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DIVERSITY OR CONFORMITY IN TEACHING DIGITAL DESIGN PATTERN CONSTRUCTION

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ABSTRACT
This paper treats how to use YouTube videos in design education at university level. The internet and new technology has entered the design education in many ways. One of them is the use of YouTube video as a learning activity. Digital pattern construction programmes are already in use in the fashion industry. The problem has been to implement the new technology in the design education at OsloMet (Oslo Metropolitan University). The author has made a survey of the quality of YouTube videos regarding Lectra Modaris, in order to see if the uses could get a more diverse teaching and learning environment for the students in higher education in fashion design. Lectra Modaris is a pattern construction programme. Quality analyses of 65 YouTube videos were made, which gave an inside view of the domain regarding digital pattern construction YouTube videos. The videos mostly covered the basic level of digital pattern construction. The visual interface was the same as the programme. The sound, the language, and the use of the pointer varied from one video to the other. There was no systematic order, which made it easy to find the right video when you needed to learn something specific. Applying YouTube videos as a learning activity requires knowledge of the offer available on the internet, and of how to make it relevant to the curriculum.

Keywords: Digital design, construction programmes, diversity in teaching methods, YouTube video, fashion design

1 INTRODUCTION

There are a number of theories on the benefits of using the internet and new technology in teaching and learning. Trine Fossland [1] writes about how social media has changed the way we communicate and share information. Design education has a need to develop a variety of new learning skills in order to meet the new demands caused by the technology development in the professional world.
In order to educate and engage the "Net Generation" of students, Roodt and Peier [2] suggest that Web 2.0 elements such as YouTube inside or outside the classroom have an impact on the learning environment. Martin C. Carlisle [3] writes that the internet has changed the dynamics of teaching. More and more teaching from prestigious universities are available online. Active learning and combined teaching processes are also the focus in *Standards and guidelines for quality assurance in the European Higher Education Area* (ESG) [4]. Jennifer Katz [5] talks about diversity and academic complexity where she says that "Teaching to the range of students" is the hardest part of the job. The Norwegian government report/white paper *Meld. St. 16* [6] states that future students will be more diverse than today. Diversity in age, life situation and background will enrich the student environment and require the use of new technologies in order to give an adequate learning situation for all the students. Katz [5] speaks of "Inclusive instructional practice", where the aim is to use different instructional methods to address multiple intelligences and different learning modalities. She means that using technology in teaching involves a transaction of three factors: content, pedagogy, and technology. *Meld. St. 16* states further, that computerisation in higher education will create new demands and possibilities in teaching and learning. The government expects that the teaching institutions apply teaching methods where the students play an active role, and use new technology whenever possible [6]. *Meld. St. 16* [6] also accentuates the importance of facilitating in depth learning and transformational learning. *Meld. St. 28* [7], suggests that the students have to acquire new perspectives, but also learn how to preserve acquired knowledge and skills and keep it relevant beyond the study period. In this case, design education needs relevant digital skills when it comes to learning

and using digital design tools. In addition to learning the curriculum, the students must expand their knowledge to keep it sustainable outside the classroom. Digital pattern construction programme has already entered the fashion industry. The problem in Norway has been to implement the new technology in design education at university level. The author has over the years, specialised in making good instructional tutorials for students in higher education. In this article, the focus is on diversity in teaching and learning. The question is, how can uses of YouTube videos be a stimulator towards a more diverse practice in teaching and learning in fashion design education? Diversity comes from the word *divers,* which means several, many. Alternatively, in French *divers* and Latin *diversus* mean different, contrary, separate, divert [8]. Conformity is the compliance with standards and behaviour in accordance with socially accepted conventions. Jesse Martin [9] states that education is modelled on an assembly line system, with an "expert" processing learners through the various stages and subjects that form the educational experience. Martins says further that it is not un-common "with a single specialist transmitting information and calling it learning". The teacher's primary role is to organise the learning activities, in order to foster transfer and long–term retention of knowledge [10].
The teaching method are based on a constructive theory of learning, inspired by Bruner, who emphasises learning the essence of the new knowledge in order to build a structure, so the student are able to understand and construct similar knowledge based on real assignments afterwards [11].

