CREATING MULTIMODAL TEXTS IN LANGUAGE EDUCATION – NEGOTIATIONS AT THE BOUNDARY

ANNA-LENA GODHE

Department of Applied Information Technology, University of Gothenburg,
Forskningsgången 6, 417 56 Gothenburg, Sweden
anna-lena.godhe@ait.gu.se

BERNER LINDSTRÖM

Department of Applied Information Technology, University of Gothenburg,
Forskningsgången 6, 417 56 Gothenburg, Sweden
berner.lindstrom@gu.se

How students negotiate what to include, and exclude, in multimodal texts is, in this article, explored in order to find out how, and to what extent, creating multimodal texts in language education can be regarded as a literacy practice at the boundary. When students create multimodal texts in classrooms they may incorporate contextual references from domains outside of education, such as popular culture, in the multimodal texts. By incorporating contextual references from activities outside of education, the multimodal texts become boundary objects which potentially connect educational and everyday practices. Boundary objects have different meanings in different activity systems but may connect, as well as divide, the activity systems involved. By analyzing student interactions this article aims to illuminate to what extent the students relate to multimodal texts as boundary objects. The ambiguous nature of boundaries accommodates for variations which are discernible in how the students relate to, and incorporate contextual references from several literacy practices in their multimodal texts. The students sometimes utilize the multimodal text as a boundary object which connects the activity systems involved, but by excluding certain contextual references the division between the activity systems is also enacted by the students.

Keywords: Multimodal text; boundary; emerging practices, Cultural Historical Activity Theory.

1. Introduction

As digital technologies are becoming increasingly common in classrooms it is possible, and relatively easy, for students to create multimodal texts as a classroom activity in language education. When engaging in the activity of creating texts in language education, the students are expected to create an object, a text. The text can be considered a literacy object as it displays the students' ability to express meaning. The students use their own voices to create the soundtrack to their multimodal texts. Transitions between images are used to create movement in some of the multimodal texts, and music may also be included. Creating multimodal texts such as these in a classroom, potentially provides for new practices of reading, producing and disseminating texts (Jewitt, 2005).

In established practices of writing texts in a classroom, students usually write texts with pen and paper or create the text in a word processing program on a computer (e.g. Hull, 2003; Turner & Katic, 2009). While the students use several mediating artifacts when creating multimodal texts, the computer is vital in this activity. The alteration of mediational means, as well as the outcome of the activity, could be seen to create an activity which potentially connects everyday literacy practices with literacy practices in education (e.g. Star & Griesemer, 1989; Akkerman & Bakker, 2011). However, as the creation of the multimodal texts are made in a classroom, the institutional habits of creating texts in education will influence what students do, as well as how they do it (e.g. Heap, 1989; Erstad, 2007). When new activities are introduced, what those activities mean and entail in a school setting has to be negotiated in order for the participants to establish what is, and what is not, applicable for these activities in this environment.

Literacy has traditionally been associated with the ability to read and write typographical text (e.g. Gee, 1996; Cope & Kalantzis, 2000). The New London Group (1996), in their proposal for a *"pedagogy of multiliteracies"*, sought to broaden the understanding of literacy to incorporate the variety of texts associated with information and multimedia technologies. They stressed the need for students to be able to make meaning by using and selecting from the many different resources available to them. New Literacy Studies has attempted to rethink literacy as local and situated, rather than as a set of skills or competencies that is acquired through education (e.g. Scribner & Cole, 1981; Barton & Hamilton, 1998; Street, 1998; Jewitt, 2008). Barton and Hamilton (1998) write about the notion of literacy practices as a way *"of conceptualizing the link between the activities of reading and writing and the social structures in which they are embedded and which they help shape"* (ibid., p. 6). Lankshear and Knobel (2008, p. 23) consider the notion of "new" in relation to literacy as being paradigmatic as well as ontological. With the approach of thinking about literacy as a social phenomenon comes a paradigmatic change in how to research literacy. "New", in this sense, primarily refers to how we understand and describe literacy practices. Taking a sociocultural perspective when researching literacy means that literacy practices are studied in a certain setting. How literacy practices relate to, and are affected by, the environment in which they are situated is taken into account in the analysis. Creating text in a classroom relates to the sociocultural practices and structures in this setting, whereas creating text in other settings will relate to other sociocultural practices and structures.

"New" in connection to literacy can also refer to changes in practices which involve new *"ways of producing, distributing, exchanging and receiving texts by electronic means"* (Lankshear & Knobel, 2008, p. 25). Related to these changes in practices is also what Gee (2004) calls affinity spaces and Jenkins, Clinton, Purushotma, Robison, and Weigel (2006) refer to as participatory cultures. Compared to engaging in conventional literacies, these practices are regarded as being more collaborative and participatory (e.g. Gee, 2004; Jenkins et al., 2006; Lankshear & Knobel, 2008).

Even though the concept of literacy and the necessity to broaden it, to incorporate texts from different domains as well as texts consisting of different modes which are

common in society today, has been discussed for a number of years, recent studies suggest that in education a conventional notion of literacy largely prevails (e.g. Lankshear & Knobel, 2008). Some literacy practices are dominant and more influential in educational settings whereas everyday literacy practices are often devalued (e.g. Barton & Hamilton, 1998; Edwards, Ivanič, & Mannion, 2009). Bergman (2007) and Olin-Scheller (2006) both study language education in Swedish schools and they show that the connection is weak between texts that students consume and produce outside of school, and the texts they encounter in school. Creating multimodal texts in language education could be a way of bridging the gap between the different text worlds in which students seem to live, and may enable the students to make use of abilities connected to the use of technologies in activities outside of the classroom environment (Erstad & Silseth, 2008).

Considering that many youngsters, especially boys[1], watch film clips on sites such as YouTube (Medierådet, 2008), it is probable that the students are used to watching, and maybe also producing, home-made short films on the Internet. When the literacy object of activities in a school setting is a multimodal text, more commonly encountered in literacy practices outside of school, this object can be regarded as a boundary object which inhabits intersecting practices (Engeström, 2009).

Moreover, with the increasing use of various digital technologies, everyday literacy practices have been altered as digital technologies facilitate sharing literacy objects with a large audience (e.g. Lankshear & Knobel, 2008). Using various sites on the Internet, it is possible to connect and interact with a large number of people regardless of distance in locality. In what Jenkins et al. (2006) designate participatory cultures, both production and participation is encouraged, which means that the boundary between producers and receivers of media is blurred. To participate in these literacy practices, it is necessary to be able to produce one's own media and share it with others (ibid.).

