from the Internet of a Swedish 10 kronor coin in gold. White letters	Space sound	Zoomed image of a 10 kronor coin filling the screen Low centred text.	It only costs 10 kronor to go to Jupiter!
7. 	Image downloaded from the Internet. A green alien wearing a red dress and with a smiley on it. Brown letters on yellow background	Space sound	An alien in a close shot. Low centred text	When you arrive you will meet nice aliens like the one in the image!
8. 	Image downloaded from the Internet. Blue sky with clouds and a bright sun. White letters	Space song	Zoomed image filling the screen Centred text.	Go to the cloud paradise!

(*Continued*)

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Table 1. (*Continued*)

Film clip number	Visual image/colour	Auditory music/sound	Spatial position/movement	Linguistic writing
9. 	Image downloaded from the Internet. Dark background, space phenomena in beige and grey tones. White letters	Space song	Zoomed image filling the screen Centred text	Go to the moons for free!
10. 	Image downloaded from the Internet. Black background, space satellite in gold. White letters	Space song	Distant shot of the space satellite Centred text	Order your ticket at Jupiter/spaceexpress.com
11. 	Dark background. White letters.	Space song	Text moving from bottom to top	Made by … Pupils' names

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2006) made it possible to distinguished details in each film clip. The analysed data consisted of six advertising films. One of the advertising films exemplifies a complete redesigned product. Examples from other small groups serve as complements. In Table 1, all film clips from the advertising film about Jupiter are presented in order.

The advertising film for Jupiter started out with an introduction of the planet with the representational idea of a welcoming sign to the viewer (film clip 1). The design consisted of a zoomed-in image from the Internet filling the whole screen, which made a background to the brighter centred text with white letters. The information value of the centred text expresses an important welcoming sign to the viewer (Kress & Van Leeuwen, 2006).

Overall, a common visual mode in the advertising film was the use of a zoomed-in image downloaded from the Internet, which reduced the distance to the viewer and created a sense of intimacy (Kress & Van Leeuwen, 2006). Other examples are the close shots of a luxurious hotel to show the golden colour (film clip 4), a Swedish 10 kronor coin (film clip 6) and the moons of Jupiter (film clip 9).

The location of the written text has an information value, depending on the meanings assigned by the viewer. In most of the film clips, the written text was placed in the centre, as a core of information (Kress & Van Leeuwen, 2006). In film clip 1 (an image of Jupiter), the centred text starts out in lower case and ends up in upper case in white letters, extending the image. At the end of the advertising film, there was a centred white text explaining where to order the ticket to Jupiter and giving a web address. In the advertising film for Jupiter, as well in the five other films, the written text was generally composed in white letters as a contrast to the image. In film clip 10 (space satellite in gold), the centred core informative text was composed in white as a contrast to the darker background. In film clip 5 (a blue swimming pool), the white brightness of the centred white letters informs the viewer about the possibility of having a bath at the indoor pool.

In film clip 7, an image of an alien is centred and the text at the bottom stresses the specific important information about whom you will meet when you arrive. The closing credits (film clip 11) have a text that moves from the bottom up to the top in a similar way to the closing credits of, for example, the Star Wars movies. In the final film clips 10 (space satellite in gold) and 11(closing credits), the black background was combined with white letters, which created a contrast.

Colours as signifiers frequently communicated symbolic values in the advertising films. In film clip 4, the golden hotel signifies luxury. A facility shown in the film about Jupiter was an indoor swimming pool in blue colours, which is often associated with calm or coldness (Kress & Van Leeuwen, 2006). In film clip 9 (space phenomena), the low saturation of the colours of the moons may indicate tenderness but also moodiness (Kress & Van Leeuwen, 2006). The colours in film clip 2 have low saturation (blue with a spot of red in the upper-right corner).

3.1. Representational meanings

In the Jupiter film, there were mainly representations of things (e.g. a rocket), places (e.g. an indoor pool) and ideas (e.g. low costs) but these were also in focus in all of the six advertising films. The analysis shows that the *places* represented in the advertising film for Jupiter were connected to the accommodation in "Space": the luxury hotel and possible amusements in "Space" such as the indoor pool, the moons of Jupiter and the red spot. The images were downloaded from the Internet and filled the screen, accompanied by a centred text, e.g. "go to the cloud paradise!"; "go to the moons of Jupiter and have a bath at the red spot".

In contrast to the luxurious accommodation, there is a film clip of a Swedish 10 kronor coin and the written text: "It only costs 10 kronor to go to Jupiter!" representing the *idea* of the low costs on the planet. Another example involving low costs is the representation of going to the moons for free.

Figure 1. Film clip from the advertising film for Neptune: Eat blue gas candy in our amusement park.

