

DIGITAL LEARNING MATERIALS IN TEACHING HARD OF HEARING

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ABSTRACT

Introduction

Statped is a national service for special needs education managed by the Norwegian Directorate for Education and Training. One of Statped's tasks is to develop learning materials for pupils with special needs. In this poster we will present two qualitative surveys on how digital learning materials are being used in the teaching hard of hearing students in primary school, secondary school and adult education for immigrants. We will also demonstrate the learning materials included in the surveys.

Purpose

The learning materials in these surveys are all web based and consists of different type of texts. To make them available both for deaf and hearing learners they contain signed, written and spoken texts. Further, the material is visually oriented and adapted to the level of the learner. Moving images, animations, illustrations and other visual clues are also included. Through our survey we will examine how learners adapt to the multimodality of the learning materials. Sign language texts are presented in videos, which in many ways differ from written texts. We will learn more about how teachers perceive, prepare and present this kind of learning material and how pupils use and perceive multimodal materials and video based sign language texts.

Method

The surveys are done as part of two master degrees, one in Applied Linguistics and one within Special Education. They are both qualitative studies. Data was gathered through observation and interviewing teachers and pupils.

Result and Conclusions

This will be presented in the poster as the surveys are ongoing and due in December 2014.

CONGRESS PROCEEDINGS

Our survey is now finished, some of the results will be presented in our poster and in these congress proceedings. According to the Education Act (§9-3), all pupils in Norway are entitled to learning material suited for their needs. Statped has the national responsibility for developing learning materials for deaf and hard of hearing and instructive material for teachers. The primary target group of the material presented here is pupils who have Norwegian Sign Language as their first language. The learning materials are published at our web site erher.no

In the following we will present some of the results and conclusions from the qualitative studies that are presented in our poster.

DIGITAL LEARNING MATERIALS AS ACTOR AND CONVERSATION PARTNER

Line Beate Tveit and Aud Karin Stangvik

Things change and shape human intentions, meanings, relations, routines, memories, even perception of self... To view things as a product of human design or as brute tools controlled through human action alone is to underestimate the power and contribution of things themselves in enacting events... The point here is that material things are performative; they act, together with other types of things and forces, to exclude, invite and regulate particular forms of participation (Fenwick & Edwards, 2010:6).

In this study we explored web based, digital learning materials developed by Statped, ALT. Materials designed for a computer screen with screen text that has a high level of multimodality. The learning materials are developed for deaf and hard of hearing pupils, however they include much more than sign language texts. As they include spoken texts (voice over), written texts, illustrations, animations and film the learning materials are also suitable to pupils that do not know sign language. In this presentation of our study we will focus on multimodality and dynamic text types. But first of all, we will give you a short presentation of our study.

The aim of this study was to reveal how we can improve our development of learning materials. The study is conducted as a master thesis within Applied Linguistics. From this field we carry a fundamental understanding of language as social practice. As humans we create and recreate our reality through language in social interaction. When we develop learning materials we imagine what practices in schools looks like and how teachers and pupils use our learning materials in their lessons. In this study we have examined how some of the learning materials from our web site erher.no actually *are* being used by some teachers and pupils. We had three criterions when selecting the learning materials for this study. First we wanted to study materials developed solely by Statped ALT, from manuscript to final product. Second, the materials should be developed according to the national curriculum of 2006, *Kunnskapsløftet, LK06*). The third criterion was that the materials were developed for pupils in primary and secondary school.

The theoretical perspective in this study is based on Symbolic Interactionism (SI) and Actor-Network-Theory (ANT), which both focus on how realities are constructed through practices. Actor-Network-Theory allowed us to explore non-human actors, and our learning materials were seen as a conversation partner. The learning material then, was not "just" an object, it became an actor that both acted and interacted with the human actors. Through the conversations we could explore how the actors understood and created the learning material. We claim that the actors' conceptualization, their words and actions when interacting with the learning material, can tell us what the learning material *is* for them. In other words how the teacher and pupils utilize the material, and how the material become a *learning material*. The research questions for the study were: *In what kind of activities are our learning materials included, who are the actors and how do they interact? How can we use this knowledge to develop learning materials for the deaf/ hard of hearing pupils of tomorrow?*

