Digital media added on to the subject of Art in secondary schools

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Abstract
The aim of this article is to deepen the understanding of how different aspects of the implementation of digital media may be related to subject paradigms and practice in the subject of Art in secondary schools in Sweden. The article is based on observations and interviews with teachers and pupils at secondary schools about their conceptions of the school subject Art and its relation to digital media. The point of departure is a media ecological perspective. Media ecology studies and takes an interest in how different forms of communication media affect human beings’ perceptions, understandings, feelings and values. The results show that in four of nine teaching groups the teachers introduced digital media in small steps, adding on in a teaching environment otherwise completely dominated by analogue tools and traditional image production methods. The subject conception in Art is mainly aesthetic-practical, implying that manual production is given precedence and contributes to the limited use of new digital media in the subject of Art. It is also characterised by the conception of the subject as communicative, while frame factors also play a role in the limited use of new media in Art. The degree and type of digital media implemented are being negotiated through testing in environments chiefly outside the ordinary subject of Art. After that, they might gradually become elements of ordinary teaching.

Keywords: art subject, paradigm, add-on, digital media

Introduction
In this article I explore how different aspects of the cautious implementation of digital media (adding on) may be related to subject paradigms and practice in the subject of Art in secondary schools in Sweden. The term add on refers both to the more effective use of ICT in an established area and to a new addition to the subject content (McCormick and Scrimshaw 2001, 45). In some cases, it may be a matter of digital art media being introduced in order to ensure learning in a certain area, and where digital media replace previously analogue production, e.g. for reasons such as efficiency, purposiveness etc., but not in order to achieve additional/separate knowledge goals than those already set. In other cases, digital media may in themselves be considered as offering new knowledge areas to be added to and compete with the subject matter existing in earlier syllabuses (Skolverket 2000, 2011).

The aim of the article is broken down into the three research questions: (1) what characterises teachers’ and pupils’ practices and views of the use of digital media in the subject of Art?; (2) which factors influence the organisation of the teaching and
The content that is added through the use of digital media; and 3) what opportunities are there for students to perform via schools’ homepages and other sites?

**Theoretical Framework**

In order to analyse the ways in which the school subject of Art relates to digital media, I use Bernstein’s concept of ‘the sacred and the profane’, which he adapted from Durkheim (John 2005, Bernstein 1996). The ‘sacred’ concerns what is specific in a subject and distinguishes it from all other subjects, as well as the socially discursive demands this places on the subject. The ‘profane’ refers to discourses that challenge and change the ‘sacred’. This is also in line with the ideas of subtle negotiation that aim to increase the repertoire of multimodal media (Wertsch 1998, 2003). The inclusion or exclusion of new media is important for both the subject content and the working methods that develop within subjects. By studying especially what is conceived as media-specific and hence sacred in the subject of Art, it is also made clear what scope is allowed for the contribution in the form of the content and conceivable working methods digital media can make to the subject of Art (Goodson and Mangan 1995, Hennessy et al. 2005). In a media ecological perspective, the point of departure is that changes in the media landscape affect both the use of traditional media and the footing of new media in new contexts (Meyrowitz 1985/1986).

Woods (2004) states in his analysis of qualitative interviews with teachers that in Art and Design teachers who use digital media to a great extent think that they are changing the meaning of the subject itself. This can be manifested in developing a pictorial language or creativity without being skilled in image production in the traditional sense. In the UK, Sefton-Green (1999) observed already 13 years ago a growing number of Art teachers using new technology (ICT) both for research and for image creation and as a general tool for communication. Even if the new technology does not imply a radical change in education, Radclyffe-Thomas (2008) argues that we are moving away from the use of digital media for working in existing practices to transforming these practices. Other studies (Mitchell et al. 2001, Finlayson and Perry 1995) report the risk that those who work as real enthusiasts for new technology in a subject may have a counterproductive effect on its introduction on a broad basis.

The more one can claim that new media are used to transform the content, the more accepted it will be to widen the understanding of the subject’s potential (Sutherland et al. 2004). The impact the new technology has on the subject affects both the subject’s content and the form of teaching that occurs (Senyapili and Basa 2006). In a Swedish context, and drawing on focus interviews with teachers in different subjects, Erixon (2010) investigates teachers’ subject conceptions in relation to new media (in relation to Art, also see Delacruz 2009; Phelps and Maddison 2008). These studies indicate ambivalence and a great variation among
Art teachers with regard to the adoption of new media. The subject that is exposed to pressure from digital media is thereby forced to reformulate its boundaries and the teaching culture that is prevalent in the subject (Demetriadis et al. 2003). Both difficulties and opportunities when implementing digital media have been reported concerning Art education in the last decade (Delacruz 2004; Arnset et al. 2007; Roland 2010) and it is apparent that knowledge of using software, focusing on outcomes, plays an important role.

In a three-year project funded by the Swedish Research Council called School Subject Paradigms and Teaching Practice in the Screen Culture: Art, Music and the Mother Tongue (Swedish) under Pressure (Erixon et al. 2012), environments have been examined with regard to the implementation of digital media in the subjects of Art, Music and Swedish (Marner and Örtegren 2003, Örtegren 2012). The relationship between new technology and school subjects may be seen as a negotiation that may lead to increased or decreased use of digital media in a subject.