Using computers and other technical devices, such as mobile phones and tablets, to communicate and interact is common to most teenagers in Sweden in their everyday lives, so it is likely that the students are accustomed to using computers as mediating artifacts in their leisure time (Medierådet, 2008). Technologies, as mediating tools, impact the way in which learning is mediated as well as the potential practices available for those who use them (e.g. Wertsch, 1998; Jewitt, 2005). Since one-to-one-solutions, where students have individual laptop computers, are becoming increasingly common in schools in Sweden (European Commission, 2013), it is of interest to study emerging practices related to these technologies. As institutionalized habits play a significant role in how technologies are used (Säljö, 2000), an important empirical question within educational research is how individuals are acting with technologies in educational settings.

The present article explores how students negotiate what to include, and exclude, in the multimodal texts they are in the process of creating. Multimodal texts can be regarded

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[1] In a survey by Medierådet (2008) 75% of the youngsters between 12-16 years of age stated that they watched film clips on You Tube or similar sites while they were on the Internet. According to the study 76% of the boys and 64% of the girls, in the age group 9-16 years, watch film clips on sites such as You Tube when on the Internet.

as boundary objects as they bear reference to several literacy practices and activities relating to them. People and objects at the boundary show signs of ambiguity as they relate to practices within different sociocultural settings (Akkerman & Bakker, 2011) and therefore are in-between and may connect, as well as divide, the activity systems involved (ibid.). The students need to relate to, and negotiate how to deal with this ambiguity in the literacy object they are in the process of creating. The diversity in how students relate to and negotiate the multimodal texts as boundary objects reveal variations in how they conceive various literacy practices, and to what extent they see the multimodal text they are creating as connecting to several literacy practices. Since the multimodal text is created as a school task, the activities involved are likely to relate to the literacy practices and the sociocultural context of the educational setting (e.g. Säljö, 2000; Linell, 2009). However, as an object at the boundary, other literacy practices which are shaped by other sociocultural contexts may also be incorporated into the multimodal text.

1.1. *Research questions*

The following research questions will be addressed in this article;

- How, and to what extent, do the students relate to the multimodal text as a boundary object?
- To what extent do the students relate to and incorporate contextual references from out-of-school activities?
- How do students negotiate which references to be incorporated into the multimodal text, and which to exclude?

2. Theoretical Framework

Taking a socio-cultural perspective on learning, concepts from activity theory or Cultural Historical Activity Theory (hereafter CHAT), are used to conceptualize the findings in this study (e.g. Engeström, 1987). Within a socio-cultural perspective, learning is considered to originate in social actions and is mediated through interaction and the use of various tools (Wertsch, 1998). Knowledge is used in practice as a resource for solving problems and to manage situations appropriately (Säljö, 2000). Learning and knowledge are regarded as located in connection and interaction between learners, teachers and resources and emerge in dialogue (Ryberg, 2008).

CHAT, as a theoretical framework, is used in the analysis, applying activity systems, as described by Engeström (2009), to the school setting in general and to the boundary literacy practice of creating multimodal texts in this environment, in particular. In what Engeström calls the third generation of activity theory (2009, p. 56), the basic model of activity depicted as a triangle where subject, object, rules, community, and division of labor interact in various ways, has been expanded to include at least two interacting activity systems (see Figure 1). When several activity systems are involved, the object becomes potentially shared and can then become a boundary object. According to Star
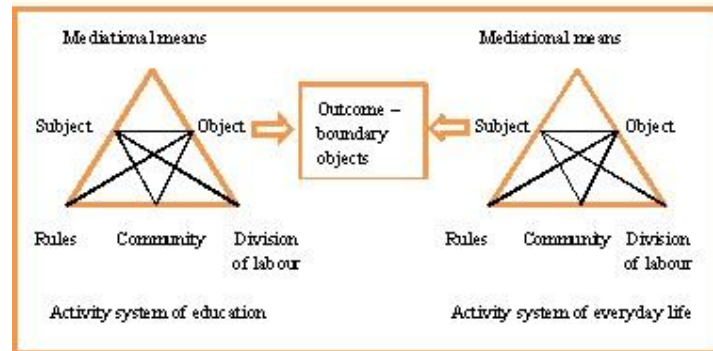
Figure 1. Interacting activity systems and outcomes as boundary objects (adapted from Engeström, 2009, p. 56).

and Griesmer (1986), boundary objects have different meanings in different domains, but because the structure of the object is common enough, it is recognized and may hence be a key factor in developing coherence between intersecting domains.

Engeström, Engeström, and Kärkkäinen (1995) see the transportation of ideas, concepts and instruments from different domains as boundary crossing. Boundary crossing calls for horizontal expertise where movement across boundaries is necessary. When learning is considered to be a vertical movement where the expert teaches the novice, such horizontal movements are largely ignored (ibid.).

In a review of the literature on boundary crossing and boundary objects, Akkerman and Bakker (2011) define boundary as *"a sociocultural difference leading to discontinuity in action or interaction"* (ibid., p. 133). Within the discontinuity, however, two or more activity systems are relevant to one another in particular ways, which means that the boundary simultaneously indicates continuity and sameness. Descriptions of boundaries, and of people and objects at the boundary, show signs of ambiguity as in-between and belonging to both one activity system and another as they connect, as well as divide, the activity systems involved (ibid.). People at the boundary act as bridges between the related activity systems, but simultaneously represent the division between them. Akkerman and Bakker contend that it is because of their ambiguous nature that boundaries have become a phenomenon which is investigated in relation to education.

> *"Both the enactment of multivoicedness (both-and) and the unspecified quality (neither-nor) of boundaries create a need for dialogue, in which meanings have to be negotiated and from which something new may emerge."* (Akkerman & Bakker, 2011, p. 142)

In the literature about boundary crossing and boundary objects, Akkerman and Bakker (2011) discern four learning mechanisms, one of them being transformation.

Transformation involves confrontation and continuous work which leads to profound changes in practices where in-between, or boundary, practices may be created. They see hybridization, where *"ingredients from different contexts are combined into something new and unfamiliar"* (ibid., p. 148), as one of the processes involved in transformation. When practices cross boundaries and engage in a creative process, something hybrid emerges.