1.1 YouTube video

YouTube is an American video-sharing web site for public use and is the second most visited web site after Google [12]. The *YouTube.com* video site has become very popular over the years, and the students are familiar with using this platform. Dad Hurley, Steve Chen and Jawed Karim constructed the web site in February 2005 [12]. You can upload videos such as music videos, short videos of every-day happenings or educational videos. The videos are short and to the point. They have a title, author and soundtrack. Anyone can publish a video, but there are some ethical restrictions regarding themes and visual expressions. Matias Pasquali [13] states that video is an effective tool for communicating complex scientific ideas. Moving images and colours easily attract the viewer's attention and are well suited to the task of explaining scientific concepts [14]. As video includes information such as colour, position, duration, shape, sound and motion, it is the optimal format for explaining complex technical procedures [13]. The video can be seen as an extended media text, which involves more than the written word. Mayoral, Tello and Gonzales write in their article *YouTube Learning* [15] about the importance of identifying when we are being traditional providers of knowledge, and when we are facilitators of learning, which requires a thorough analysis of our daily professional practice. YouTube videos often focus on showing and sharing practices that are not necessarily the best. However, it is a way of creating knowledge matter for a public domain ranging from amateurs to professional practitioners. Cambridge [16] writes that a community of practice is a group of people who share a common concern, a set of problems, or interest in a topic and who come together to fulfil both individual and group goals. Bickford and Wright [17] write about the necessity of community building as a way of expanding the virtual and physical space for learning. Long and Ehrmann [18] focus on the future of the learning space, as breaking out of the box.

2 METHOD

The author has in many years, made instructional tutorials for ICT uses related to higher design education. The fashion industry has in many years used digital pattern construction programme. There was a need for the teachers at the fashion design education to learn how to use this programme. There were some expensive courses in Borås, Sweden. As an alternative, the author started searching the internet and found many YouTube instructional videos on Lectra Modaris construction programme. Lectra Modaris is an industrial standard with a user interface different from the Office or Adobe programme. It was difficult to understand the programme and therefore useful to see technical instructions on YouTube. This article is based on knowledge from the research and development project in using YouTube videos in order to learn how to work the Lectra Modaris programme.
The first stage was to find useful YouTube videos, and analyse the selected videos in order to examine their quality and the usability. The next stage was to use the videos in learning Lectra Modaris construction programme. The third stage was to make a learning video. The fourth stage was to compare uses of YouTube video with the written instructions. The fourth stage was to see how the uses could benefit the classroom activities.

The approach is phenomenological, with a goal to get an overall understanding of uses of YouTube video, seen here as a phenomena, which has an intension and a meaning related to technical learning sequences in using the Lectra Modaris pattern construction programme. This is a qualitative research, which in this case is to find a selection of video artefacts and analyse them in order to find an in depth understanding of the phenomena [19]. The qualitative method produces information on the particular cases studied. The question is not to find the right answer, but to get an understanding of YouTube videos as phenomena.

3 THE RESEARCH

The first stage of the research involved analysis of 65 YouTube videos in order to find out how the visual and the technical content of the individual video was understandable and could benefit the design education. When searching the YouTube.com internet page, there are many YouTube videos regarding how to do pattern design construction. With different search words such as *Lectra Modaris T-shirt, trousers* and *skirt*, the following hits came up:

Table 1. Number of hits from the first search

Search word	T-shirt	Skirt	Trousers	Full sleeve shirt	Sleeves	Darts	Grading
Lectra Modaris tutorials	1460	643	847	1270	696	517	1440
Lectra Modaris tutorials English	315	266	263	295	262	261	270
Lectra Modaris tutorials Bengali	979	474	544	869	485	517	998