The Jupiter group did not have any people in the advertising film but one film clip featured a smiling alien holding up its hand in a friendly gesture (film clip 7). The alien was represented individually and placed in the centre of the film clip, as an important sign (Kress & Van Leeuwen, 2006). There is a close intimate shot of the alien, demanding some kind of imaginary relation to the viewer by its gaze and salutation. The chosen image has contrasting colours: the warm green colour of the alien in relation to the red dress with a yellow one-eyed smiley.

In three of the advertising films, there were representations of *people* together with various examples of what you could do on the planet, e.g. floating in space or eating cotton candy. One of the groups suggested that even celebrities would visit the planet, which was exemplified by an image of Michael Jackson. All humans were also characterised by a friendly gaze, smiling at the viewer and using a distance of a close intimate shot.

Humans were represented in groups in two of the films and individually in one film. In Figure 1, the pupils have chosen an image of two girls with the same ethnic background, the attributes of pale hair and skin colour and of approximately the same age as the pupils producing the films (nine years old). The girls represented in the image are eating cotton candy with happy faces and the horizontal angle shows the involvement between these represented participants (Kress & Van Leeuwen, 2006). The close shot could be interpreted as creating intimacy with the viewer, while at the same time the girls are looking at each other, which shows the interpersonal relation between them.

The text in Figure 1 is centred as core information, and the image is an illustration of it (Kress & Van Leeuwen, 2006), except with regard to the word “tivoli” [amusement park], which, because of the angle of the text, is also placed closer to the viewer and could therefore be interpreted as being important. The colour blue may signify distance or coldness, which could be connected to “Space”, and the white text creates a foreground that may attract the viewer.

3.2. The modes of music and sound

In the advertising film for Jupiter, a sound called “Alien communication” was repeated through the whole advertising film. The sound was taken from the *iMovie* library.

In the advertising films, there was a variety of music taken from the *iMovie* library, Garage band or Spotify. In most of the advertising films, the same music or sound was used throughout but there were also films that used two sounds.

4. Discussion

The pupils were instructed to design an advertising film by making representations to be used for communication in the social practice of the classroom. The teacher’s instructions were quite open to interpretation regarding the advertising genre but also the use of the laptop features. Further, the visual design became the central point of departure for the multimodal project since the teacher had

instructed the pupils to design a film in the film-editing software by creating film clips based on image, text and music. From a multimodal perspective, the images were central, as the visual mode was the primary mode for film-making in the software. The easiest way to use the visual mode was to download images from the Internet but there were other possibilities afforded, e.g. making their own drawings, which one group did, or uploading photos from the photo gallery.

In the social classroom context, in which the school children come from different cultural and socioeconomic backgrounds, this kind of rather open task gives the pupils opportunities to explore the software and use its resources to design advertising films. The digital features made it possible to compose film clips with a variety of modes of expression, close to the advertising films that children are exposed to and consequently the representation of ideas was inspired by the advertising genre of Western society. The representations were made in order to communicate, and communication is not only dependent on the available semiotic resources but also upon the social and cultural contexts in which we communicate (Burn & Parker, 2003; Hodge & Kress, 1988).

The analysis of the three metafunctions: representational, interactive and compositional (Kress & Van Leeuwen, 2006) showed similarities in the design between the six advertising films, i.e. similarities in represented participants: people, things, places, interpersonal relationships and composition.

During the process of composition, the pupils interpreted and selected messages according to their communicative needs and interests, and the findings indicated similarities not only between the six groups but also similarities between the pupils and the advertisements of Western culture in various ways e.g. colours, clothing, harmony, status and lifestyle. The pupils had designed the advertising films with representations of objects that arise from their cultural, social and physiological history in relation to the specific context in which the sign-maker produces the sign (Kress & van Leeuwen, 2001).

The analysis shows that distance as an interactive metafunction allowed communication between the producers (the pupils) and the viewer of the films. The zoomed-in images could be interpreted as the pupils wanting to communicate the idea of the special properties of the planet, e.g. the *luxury* on Jupiter (by highlighting the golden hotel) and the *low costs* (by using the 10 kronor coin).

Colours were used as signifiers to attract the viewer, e.g. the gold colour expressing exclusive hotels; highlighting texts in a bright colour (e.g. white); cold blue colours signifying the out-in-"Space" feeling. The use of colours could be related to signifiers that are frequently used in advertising magazines (Kress & Van Leeuwen, 2006).

The central objects, images or written text, were centred as core information. In some of the film clips, the text was put below to give important information in combination with the centred image. Overall, the film clips were composed using representation similar to the advertising genre, where the aim is to suggest that the viewer buys or does something (Kress & Van Leeuwen, 2006).