Depicting activity systems as neat triangles may contribute to the feeling that activity systems are stable and harmonious, but Engeström (1993, p. 72) states that they are characterized by contradictions. It is through tracing troubles and innovations in activity systems that development can be understood. When a component in an activity system acquires a new quality due to influences from intersecting activity systems, secondary contradictions arise between that component and others in the system (ibid.). The use of digital technology and ways of expression other than the typographical word when creating texts in a school setting means that the mediational means as well as the object of the activity acquire new qualities which, in turn, lead to secondary contradictions within the activity system (Engeström, 2009). As creating multimodal texts is not a common practice in the language classroom, creating them in the classroom may give rise to tensions between activity systems relating to literacy practices in and outside of education (Russell, 1997). By assigning the students the task of creating a multimodal text, their expertise in how multimodal texts are created in other settings is invited into the classroom. What the activity of creating a literacy object in the shape of multimodal texts in the classroom entails is, however, not established and will therefore have to be negotiated. What counts as meaningful, appropriate and accountable actions is locally established through negotiations (Arnseth & Säljö, 2007).

When students in a classroom negotiate activities, these negotiations are governed by how activities are usually carried out in that setting. Activities in a classroom have a history as certain rules and division of labor apply in that environment and both students and the teacher, explicitly or implicitly, relate to these when negotiating classroom activities (e.g. Engeström, 2009). Linell (2009) stresses the importance of what he calls double dialogicality which means that participants in an activity engage in dialogue both with the situated interaction in the particular situation, as well as with the sociocultural practices in the setting where it takes place. Thus, the sociocultural practices in a classroom shape activities and interaction in that environment constitute a premise for the analysis of the negotiations.

Although the two triangles in Figure 1 are the same size and it looks as though the different activity system's influence on the outcome is equal, this is not the case when studying literacy practices in a school setting. To create multimodal texts is a new and non-dominant activity which draws on literacy practices both inside and outside of the classroom. Sannino (2008) argues for innovations in school to be seen as a *"process of interplay between dominant and non-dominant activities which includes conflicts and almost unnoticeable transitional actions"* (ibid., p. 329). Transitions take place when dominant activities are gradually replaced or altered by non-dominant activities.

Transitional actions may also enable dominant and non-dominant activities to begin to merge and hybridize (ibid.). The students are doing a school task and therefore how the activity of creating texts is usually done in language education dominates their activities. The non-dominant activity of creating multimodal texts may, however, lead to transitions of the activity of creating texts in a classroom. The focus of this article is on how the non-dominant activity of creating multimodal texts is negotiated in a classroom. These negotiations may illuminate transitional actions which *"move sideways, across boundaries between dominant and non-dominant activities, with potentially long-term sustaining significance"* (Sannino, 2008, p. 332).

3. Method

To regard literacy as a social phenomenon (e.g. Scribner & Cole, 1981; Street, 1998) implies that studies of literacy practices need to be done in authentic settings. This study has been done in classrooms, using ethnographical tools as sequences of lessons where students engage in the activity of creating multimodal texts have been recorded and observed (Heath & Street, 2008). The excerpts presented in this article have been selected from a larger set of empirical material which has been collected in four iterative cycles where the design of the intervention has been modified based on the analysis of the previous design. Iterative cycles are core methodology in design-based research (DBR) where, by designing, studying and refining innovations in realistic classroom environments, the aim is to develop theoretical understanding as well as to influence practice (McKenney & Reeves, 2012). An intervention is regarded as a joint product with a particular context and the aim is not to perfect a particular product or process but rather to inquire into the nature of learning in a complex system (DBR, 2003). The interventions are viewed as a means of gaining deeper insights into a phenomenon in its ecologically valid setting. The interventions, in this study, were attempts to bring about activities relating to "new" literacies where students used multiple ways of expression in their text. When analyzing the different cycles the theoretical framework was used to come to an understanding of the collected empirical material and hence theoretical considerations influenced what the next iteration focused on. In that sense the findings are empirically grounded as well as theoretically sustained. The findings of this type of qualitative study cannot be generalized to a larger population, as empirical generalizations. Instead, this research aims for an analytical generalizability which concerns the nature of the phenomenon being scrutinized (Gobo, 2004). By relating to broader theory the results of particular studies can be analytically generalized (Yin, 2003).

3.1. *Data collection*

The excerpts presented in this article come from the second and third iterative design in the study which was conducted in 2009-2011 in three upper-secondary schools in southern Sweden. During the second and the third iterative cycle altogether, seven groups in four different classes were video recorded when they made their first multimodal text during lessons in Swedish. Each group was video recorded for three to five hours using

two cameras while they created their multimodal text. The lessons when the students actively worked with creating their multimodal texts were preceded by a lesson where they were briefly introduced to what a multimodal text is and the computer programs they were going to use. The teacher and the researcher were both present during the lessons and could assist the students by answering questions during the process of creating the multimodal text. Because of this, no extensive introduction to the computer programs in which they worked was done. Since the teachers of the classes had little, if any, experience in creating multimodal texts, they were uncertain of the technology and whether they would be able to help their students. Because of this uncertainty, it is unlikely that they would have agreed to be recorded while creating their multimodal texts had the researcher not been there to assist them. That the researcher was present as a participant observer during the lessons can be regarded as a way to reduce implementation challenges by altering contextual factors (McKenny & Reeves, 2012). As such, it is a temporary scaffold which will be taken away and where a transformation in ownership therefore needs to take place. Such transformations are often problematic (ibid.). However, this study focuses on the responses to the intervention and was thus conducted *through*, rather than *on*, the intervention (ibid.). The context is taken into consideration but is not an explicit focus of the study. If the research had been done *on* interventions it would have focused explicitly on how the intervention worked, with whom and under what conditions (ibid.). As the study is conducted *through* the intervention the findings are grounded in the empirical material which is situated in a particular setting and done at a small scale. However, the findings are also theoretically sustained. As the insights gained are anchored to theoretical concepts, they could be generalizable at a larger scale, thereby to some extent overcoming the limitations of the small scale study.