To answer these questions we conducted a qualitative study including both observations and interviews. We visited 5 different schools and looked at how some of our learning materials were used when teaching the subjects Norwegian Sign Language, Norwegian, Social studies and Mathematics. The form of instruction differed. Some of the lessons were given as special education lessons with only one pupil and one teacher, some lessons were in a group of 3-5 hard of hearing pupils at different ages, and one of the lessons we observed was in a "hearing" class with one deaf pupil. We chose a conversational analysis approached to our data. We studied interaction that included pupils, teachers and non-human actors. In our analysis we studied how the actors oriented themselves towards, and how they dealt with the other actor's utterances and actions. Analytic concepts from both SI and ANT were helpful to better understand and demonstrate how the actors constructed the actions that took place. The study showed us that our learning materials encouraged different activities. The major activities seem to be conversation about a topic and problem solving. Now we will present some of the results in relation to concepts of multimodality and dynamic text types.

MULTIMODALITY

Knoors & Marschark (2014) argue that it is important to consider deaf students cognitive ability to process visual information when using multimodal texts. It is important to avoid too much visual information on the screen - less is more (Knoors & Marschark, 2014:214). Most of the texts in learning materials on erher.no include illustrations, pictures and animations. The intention is that the various types of text will support learners in comprehending the sign language text, as well as engaging and motivating them. This study showed us that this way of mediating subjects do engage the pupils. Different kinds of illustrations help the pupils to both understand and remember. Different types of texts provides variation and different ways of memorizing.

Further, an illustration in a sign language text offer the viewer a place to pause the video. If the video is paused in the middle of an utterance, the mediator's facial expression might be a bit awkward and lead to unwanted attention. The conversation analysis reveals that the interaction between the teacher, pupils and the learning material is very smooth. There are few, if any, breakdowns or need for clarifications. A reason for this might be that illustrations, pictures and animations never are being presented at the same time as the sign language utterances. They are always presented before or after an utterance. Hence, the pupil can concentrate on the one thing happening on the screen. Pupils seem to handle the multimodal aspect of the texts, but the dynamic text type seem to be more challenging.

DYNAMIC TEXT TYPES

As sign language does not have a written language, sign language texts in their gestual-visual modality require video recording¹. Schwebs og Otnes (2007) refer to video and sound as dynamic symbols moving in a fixed speed. The reader of dynamic symbols and texts can be a passive recipient with an active gaze. The reader is watching video picture by picture, presented in a linear structure and he is more or less forced to follow the tempo in the video. In many cases the reader can stop, pause, for- and reward the film but still the video has a linear presentation which tempo you are restricted to follow (Schwebs og Otnes, 2007:113). When pupils read texts in sign language, the signs will disappear as they go along with the text. It might be difficult to hold on to all the information and arguments that are being presented in longer texts. Our conversation analysis found this to be the case when teachers presented relatively long sign language texts from the learning materials *Democracy* and *A multicultural society*². When presenting shorter texts, the pupils were more active; they had more initiatives and more contributions to the conversation. Teachers confirm this, but they also emphasize the importance of reading information from longer texts. Pupils need to be trained in reading longer sign language texts.

RESULTS

This study tells us that we need to design sign language texts so that the reader has a visual index that makes orientation in longer texts easier. We should also include more assignments and our learning material must be easy to find and download to a computer. By introducing simple editing programs, the pupils will be able to do a lot more with the learning material available. They could for example use our sign language texts in their own presentations. This could also facilitate more conversation about a topic and pupils can work more independently.

We will also mention that there now is only one governmental School for The Deaf in Norway. Most deaf and hard of hearing children are mainstreamed in schools where they live. Their learning environment differs from the environment at the traditional Deaf Schools. Many of the pupils still have Sign language as their first language, but they do not live and learn with other signing children and adults. How their education is adapted to meet their needs varies. Some have interpreters, some an assistant who can be more or less proficient in Sign Language. Many of these pupils do follow a bilingual education program. But there is reason to believe that their access to Sign Language is limited as the majority of both teachers and pupils at their mainstream school will be hearing non signers. As a

¹ Unless they are presented live

² Demokrati and Et flerkulturelt samfunn

consequence their Sign language fluency will also vary. Our study concludes that learning materials in Sign language is of great importance for deaf children, it is significant for their bi-lingual training. The target group for our learning materials are pupils who have Norwegian Sign Language as their first language. However, this study also reveal that there is a need for learning materials specially designed for those children who are in the process of learning Sign Language.