In the cases where there were representations of people or aliens in the images, the findings indicate similarities in the positive approach using smiling people or welcoming aliens. Overall, the advertising films were permeated with the idea of positive experiences in relation to "Space", signified by, for example, welcoming signs, smiling people or aliens, low costs, great accommodation. In the film clips of people, there was interaction between people in the images by means of gaze, distance and angle, but also interaction with the viewer by means of the written text: e.g. "eat blue cotton candy at the amusement park".

In summary, the findings here are connected to the social and cultural context, which must be set in relation to the specific context in which the sign-maker produces the sign (Kress & van Leeuwen, 2001). The representations in the six advertising films also indicate close connections to the children's world, both in terms of societal expectations about vacations and in terms of what is expressed in advertisements about vacations, e.g. luxury hotels, amusements for children, low costs.

The pupils have certainly been exposed to in different media—TV commercials, newspaper ads etc. (Carvalho, 2013), which could be traced to media travel advertisements in the advertising films they composed. The findings presented here give examples of colours, information values and the composition in relation to distance and angles. The representations of hotels, entertainment and prices can also be traced to media travel advertisements.

From an educational perspective, the similarities between the representations concerning things, places and ideas in all of the six advertising films and the composition of the films are interesting because of the classroom context in which the films have been produced. The advertising films were designed on the basis of certain social and cultural premises and the instructions of the teacher. The pupils received an overview introduction to the film-editing software but they had not been formally instructed on how to create advertising films. However, the findings indicate features of the advertising genre concerning the representations the pupils choose and in what way they composed each film clip.

4.1. Relation between image and text

The analysis also revealed that in some clips, the *text* repeated/elaborated on information that was already given in the image regarding transportation, costs and amusements. In other clips (introduction, qualifications of the planet and the closing credits), the centred text gives the core information and the *images* elaborate on information already given in the text. The latter group of film clips concerns facts about the planet, e.g. the biggest planet in the solar system; the red spot; the moons. The former group of clips concerns cultural ideas closely connected to "Space" and children's world in "society", e.g. a space rocket, costs, amusements. In what way the pupils design modes of communication in relation to the content will be a matter for further exploration in the school practice and it might be the next research focus.

5. Conclusions

The findings presented in this paper open the way for a further discussion about teaching subject content in relation to the digital affordances and the understanding of pupils' meaning-making in relation to the premises of the school task. In this case, the relation between the "what, how and why" of the content of subject domains in relation to the digital technologies (Hudson, 2007) was not taken into account. The teacher's instructions concerned the digital media rather than the subject content of advertising. Carvalho (2013) argues the importance of analysing and understanding what is communicated in advertising. Advertising reflects the social context and social values, which could make the findings here valuable.

First, the school practice must be set in a social, cultural and historical perspective. The school is a social practice closely connected to society. The *visual grammar* (Kress & Van Leeuwen, 2006) reveals the similarities of children's ideas of "Space" and the way in which the planets have been advertised to the viewer, which could be important information from a pedagogical viewpoint in order to understand pupils' conceptions of the advertising genre as well as their vision of travelling to "Space". Further, the impact of the teacher's instructions and the teacher's design on pupils' meaning-making needs to be taken into account. The findings here point out the impact of social and cultural influences on the pupils' products but research could also examine how to design school tasks that include abilities to analyse and understand the purpose of media advertisements. In this respect, I agree with Carvalho (2013), who suggests that the visual grammar by Kress and Van Leeuwen (2006) may be a valuable instrument for the analysis.

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References

Baker, W. D., Green, J. L., & Skukauskaite, A. (2008). The nature of educational ethnography. In G. Walford (Ed.), *How to do educational ethnography* (pp. 1–15). London: The Tufnell Press.

Barton, D. (2007). *Literacy: An introduction to the ecology of written language* (2nd ed.). Malden, MA: Blackwell.

Barton, D., & Hamilton, M. (1998). *Local literacies: Reading and writing in one community*. London: Routledge. https//doi.org/10.4324/9780203448885

Barton, D., Hamilton, M., & Roz, I. (Eds.). (2000). *Situated literacies: Reading and writing in context*. London: Routledge.

Bebell, D., & O'Dwyer, L. M. (2010). Educational outcomes and research from 1: 1 Computing settings. *Journal of Technology, Learning, and Assessment, 9*(1), n1.

Bezemer, J. J. (2016). *Introducing multimodality*. Milton Park, Abingdon, Oxon: Routledge.

Bezemer, J., & Kress, G. (2016). *Multimodality, learning and communication: A social semiotic frame*. London: Routledge.

Björkvall, A. (2014). Practices of visual communication in a primary school classroom: Digital image collection as a potential semiotic mode. *Classroom Discourse, 5*(1), 22–37. https//doi.org/10.1080/19463014.2013.859845

Burn, A., & Parker, D. (2003). *Analysing media texts*. London: London Books Ltd.