As the creation of multimodal texts is not an established practice, it was necessary to find teachers who were willing and interested to do it in their classroom. In line with the Swedish Research Council's ethical guidelines for research (Codex, 2010), the students were given information about the research and were asked to fill in a form where they stated whether or not they consented to being filmed and audio recorded. If the students were under 18 years of age, the agreement had to be signed by their parents. Only groups where all students had given their consent to being video and audio recorded could be filmed, which meant that there were never an excess of pairs or groups to record. Consequently, the students who have been recorded have actively given their consent to take part in the study.

The excerpts of interaction presented in this article are taken from two classes at an upper-secondary school where the students had individual laptops. The students were attending the social science program at an inner city school and the course in Swedish was compulsory to all students attending upper-secondary school. The names used for the students are all fictive. The analysis is based on interactions between three groups of

students during lessons in Swedish which is the mother tongue of most of the students[2]. Two of the groups attended the same class and had both been given an assignment where they were going to create multimodal texts about heroes and what it means to be brave. Karin and Linda created a multimodal text where they explored what being brave meant to them. Samuel, Harry and Ihsam created a multimodal text about someone which they considered to be a hero. The third group attended another class and they were given an assignment to alter an existing scene in a book or create a new scene. Isak and Jonas decided to re-make a scene where a character was attacked by a vampire in a forest. The two classes had the same teacher in Swedish and it was the first time that any of the students created multimodal texts in Swedish at upper-secondary school level.

The students were video recorded when they made their multimodal text, and two cameras were used where one focused on the students and the other on the computer screen. This was done in order to capture the students' movements as well as their talk and what they did on the computer during the interaction. Following the data collection all recordings were reviewed and transcribed. The transcripts were then color-coded in order to discern the focus of the interaction and a selection of cases from the entire material was made for further analysis of the interaction.

Taking a sociocultural perspective on learning the analysis of the interactions aimed at examining interpersonal processes (Mercer, Littleton, & Wegerif, 2004) and how participants make use of the resources available to them in particular situations (Jordan & Henderson, 1995). Neither context, nor the artifacts that mediate activities can be separated from activities, and analyses are concerned with the *"content, function and the ways shared understanding is developed in social context, over time"* (Mercer et al., 2004, p. 203). Mercer (2004) points out that with a sociocultural perspective on learning, language is seen as a tool for thinking collectively. In the studies of interaction in classrooms, what students and teachers say, as well as how they act with different artifacts is in focus. The analysis is hence grounded in the empirical material, thereby avoiding ungrounded speculations of what people may think (Jordan & Henderson, 1995).

3.2. *Selecting cases and excerpts*

In this article, the empirical findings are presented as case studies where excerpts from the negotiations between groups of students have been selected for closer transcription and analysis. Case studies are most relevant in a study where "how" or "why" questions are being asked *"about a contemporary set of events, over which the investigator has little or no control"* writes Yin (2003, p. 9). Case studies are also relevant when a phenomenon as well as its setting is in focus. The cases were chosen based on the research questions and involved multiple selection criteria. The first selection criterion

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[2] The Swedish curriculum has a subject called Swedish for second language learners which students who have another first language than Swedish can attend. Since the students in this study all attended the course in Swedish, rather than Swedish as a second language, considerations as to whether they are first or second language speakers will not be in focus. If the students partake in the course in Swedish they will do so on the premise that their proficiency in Swedish is equivalent to that of native speakers.

for the cases presented here was that the negotiations between the students concerned what to include or exclude in their multimodal text. Another selection criterion was that the students should have similar access to the tools they needed to create their multimodal text, as the access and the familiarity with the tools they use may affect how the students engage in the activity. The cases presented here are therefore taken from a school where all students have individual laptops. In other schools that were part of the study, students used stationary computers in particular classrooms when they created their multimodal texts.

In order to ensure the trustworthiness of the study's findings, the empirical material has continually been examined in a collective process where the selection and interpretation of excerpts have been discussed with other researchers (Jordan & Henderson, 1995, p. 43). Texts and interpretations of the empirical material has been presented and discussed with experts as well as in workshops and at conferences. Thereby, the analyses, including the selection of excerpts, have been refined. Furthermore, the interpretations have been discussed with the teacher who figures in the excerpts and who were present in the classroom when the video recordings were made. In later design cycles some students were also interviewed. In these interviews the students were able to reflect on the activity they had engaged in and express their reflective views on their own engagement. In this way the students could voice what may, in situated interaction, not be explicitly stated.

Asking questions about how the students incorporate different references in their multimodal texts, the excerpts that are presented were chosen in order to exhibit a variation found in the collected empirical material at large. Groups of students in various ways and to different degrees relate to the multimodal text as a boundary object in which they incorporate contextual references from different domains. The groups of students as well as the excerpts from the interaction were chosen to elucidate this variation. The selected excerpts can only provide limited support for a general claim of the studied phenomena (Mercer et al., 2004). Based on the complete data collected in the study, the cases and the excerpts illustrate a continuum of to what extent references from different domains are incorporated in the multimodal texts created in the classroom.

The cases and excerpts presented in this article provide insights into how meaning is established in a particular setting (Mercer et al., 2004). As the cases and excerpts are taken from one school and two classes, the cases are situated in a specific setting, and doing a similar study in other classrooms in other schools may alter the findings. However, that established practices in educational settings may be challenged by emerging practices when students engage in activities more closely related to settings outside of education, is a premise which is generally applicable to activities in classrooms.

4. Empirical Findings

In the following section, excerpts from the interaction between the students where they negotiate what to include in their multimodal text will be presented. Excerpts from interactions among three groups of students are presented to demonstrate how the

different groups create multimodal texts and how they, when incorporating several ways of expression in their multimodal text, relate to the educational setting and to references from outside of that environment. How students negotiate references at the boundary are explored by analyzing the interaction between the students where contextual references to practices not directly related to school practices are talked about among peers and with the teacher. As objects at the boundary show signs of ambiguity, they need to be negotiated in order to decide whether they belong to both activity systems, or not (Akkerman & Bakker, 2011). The way the different groups of students create their multimodal texts illuminates variations in their relation to the multimodal text as a boundary object. The three groups have been chosen to exemplify the variation which may be present in a group of students and how the students understand and perform the task of creating multimodal texts.

4.1. *Writing text and adding other modes*

Linda and Karin are creating a multimodal text about heroes and what it means to be brave. They decided to write their text by hand even though they have individual laptops. Once they have finished writing their text they add other modes to their multimodal text. When looking for images they use Google and search using words which they think are suitable.