The number of videos is not of a great importance because many of the results are without relevance to the search word. After a while, the same videos kept appearing whatever the search word was. Sixty-five videos were selected because of the video content and its relevance to the teaching curriculum. The visual interface of the videos was the same interface as the programme. Important aspects were the size and speed of the arrow, sound, level and language. For example in searching for "*Lectra Modaris Pants*", some videos had patternmaking of pants, but the hits related mostly to other subject matters. When opening one video in YouTube, many other alternative YouTube videos came up in a menu to the right side of the screen, which gave alternative videos the user had not thought of. The videos mostly fulfil the basic level of digital pattern construction. There was no way to see any progress regarding what you want to learn first. Certain authors had several videos without any ranking according to learning level, for example Rony4u, Md. Munsur Ali, and Micuel Ricardo. The categories were related to fashion items such as T-shirt, skirt, trousers/pants, full sleeve shirt, sleeves and darts. There were also different videos with single technical functionalities, as Grading or Lectra Modaris F2, F5 or F6, which were technical tutorials explaining one particular function. In another example, a video with the title *Lectra Modaris Trousers* was not about constructing trousers, but about grading. Searching for men's suits got 2740 hits, and male vests got 217 hits, but none of them were about the chosen issue. The search engine gave 20 videos per page. Clicking second or third page gave many of the same videos from other categories, and it was not always easy to know the content from the title describing the videos.

In the YouTube video, a recording line is at the bottom of the video on the website page. The user can stop the video and try out the technique at the same time as you see the video. The user can return to the spot and study it repeatedly until understanding the technical problem. The movement or the action of the video is the pointer, which moves from construction towards the different menus, and back. The pointer was in most cases just the ordinary black arrow pointer. Some videos had a yellow dot attached to the pointer. Other had a little bigger yellow circle around the pointer. When examining the learning aspect of the video, I found it important that the pointer had a good size and a calm speed. The goal was to understand the function concerned. When following the pointer, the user will understand the sequence of the activity. If the pointer moves too quickly or moves here and there, it was difficult to understand the tutorial.

Very few of the videos were in English. The text in the programme was in English, but the spoken language was mostly Bengali/Bangla. There were many YouTube videos about Lectra Modaris from Bangladesh. Bangladesh is the world's second largest clothing exporter due, among other reasons, to

the low labour costs [20]. YouTube videos in Bangla came up whatever the search word was. There were some videos in French, Arabic, Italian or Portuguese (Brazilian Portuguese). Some videos had no sound, such as *Cad pattern 2017*, but written statements on NotePad. Other videos had piano music, such as *Rony4u*. An English video, for example *Derby University, UK* had very good quality image visibility, clear language, sound, and arrow quality. *Pandemic Apparel* by Micuel Ricardo was also in English. She had different videos, but none about Lectra Modaris. They were showing an alternative construction programme called Gerber, but kept popping up when searching for Lectra. Some "Bangla" videos had two people chatting with each other, sometimes with background noise or background music. If the user does not understand the language, he/she could turn down the sound and concentrate on the pointer. As for learning noise, many videos started with an advertising sequence before you could see the actual video. You had to wait before you could cut the advertising sequence, and this takes up time. Some videos had a text written all over the video, and you had to be a member in order to see the video without the text.

Producing an instructional video was the next stage. There are different programmes available, which are able to record the screen interface and the activity on the screen. Uninett, TechSmith relay recorder, for example, can record lectures or instructional videos. Uninett requires a username and password. The first goal was to make sequences of learning activities according to the written tutorials. It was important to speak with a good voice and move the cursor with calm movements. At the beginning, it was a problem getting used to your own voice, because it sounds different. It was important not to make unnecessary sound. It was possible to have a picture of the teacher on the screen, so that the student could see who has made the video. This is more a requirement if the teacher is not present in the classroom. The most important issue was to plan the video sequence according to what was the expected learning outcome.