Carvalho, F. (2013). Social semiotics and literacy: A case study about the social meanings constructed by ads of a children's magazine. *Australian Journal of Language and Literacy, 36*(3), 2013.

Edwards-Groves, C. J. (2011). The multimodal writing process: Changing practices in contemporary classrooms. *Language and Education, 25*(1), 49–64. https//doi.org/10.1080/09500782.2010.523468

Flewitt, R., Messer, D., & Kucirkova, N. (2015). New directions for early literacy in a digital age: The iPad. *Journal of Early Childhood Literacy, 15*(3), 289–310. https//doi.org/10.1177/1468798414533560

Haliday, M. A. K. (1978). *Language as social semiotic*. London: Edward Arnold.

Heath, C., Hindmarsh, J., & Luff, P. (2010). *Video in qualitative research: Analysing social interaction in everyday life*. Los Angeles, CA: Sage.

Hennessy, R., Deaney, K. R., & Winterbottom, M. (2007). Pedagogical strategies for using the interactive whiteboard to foster learner participation in school science. *Learning, Media and Technology, 32*(3), 283–301. https//doi.org/10.1080/17439880701511131

Hillman, T., & Säljö, R. (2016). Learning, knowing and opportunities for participation: Technologies and communicative practices. *Learning, Media and Technology, 41*(2), 306–309. https//doi.org/10.1080/17439884.2016.1167080

Hodge, R., & Kress, G. (1988). *Social semiotics*. Cambridge: Polity.

Hudson, B. (2007). Comparing different traditions of teaching and learning: What can we learn about teaching and learning? *European Educational Research Journal, 6*(2), 135–146. https//doi.org/10.2304/eerj.2007.6.2.135

Jewitt, C. (2006). *Technology, literacy and learning: A multimodal approach*. London: Routledge.

Jewitt, C. (2008). Multimodality and literacy in school classrooms. *Review of Research in Education, 32*(1), 241–267. https//doi.org/10.3102/0091732X07310586

Jewitt, C. (2014). Different approaches to multimodality. In Carey Jewitt (Ed.), *The Routledge handbook of multimodal analysis* (pp. 28–39). London: Routledge.

Kennewell, S., Tanner, H., Beauchamp, G., Parkinson, J., Jones, S., Norman, N., … Morgan, A. (2007). *The use of ICT to improve learning and attainment through interactive teaching* (Full research report ESRC end of award report, RES-139-25-0167-A). Swindon: ESRC.

Kress, G. (2010). *Multimodality. A social semiotic approach to contemporary communication*. London: Routledge.

Kress, G., & van Leeuwen, T. (2001). *Multimodal discourse: The modes and media of contemporary communication*. London: Arnold.

Kress, G., & Van Leeuwen, T. (2006). *Reading images: The grammar of visual design* (2nd ed.). London: Routledge.

Mavers, D. (2003). Communicating meanings through image composition, spatial arrangement and links in primary school student mind maps.

Merchant, G. (2007). Digital writing in the early years. In J. Coiro, M. Knobel, C. Lankshear, & D. J. Leu (Eds.), *Handbook of research on new literacies* (pp. 751–774). New York, NY: Laurence Erlbaum.

Miller, S. M., & McVee, M. B. (Eds.). (2012). *Multimodal composing in classrooms: Learning and teaching for the digital world*. Abingdon: Routledge, Taylor & Francis Group.

New London Group. (2000). A pedagogy of multiliteracies. Designing social futures. In B. Cope and M. Kalantzis (Eds.), *Multiliteracies: Literacy learning and the design of social futures* (pp. 60–92). South Yarra: Macmillan.

Öman, A., & Sofkova Hashemi, S. (2015). Design and redesign of a multimodal classroom task- implications for teaching and learning. *Journal of Information Technology Education: Research, 14*, 139–159.

Öman, A., & Svensson, L. (2015). Similar products, different processes: Exploring the orchestration of digital resources in a primary school project. *Computers & Education, 81*, 247–258.

Säljö, R. (2005). *Lärande och kulturella redskap: Om lärprocesser och det kollektiva minnet*. Stockholm: Norstedts akademiska förlag.

Street, B. (1984). *Literacy in theory and practice*. New York, NY: Cambridge University Press.

Swedish National Agency for Education. (2011). *National curriculum and syllabus*. Stockholm: Fritzes.

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Warwick, P., Mercer, N., Kershner, R., & Staarman, J. (2010). In the mind and in the technology: The vicarious presence of the teacher in pupil's learning of science in collaborative group activity at the interactive whiteboard. *Computers & Education, 55*(1), 350–362. https//doi.org/10.1016/j.compedu.2010.02.001

Wertsch, J. (1998). *Mind as action*. New York; Oxford: Oxford university Press.

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