> Excerpt 1[3]
>
> Karin   um um um we search for *rescue* or something (5) how do you spell *rescue r-e-s-u-e* no wait xxx wrong
>
> Linda   search for xxxx ((laughter))
>
> Karin   I can do that xxx look at that one we'll take that one
>
> Linda   search for discomfort   um
>
> Karin   what did you say that you searched for discomfort

   Karin and Linda do not appear to be quite sure of what they are searching for but rather randomly insert different words in the search engine to see if they will find a suitable image in relation to a particular word. It appears to be the words that are in focus as the words are taken as a premise for finding images to illustrate the spoken words in the multimodal text.

   As the spoken and written word, generally, is emphasized in language education, the focus on this feature of the multimodal, means that the students mainly relate to the means of expression which are valued in an educational setting (e.g. Cope & Kalantzis,

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[3] The following annotation conventions are adapted from: Jefferson, G. (1984). Transcription notation. In J. Atkinson & J. Heritage (Eds.), *Structures of social interaction*. New York: Cambridge University Press.

(# of seconds)	A number in parentheses indicates the time, in seconds, of a pause in speech.
(.)	A brief pause, less than one second.
:::	Indicates prolongation of a sound.
((italic text))	Annotation of non-verbal activity.
xx xxx xx	Speech which is unclear or in doubt in the transcript.

2000). Their multimodal text is based on their written text to which other modes are added. Adding images to the multimodal text is secondary and will not, to any considerable extent, add to the meaning of the text they have written. The tendency to use images and other non-linguistic modes as illustrations to the spoken text is referred to by Sorapure as *"mode matching"* (2005, pp. 4-5). To combine modes so that they express something more or less equivalent can be useful when focusing on key ideas, but it diminishes the potential of creating a productive tension between modes in a multimodal text.

In excerpt 2 Linda and Karin are negotiating with the teacher and researcher whether to have music in their multimodal text or not.

Excerpt 2

Linda   you wanted music you said you had some tune

Karin   hm hm no but that was only a joke ehh yes

R   but if you go to the multimedia bureau and listen if you find something that
        suits you

Linda   but wouldn't that disturb a lot in

Karin   I don't think it will be good I don't think

Linda   no because we are talking the whole time

R   yes but you turn down the sound so that it just becomes like a background

Linda   eh I don't know what it sounds like sort of

T   you could have it in the beginning do you have text in the beginning

Linda   no but that is so short

T   yes yes ok do you have texts the names you have there at the beginning

Linda   yes and it sort of goes backward and forward then so

Karin   we actually don't have any sound on the last image where it says the end

T   that you could have you could have something there

Linda   but we don't have it in the beginning either do we

Karin   then we start talking

Linda and Karin do not want to have music in their multimodal text as they think it will disturb the voiceover where they read the text they have written. The teacher and researcher suggest different ways they could incorporate the music and also try and convince them that the volume of the music can be turned down so that it will not interfere with the voiceover. Their completed multimodal text does not have any music. The students are, in this excerpt, actively resisting the incorporation of music in their multimodal text.

The decision to not have music in the multimodal text indicates that it is what they say in the multimodal text which is most important to them. That implies that the spoken word is considered to be the mode in which meaning is made, whereas the other modes are complimentary to the speech but do not in themselves add to the meaning of the multimodal text. The notion of speech, based on written words, as the primary carrier of

meaning coincides with a conventional view on literacy based on the written and spoken word and the ability to read and write (e.g. Cope & Kalantzis, 2000; Turner & Katic, 2009). The established practice in an educational setting is to create texts consisting of written or spoken words (ibid.). That Karin and Linda concentrate on the modes which they know to be valued in the educational setting may be regarded as a way to adapt to the setting they are in.

These students view multimodal texts as a rather conventional literacy object in the language classroom. The students include images but do not appear to relate the creation of multimodal texts to activities outside of school to any great extent. Therefore, the multimodal text, does not, to any considerable extent, serve as a boundary object for these students.

4.2. *Creating multimodal text as patchworking*

In the following excerpts, interaction between a group of students consisting of three boys will be analyzed. Samuel, Ihsam and Harry are creating a multimodal text about a hero and what it means to be brave, just like Linda and Karin. Samuel, Ihsam and Harry do not, however, spend much time writing what to say in their multimodal text. Instead they spend time deciding which hero to base their multimodal text on. Initially, they consider the subject of their multimodal text to be mothers as heroes, as well as Muhammad Ali as a hero. In the end, however, they decide to base their multimodal text on a hero which they have come into contact with through media, especially through sites on the Internet such as YouTube and Facebook.

Once they have decided to create a multimodal portrait of Nick Vujicic they look for facts about him in articles as well as in film-clips about him on YouTube and Facebook. Through the information they gather from different sites they create their portrait through patchworking. Ryberg (2008) sees patchworking as a way to understand learning as the assembling of different patches and pieces into provisional patchworks that are negotiated, changed and reweaved continuously (Ryberg, 2007, p. 321). Different patches are seen as resources for the discussion around persistent ideas, or threads. Different threads concerning the childhood of Nick Vujicic and the difficulties he had then, as well as his illness and how he lives his life nowadays are stitched together by the students to create a provisional patchwork which works as the blueprint to the multimodal text they are creating. In excerpt 3, Samuel, Ihsam and Harry are negotiating whether to include more facts about the illness and how to structure the final version of the voiceover.

Excerpt 3

Harry   shouldn't we say more about him

Samuel   no but we have already said what he wants to do xx then we can talk about
          tetraamea which is the illness that Nick suffers from and that is why he doesn't
          have arms and legs something like that

Ihsam   it is anyway we can turn it around and we say that last or

Harry   and then we talk about the illness he suffers from (2) if you start with
             something sad like that eh happy ending with this that he he is content and he is
Ihsam   yes
Harry   he loves his life and all that (2) then we take we start with that

In this excerpt the students negotiate which facts to include when recording the soundtrack of the multimodal text. They also negotiate the order in which they are going to present the facts and who is going to say what. Similarly to Karin and Linda, they are negotiating what to say in their multimodal text, but Harry, Samuel and Ihsam also negotiate how to use sources taken from various sites on the Internet in the text they are creating in the classroom. Accordingly, they negotiate the multimodal text as a boundary object in which contextual references from different activity systems are combined. In this transformation the multimodal text becomes a hybrid as the combination creates something new and unfamiliar (Akkerman & Bakker, 2011).