The "conform" teaching method involves instructional tutorials, together with oral demonstration of the digital construction programme in the classroom. The written tutorials have been as visual as possible, describing the different technical possibilities. The technical sequences are getting more complex as the tutorials progress. After each tutorial, the students work with a specific assignment. This gives the design student the opportunity to follow the lecture step-by-step, whilst listening to the oral demonstration of the same technical functions. This teaching method is rather static, and in this paper called a conform method. The design students have to attend classes in order to hear the instructional lectures. The students have to listen, look at the screen, and follow the written instructions and to try out the technical challenges at the same time. The pace and the content of the course follow the same sequences for all the students. There is very little diversity in this teaching method, and the result for some of the students is a feeling of knowledge overload [21]. Some students do not remember what the teacher has said, and try to figure out the written tutorials in order to find out what is going on. There is always a diversity of academic ICT competences in the class. In the evaluation, there are always students who say that the pace is too fast, or too slow. In using YouTube video, the teacher will continue to organise the learning activity. However, the teacher has to know what is available on the internet in order to suggest different YouTube videos according to the present curriculum. Because the search engines are so bad, it is too time-consuming for every student in the class to search for the right video. The design teacher has to arrange the content beforehand. By using the YouTube videos before the classroom session, the ICT knowledge can be in a more similar academic level. The problem is time. However, some years ago, the students had more homework, but now the students require doing the assignments in the classroom. The teacher has to set aside time for the students to prepare before classroom activities, and organise assignment work in the classroom. The students can also use the instructional videos when they think that the teacher is proceeding too slowly or too fast. The students can also suggest other videos, and publish the link in the ELS.

4 DISCUSSION

Along with the growing use of information technology, students enter university with higher expectations in terms of the uses of technology and corresponding pedagogies. The gap between student social media capabilities and higher educational practices broadens unless educational practices are reformed [22]. The students are used to social media and YouTube videos, and many of them make their own videos. The internet has given teachers a new community of practice, which they can use and improve their knowledge without great expenses. In fashion design education, the students are very diverse in both academic and technological knowledge. Not to speak about their diversity of

interests. The conformal way of teaching allows the teacher to perform the classroom activities as he or she goes along. The teacher can change the tone of the voice and interact with the students if they have questions.

The repeated examination of sixty-five videos has given an inside view of the domain of digital pattern construction videos (Lectra Modaris). The author experienced that it took some time to find the right videos according to what the learning aspect was. That means the teacher has to plan and find the right alternative videos for the students. The diversity will be in the learning activities. Katz 2012 talks about a transaction of content, pedagogy and technology. The more the students use available learning technology, the more they improve their ICT knowledge. Producing YouTube videos benefit the classroom activities, because the teacher has performed the technique several times in order to get the video sequences perfect. The performance in the class will improve, but the question is whether the teacher shall perform the same instruction in the classroom as on the video.

YouTube videos can support classroom activities before, during and after the classroom session. It also makes it possible to give different videos to students with a higher level of understanding of the programme so that they can work more independently. Other students can improve their knowledge repeating different sequences until they understand them better. In this way, the use of YouTube videos can expand diversity in the classroom. Skills to search, evaluate, manage and use information and digital resources are essential for working and learning in the digital environment [23]. The student needs an introduction to the programme before being able to learn from YouTube videos. It requires discipline and knowledge of what you want to learn.

YouTube videos will not replace the written tutorials; they will be an addition, in order to gain a more diverse learning environment. There can be a page in the ELS, explaining the learning activities with links to YouTube, or there can be a PowerPoint with text and instruction linked to a YouTube video. The main thing is for the student to find the learning activities quickly. The videos are on the internet, so the student can find them whenever and wherever they are. The best is to understand the language, but if the learner has some basic understanding of the programme, it is possible to learn the technical function without understanding the language. However, there is a need of making alternative videos in Norwegian, because when the technical instructions are difficult to understand, language is a hindrance for learning. I found that timing and the length of the recording was essential. Klappa [24] found that a video of between 5 and 12 minutes works best. This duration allows the producer to present the topic without rushing, but is still short enough to keep most students engaged. Having to search a long video in order to find what you need is too time-consuming.

When it comes to implementing new digital learning media, it is important that the students feel it relevant, important and necessary [25]. It also has to become a useful and concrete supplement to the teaching and learning process. The key word is *added value* [26]. Being innovative using new learning technology takes time before you feel safe and comfortable with the new media. Having required an overview of the offer, availability and quality of YouTube videos is a precondition for using YouTube videos as an extended learning activity.

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