ARTEFACTS IN SOCIAL INTERACTION

Mette Eid Løvås

This master thesis examines how the learning material *I Norge*³ is used for teaching Deaf adult immigrants. This material is developed for immigrants who are following a 50 hour program of social studies. *I Norge* is presented in sign language and the resource can be downloaded for free from Statped's web page erher.no

In Norway, immigrants between the age of 16 to 55 who want to apply for permanent residency are obligated to attend a program to learn Norwegian language and social studies. The 50 hour program of social studies will be given in a language the participant can understand. This is hard to offer deaf immigrants as neither teachers nor interpreters are competent in various signed languages. As a result, deaf immigrants are being taught by teachers using Norwegian Sign Language (NSL) a language the immigrants are about to learn.

Adult deaf immigrants who come to Norway are from different places and have different experiences. Their language abilities varies. Some have never learned sign language in school, if they ever have attended school. Others have achieved a higher education. The target group of the learning material *I Norge* is adult, deaf immigrants who have little or no schooling and poor reading and writing skills. The learning material is based on NSL, but it also includes a range of other visual components as photos, animations and short films of authentic situations.

RESEARCH QUESTION

The aim of this study was to explore how adult deaf immigrants and their teacher apply *I Norge* and how the design of the learning material influenced the pupils social interaction and learning. The study is based on theory of artefacts significance for learning, and the main research question was "How are the learning material In Norway applied by adult deaf immigrants?" Additional research questions were: how do the participants interact with the learning material *I Norge*? And how does the social interaction reveal signs of learning?

The study was conducted as a videographic study and it includes video recordings of six lessons. Two teachers and between 7 and 9 students were present during the lessons. As they communicated in sign language, three video cameras were needed to capture the utterances of all those present in the classroom. The recordings were subsequently transcribed, and the sign language utterances were translated into Norwegian phrases to facilitate analysis and presentation of the material.

The study is based on a sociocultural view of learning. The assumption is that learning occurs through participation in activities, and that learning is a consequence of this participation. Learning and knowledge is situated and emerge in social practices in a lifespan development (Säljö, 2006). In this study a central interest was the artefacts influence on learning. Artefacts are cultural tools that mediate information and perspectives. That way they can be helpful when we are structuring what we see and experience.

In evaluating what the participants learned I will refer to Selander & Kress (2012) and their concept *signs* of learning. According to Selander and Kress the participants signs of learning can appear in the way learners change their way they present a topic. Through this concept I could study signs of learning by observing how students re-presented knowledge from the learning material *I Norge*. I analyzed the

³ In Norway. A Sign Language based resource for the 50 hour social study program for deaf adult immigrants.

social interaction between participant and artefacts, how the pupils express themselves and how they re-present and re-contextualize knowledge.

RESULTS

Through this study I have shown that the language, inscriptions and the multimodality of the learning material influence the social interaction in the classroom, and the pupils show signs of learning through this interaction.

I Norge is not based on written language. However, in the sessions observed, the teacher had a major focus on written words when she started teaching different topics. The teacher presented written words from the relevant topic on the board; she explained their meaning and they discussed the corresponding signs. The pupils often found it difficult to understand the *meaning* of the words and signs at this stage. After watching the learning material presenting the topic, the meaning of the signs (and words) became clearer. I observed that the pupils were able to re-contextualize a sign when they talked about other situations using the same signs as presented and discussed in the beginning of the class.

As Säljö (2006) points out, you need to have a certain sociocultural knowledge about the society you live in to be able to interpret inscriptions and cultural tools. This knowledge allows you to interpret the information embedded in the cultural tool and to re-contextualize the meaning of the inscriptions (Säljö, 2006). In my study I show how inscriptions, both picture and text, can contribute to re-contextualization of concepts. I also found episodes where the students exposed signs of learning. The results indicate that learning material with pictures and other illustrations of different situations makes it easier for the participants to gain a common understanding of how to interpret the inscriptions.

The students who participated in this study have different background and different language skills. The learning material *I Norge* combines different modalities when mediating the curriculum and the texts are at different levels. This design enables the learning material to match students with different skills. Through my studies I have seen that students who did not understand the Sign Language presentation of the topic, benefited greatly from the pictures and films. I observed signs of learning when the students retold what they had seen. In my study I have several examples that reveal the students ability to re-contextualize the content of the learning material to fit their own context.

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