As the content of the multimodal text, images as well as facts on which the voiceover is based, are to a large extent taken from sources such as YouTube and Facebook, it could be argued that what the students do is merely copying and pasting. However, in the interaction it is discernible that while putting together the different resources, the students engage in a number of activities such as translating English texts into Swedish and medical texts into everyday language. The students also watch and listen to short films about Nick Vujicic and try to extract the core of his ideas to present in their multimodal text.

Samuel, Ihsam and Harry create their multimodal text through extensive use of resources on the Internet. The person they base their multimodal text on is someone who they have come into contact with in practices outside of education. The multimodal text can therefore be regarded as a boundary object which enables the students to connect activities outside of school to a school task.

4.3. *Negotiating references at the boundary*

In the third group, Isak and Jonas are making a multimodal text where they have decided to re-make a scene in a book where a character is attacked by a vampire in a forest. In their interaction they relate to contextual references not directly related to school activities, and through negotiations they decide which references to include in their multimodal text and which to leave out. Some references are not included in their final version of the multimodal text and hence appear to be considered as not belonging to educational literacy practices.

During the first lesson Jonas, in particular, is preoccupied with deciding which music to use in their multimodal text. Even though they have not yet decided which scene to create or re-create he considers finding the right music most important.

Excerpt 4

Isak   But we have to choose a scene first

Jonas   Are you kidding the music is important (.) we only need the music

Jonas here clearly states that what is most important to him is finding appropriate music. By saying *"we only need music"*, he also questions or chooses to ignore the teacher's instruction, which was to create a film consisting of their voiceover, images and, if they want, music. Jonas and Isak do not write down what they are going to say in their multimodal text to the same extent as the other groups. Instead they largely improvise when they are recording their voiceover. They appear to actively resist focusing on the written or spoken word, thereby resisting the modes which are usually in focus in language education (e.g. Jewitt & Kress, 2004; Lankshear & Knobel, 2008).

The music, *Requiem for a dream* (2011), which they end up using in their multimodal text, was originally made as a soundtrack to a movie but has featured in trailers for several well-known movies. It has also been used in video games, TV shows and adverts. The students are likely to have heard this piece of music in various circumstances since it has featured repeatedly in popular culture. By using this piece of music in their multimodal text they connect to the popular culture in which it has been used and by incorporating contextual references from activity systems outside of education the multimodal text becomes a boundary object which enables them to make such connections (Engeström et al., 1995).

In excerpt 5, Isak and Jonas are referring to a film clip on YouTube which according to Wikipedia is the most viewed YouTube film clip which is not a professional music video; *Charlie bit my finger* (2011). They are contemplating using the boy in the film clip and what he says in a certain part of their multimodal text.

Excerpt 5

Jonas   Can't we have that one

Isak   Should we have that one but it will sound really lame ((laughter)) a vampire aw she bit me man ((they listen to the YouTube film clip)) yeah that one you could have ((continues to listen to the film clip where the boy talks and screams)) that would work anyway but you have to cut out Charlie then ((the boy screams again)) yeah that and then when he screams (1) that had been really cool (2) when she jumps down if you imagine when she lands ((shows with his hands)) and then the scream she screams

Jonas   Shit it will be so lame ((laughs))

Just before this conversation they have watched the film clip they are referring to and in a humorous manner talked about using it. When Jonas opens up the interaction he also replays the film clip and, as Isak starts talking about how they could use it, he is laughing. As Isak goes on talking, though, Jonas seems to realize that Isak is seriously considering

using the film clip and he stops laughing and turns toward Isak. Although the conversation still involves a lot of laughter, Isak's consideration of how to use the film clip seems to make the suggestion more realistic to Jonas. Even though Jonas has earlier been keen to use the film clip in their film, when Isak is now considering it more seriously Jonas seems to question using it. At the end of the excerpt they both start laughing and then Jonas has problems with the computer and they do not seriously talk about the film clip again. The sound is not used in their final multimodal text.

When speaking about and listening to the film clip other students in the classroom are heard to pick up and imitate the sounds. Hence, the other students indicate that this film clip is something which they are familiar with and can associate to. When discussing whether or not to use the film clip the students do not involve the teacher in their interaction but they talk about it with their peers. Similarly to the music they used in the multimodal text, this film clip connects what they are doing in the classroom to activities relating to popular culture which they and their peers are familiar with. Listening to soundtracks from movies and watching YouTube-clips are activities which are usually not engaged in during lessons in Swedish. Their actions could be seen as actively resisting how texts are usually created in a classroom. However, as they do not include the film clip in their final version of the multimodal text, they appear to adjust their multimodal text to the classroom setting. The humorous way in which they talk about using the film clip could relate to their awareness of engaging in activities at the boundary. They joke about what they do as they are uncertain of whether their actions are sanctioned in the classroom and in the end they do not incorporate the film clip in their multimodal text. Just as using the soundtrack from a movie in their multimodal text connected different activity systems, the students here enact the division between different activity systems as the film clip is considered but rejected (Akkerman & Bakker, 2011).

When the students are putting together the images they have made, their speech and the music they have chosen, they start to talk about including what they refer to as bloopers in the film. Bloopers are short sequences of film where mistakes are made. These scenes are usually deleted but are in some movies shown with the closing credits.

It is not entirely clear in their interaction what the students mean when they talk about bloopers. As they have not been filming they do not have any deleted scenes to add. They do, however, have the recordings of their voices when they created the voiceover to their multimodal text and it seems to be parts of these audio files which they intend to use as bloopers. Isak did the talking in the voiceover and he had some problems pronouncing a certain word and ended up overemphasizing the last letter in the word, which was a >T< ("*medvetslöst*").

The students speak extensively about making and including bloopers but they run out of time and therefore say that they will have to leave the idea of using bloopers. However, by adding a big red >T< to their multimodal text at the point where Isak overemphasizes the letter T, they include their own kind of blooper.

Although both students seem to be pleased with including the >T<, Isak says that they will get into trouble for adding it. He wants it to be green, instead of red, so that it will not be as noticeable, but Jonas does not agree with him. They later explain why they have drawn a red >T< to the teacher and it does not cause any trouble. When they show their complete multimodal text to the teacher they also explain the meaning of the blooper.

Although showing their version of a blooper to the teacher the students do not actually mention bloopers in their interaction with her. They do, however, mention to classmates several times their intention of adding bloopers and they also discuss with the students sitting closest to them what the >T< that they add should look like.

The fact that they do not mention bloopers to their teacher but talk about it with their classmates, together with their hesitation of adding bloopers to their multimodal text, suggests an uncertainty as to whether the use of bloopers belongs to an educational setting or not. Just like when they spoke about the YouTube-film, they speak about the bloopers in a humorous manner where they laugh together and with other students. The laughter could be a sign of the students' awareness of being at a boundary as the ambiguousness of the boundary make them uncertain of whether these contextual references from settings outside of education can be incorporated into a text created in a classroom (Akkerman & Bakker, 2011).

In group three, Isak and Jonas cross boundaries as they incorporate contextual references referring to practices outside of education in their school task. Thus, the multimodal text enables them to connect different activity systems as they incorporate experiences from movies, TV and video games in the making of their school assignment.

5. Discussion

In this article, questions have been explored regarding how, and to what extent multimodal texts are related to by students as boundary objects which may facilitate connections between literacy practices in and outside of education (Akkerman & Bakker, 2011). In the excerpts presented from the interaction, variances in how the three groups of students relate to multimodal texts as boundary objects are exemplified. This variation in turn illuminates how processes at the boundary vary depending on how that boundary is conceived and understood by the students. The ambiguous nature of boundaries (Akkerman & Bakker, 2011) accommodates for variations in how aspects from different literacy practices, and activities relating to them, are incorporated in the multimodal text. Creating multimodal texts in language classrooms is an activity which can be related to literacy practices outside of education but the task may also be interpreted as a school task which mainly relates to the sociocultural practices in the educational setting. In the following section the three cases and the variation they represent will first be further discussed, thereafter follows a conclusion and suggestions for further research.

5.1. *Variations at the boundary*

When the students create their multimodal text they partake in a new form of activity in the language classroom, where they simultaneously create and learn what this activity

entails (Engeström & Sannino, 2010). Such an emerging practice is not embedded in its own rules and expectations of how it could or should be done and as the outcome of the activity is, to some extent, unknown to everyone, there are no experts in such learning processes (ibid.). What the activity of creating multimodal texts in an educational setting means and entails is therefore negotiated between students and with the teacher.

Whereas in the first group Karin and Linda primarily relate the activity of creating a multimodal text to literacy practices which are known and established in education, the other two groups, to a larger extent, relate the creation of a multimodal text to literacy practices outside of the educational setting. They thereby connect contextual references from different activity systems when creating their multimodal text which, in turn, means that the multimodal text becomes a boundary object (e.g. Engeström et al., 1995; Akkerman & Bakker, 2011).

To Karin and Linda, it is what they say in their multimodal text which is of most importance. Even though they do not have to write down what they are going to say, they spend time and effort in doing so. Moreover, they write with pen and paper, rather than on their individual laptops. They thereby choose to use traditional writing tools rather than the computer, which they, in the end, have to use to put together the different modes to a multimodal text. These two students primarily relate to the assignment of creating a multimodal text as a school task, and, as they are familiar with how texts usually are created in the classroom, they concentrate on the mode which is known to be valued in this setting, the spoken word (Lankshear & Knobel, 2008). This means that they do not refer to contextual references outside of the classroom to any great extent, and therefore do not utilize the multimodal text as a boundary object.

When they decide not to use music in their multimodal text they are actively rejecting using one of the available modes, which is a mode that is usually not part of literacy practices concerning creating texts in classrooms. Through their rejection they enact the division between different activity systems, and the literacy practices, rather than bridging them (Akkerman & Bakker, 2011). Moreover, the students display the primacy of the sociocultural setting in which they perform the activity. In a classroom, the sociocultural history and the practices related to this particular setting will influence what is done and how it is done (e.g. Säljö, 2000; Linell, 2009). Even though the other groups incorporate contextual references from other literacy practices, those references are related to and shaped by literacy practices connected to education. The multimodal text, as a boundary object, becomes visible in relation to prevalent literacy practices of education.

The three students in the second group build their multimodal text on information and images from different sources on the Internet. Samuel, Harry and Ihsam choose to base their multimodal text on a person which they have encountered on sites such as YouTube and Facebook. From these sources they collect material for the voiceover as well as the images they are going to use in their multimodal text. The gathering of material could be regarded as mainly copying and pasting, but while collecting the material the students adapt and rearrange it to suit their purpose of creating a multimodal text about a hero in a

classroom. What they do could be called patchworking (Ryberg, 2007) as they exploit certain threads in the material they have found and stitch these together to create their own patchwork and particular understanding of the material. The material they have gathered from various sites is re-contextualized to serve the students' purpose of presenting the material in a multimodal text in a classroom. They can thereby be said to utilize the multimodal text as a boundary object in which they connect literacy practices in education with those they partake in in everyday life (Engeström et al., 1995). They adapt content mainly taken from sources on the Internet and incorporate them in a literacy object which will be presented in the educational setting. Lankshear and Knobel (2008) and Lessig (2004) argue that this kind of digital re-mix *"constitutes a contemporary form of writing"* (Lankshear & Knobel, 2008, p. 107). Digital technologies enable remixing images, sounds, texts, and animations, and as young people are picking up on this it is becoming increasingly important in their practices of making meaning and expressing ideas (ibid.).

A boundary is illuminated by the students in group three when they negotiate which references to include and which to exclude in their multimodal text. The negotiations concerning these influences show signs of the ambiguity related to the boundary where the uncertainty of whether references are both-and or neither-nor give rise to negotiations (Akkerman & Bakker, 2011). The students appear to perceive some contextual references from other domains as intersecting with the educational setting, and hence these references may be incorporated in a literacy object created in the classroom. However, other references they refer to when interacting with each other and their peers but they are neither referred to when interacting with the teacher, nor included in the multimodal text they create. By including some references the literacy object is expanded, but it is also constrained as some references are left out. When negotiating what to include in the multimodal texts, the students elucidate a boundary where some references are included in the text and, hence, are considered to belong to several activity systems and literacy practices, while others are excluded and thus considered as not belonging to a school setting.

Groups two and three appear to take different literacy practices as their starting point when creating their multimodal texts. By collecting and re-mixing material from different sites on the Internet, group two create their multimodal text taking activity systems connected to settings outside of the classroom as their starting point. Group three, on the other hand, create the voiceover and the images largely adhering to the activity as a school task, but by incorporating references to popular culture they also connect to activity systems outside of education and the everyday literacy practices they relate to.

5.2. *Conclusion*

When creating a multimodal text the literacy object as such is expanded as the students are required to use several kinds of expression in their text. What this expanded literacy object should or could entail is negotiated referring to sociocultural practices of education as well as other practices where multimodal texts may be encountered. In this article,

excerpts from three groups of students show that when students create multimodal texts in a classroom they connect what they do in the classroom to everyday literacy practices. The students thereby cross boundaries of different domains and use ideas and experiences from activities relating to everyday literacy practices when engaging in activities in an educational setting (Engeström et al., 1995). However, the manner in which they do so, as well as the extent, varies. The multimodal text is, to some extent, utilized as a boundary object bridging the different literacy practices in which it is recognizable (Star & Griesemer, 1989). However, the students also enact the division between different activity systems by actively omitting some references which traditionally are not part of literacy practices in a language classroom. The development of the multimodal text is hence characterized by tensions between, and negotiations about, what to include in the multimodal text and what to exclude. Through their actions the students elucidated a boundary between what is possible to include in a literacy object in an educational setting and what is not. In so doing, the students are acting as bridges between literacy practices but they simultaneously represent the division between these related practices (Akkerman & Bakker, 2011).

When incorporating contextual references from activities usually engaged in outside of the classroom, it is necessary to take into consideration how these references relate to classroom activities (e.g. Hull, 2003; Lankshear & Knobel, 2008). It is not a straightforward transformation of experiences and skills from one domain to another. Rather, it could be characterized as a process of interplay between dominant and non-dominant activities (Sannino, 2008). These processes involve conflicts and contradictions but also transitional actions such as the students' movements across boundaries. Sannino (2008) argues for these transitional actions as part of innovation in schools since transitional actions enable dominant and non-dominant activities to begin to merge.

The relation between different literacy practices become relevant since the discrepancy between these practices leads to a discontinuity in action and interaction. To overcome discrepancies in practices relating to different activity systems, negotiations are needed (Akkerman & Bakker, 2011). The negotiations about what to include and exclude in the multimodal texts are necessary for students to overcome the differences between creating multimodal texts in different settings. Moreover, the double dialogicality of the situation is discernible in the negotiations as the students are in dialogue both with the situation they are currently in as well as with the sociocultural practices in which the activities occur (Linell, 2009). The double dialogicality, as well as the discontinuity, engenders the ambiguous nature of people and objects at the boundary as there is an uncertainty as to whether or not they belong to both activity systems (Star & Griesemer, 1989). How students relate to the ambiguity of the activities they engage in, however, will vary, as the excerpts from the different groups have shown.

The ambiguity of people and objects at the boundary appear to implicate a disparity in how the multimodal texts as boundary objects are related to by the students. The activity of creating a multimodal text in language education means that students can, and to some extent do, relate to several literacy practices. However, this can be done in a variety of

ways. The variety displays that when students are able to express meaning selecting from several available resources, the concept of literacy is expanded. Negotiations are then needed to decide what can be included in a literacy object which may act as a boundary object as it potentially incorporates references from activities related to other literacy practices. To explore how students relate to this literacy object at the boundary, exhibit potential literacy practices in connection with using technologies in the classroom.

5.3. *Implications of the study for practice and further research*

Qualitative studies, such as this one, of how activities are negotiated and understood in classrooms where ICT is used as a mediational tool, may contribute to an enhanced understanding of what an increased use of ICT in classrooms means and entails. Such studies may raise questions, and propose possible answers, about possibilities, as well as obstacles, which teachers and students may encounter when engaging in activities where digital tools are used.

The findings in this article aim to contribute to an increased understanding of how references from different contexts are negotiated by students when they engage in an activity which they have not previously engaged in, in a classroom setting. The various ways in which the students relate to, and incorporate, contextual references from practices outside the educational setting illuminate questions which generally need to be considered when engaging in new activities in the classroom. Lankshear and Knobel (2008) write that *"the day-to-day business of school is still dominated by conventional literacies"* (p. 30) and when schools attempt to get to grips with "new" literacies they *"often simply end up reproducing familiar conventional literacies through their uses of new technologies"* (ibid.). To avoid reproducing conventional literacies, it is necessary for educators to consider which features are shared by conventional and "new" literacies, as well as how they differ from each other (ibid.). Lankshear and Knobel (ibid.) regard it as important for educators to understand both the conventional and the "new" in order to productively draw on them. To involve students in these questions may lead to a mutual understanding of the similarities as well as the differences which, in turn, may clarify what the activity entails in a classroom and in relation to particular aspects of that setting, such as assessment. Reaching such an understanding would make the activity less ambiguous and encourage the evolvement of practices *"that bears the stamp of both, yet is qualitatively different from each of them"* (ibid., p. 29).

The findings in this study do not aim to be statistically generalizable to a larger population. Rather, they aim to be analytically generalizable as they are empirically grounded as well as theoretically sustained. In DBR, generalizations can concern the transfer of theoretical insights or practical intervention, or both, to other settings (McKenney & Reeves, 2012). Generalizations can be considered as two-sided where, on the one hand, researchers are obliged to explicate how studies compare to other instantiations of the phenomenon. On the other hand, when putting the results of DBR to use, the transfer has to be made to a particular setting by those who are familiar with that setting (ibid.). The cases and excerpts presented in this article aim to elucidate issues

concerning the incorporation of different references in multimodal texts created in classrooms. Thus, the cases and the excerpts were not primarily chosen for their representativeness, but rather, for how they illuminate the differences in how students' relate to the multimodal text as a boundary object. By relating the findings in this study to theoretical concepts they are theoretically grounded and may therefore be generalized taking this as a premise. In that sense the limitations of this situated small scale study could to some extent be overcome as it may be possible to generalize theoretical aspects. Ideas from this intervention may be incorporated into designs in other settings and could, in that way, act as springboards for other studies (McKenney & Reeves, 2012).

Further research is required on how activities in classrooms involving ICT, are enacted and how they enable and/or restrain the "new" being brought into *"a fruitful relationship with the already established"* (Lankshear & Kobel, 2008, p. 246). Instead of focusing on particular technologies and their perceived impact on education, more attention needs to be given to how school activities relate to activities in other settings and "new" literacies.

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