**Methodology**

The empirical data in this study were collected from nine schools, ten art teachers, and twenty classes with an emphasis on forms 8 and 9 in lower secondary education. The collection of material was carried out mainly during autumn 2010 and spring 2011. The focus was on studying the existence and way of implementing digital media within the framework of the subject of Art. Four of the participating schools were selected as add on environments as far as the Art subject is concerned. They were judged to add digital elements to a predominantly analogue teaching context. Two of the other schools were coded as embedded environments where digital media were substantially integrated into the Art subject. In three of the schools, resistance to digital media was more apparent, and few signs of usage were found in the Art subject (Marner and Örtegren 2013).

The schools’ real names and the names of the informants have been altered. Participatory observations and focus interviews were conducted with pupils in small groups and with individual teachers. The informants were asked to describe their views and the occurrence of work with digital art media in Art teaching and in other contexts, both within and outside school activities. Visits to several classes of a respective school were made. The pupils’ work and the teachers’ teaching methods were observed. Pupils could voluntarily be included in different focus groups consisting of two to four pupils, most often of the same gender. Teachers were interviewed individually and, if there were two teachers in the same subject, the interview could be conducted in pairs. Both pupils and teachers were asked to judge the content and working methods in the subject of Art, and to what extent digital media were used as a tool. The pupils were also asked about their leisure habits concerning digital media and their interest in communicating by means of images.
Talks also took place with people at the school responsible for carrying out different functions concerning digital media.

This article summarises and discusses the four schools where the occurrence of digital media in the teaching of Art has been identified as belonging to the add-on category. As a further step, we study pupils’ participation in showing and presenting their work and teachers’ judgement (Hetland et al. 2007). These categories are called Instruction, Student at work and Critique. Finally, we comment on pupils’ works in the school environment in comparison with artwork done in their leisure time. In the analysis of this empirical material, both the working methods and the subject content came to be examined in relation to subject conceptions among teachers and pupils. The dominant conceptions or paradigms are the aesthetic-practical deriving from a modernist art approach and the communicative, linked to a broader scope based on visual culture (Marner, Segerholm and Örtegren 2005).

Results

The school environment, the teacher’s role and the pupils’ positions are related to the subject of Art based on themes extracted from the material. Negotiation positions are related to the theory of media ecology. The observed work and the attitudes to digital media in Art education are discussed in general terms. There is no claim to quantitative qualifications since the scope of the empirical data characterises qualitative studies.

In the material for four of the nine schools the gradual application of digital media can be observed in selected parts of the teaching of Art (Lime, Larch, Hawthorn and Alder Schools). This article deals specifically with these add-on environments, in a couple of cases complemented with comparisons with one of the other environments. The studied strategies in Art teaching are characterised by the cautious addition of digital media to an essentially non-digital activity. The teachers have decided to contribute in one way or another to pupils being given some scope for working with digital media within the framework of the school’s manual supply of teaching Art.

How digital media find an expression in the Art subject has depended on teachers’ and pupils’ respective use in connection with Art teaching. The above table (Table 1)

| Schools      | Art teacher’s digital use | Art pupils’ digital use in school |
|--------------|---------------------------|----------------------------------|
| Lime School  | Mainly Instruction        | Mainly Instruction               |
| Larch School | Mainly Instruction        | Mainly Instruction Some Student at work |
| Alder School | Instruction and Student at work Some Critique | Special offers Instruction and Student at work |
| Hawthorn School | Instruction and Student at work Some Critique | Special offers Instruction and Student at work |

Table 1. Survey of the occurrence of digital media in the teaching of Art
also includes observations of activities where digital media were offered as special choices for some periods (Hawthorn and Alder Schools). A common feature of these is that digital art media are processed in pupils’ free choice and that these choices are organised as short course items.

In the resulting account, four different categories are used and presented under the categories: Instruction, Students at Work, and Critique (Hetland et al. 2007). Instruction deals with teachers’ ways of presenting a work area and pupils' ways of searching for information in the subject area. Students at Work refers to different ways of processing art areas with a focus on pupils’ handling of digital media. Critique is the presentations of results made by and with teachers and pupils in different forums, and the different judgments that are associated with digital productions. The fourth category of Leisure and school elucidates pupils’ statements about image use in the school and in leisure time, respectively, and how teachers relate to pupils’ leisure activities with a connection to art.

**Instruction**

The working methods are on the whole such that the teacher in the subject of Art gives tasks to the pupils which must relate to individual pupils' profiles and needs. But even if they chiefly work one by one, pupils most often sit in groups. The pupils most commonly decide on the placing and largely sit in groups of girls and groups of boys, respectively. The following interview sequence from Hawthorn School illustrates this:

I: Do you work individually or in groups?
Boy (1): Individually.
Boy (2): We work individually, but we mainly sit in groups and talk when we paint.
I: Is there a difference between what girls and boys are interested in?
Boy (1): Girls are better at drawing, so I suppose they put more energy into drawing, while we put more energy into talking.
Boy (2): That’s true.
Boy (3): That’s the way it is.

This quotation was chosen because in our material, just like in the latest national Swedish evaluation of the subject of Art, it is evident that girls in Art perform much better than boys even if both groups are equally fond of the subject. It is also typical of the subject of Art that it is for the most part associated with “drawing” and “painting”.

Teacher-led instructions with the aid of digital tools such as interactive whiteboards or digital projectors are becoming ever more common, e.g. at Alder and Hawthorn Schools. The Art teachers at these two schools use digital equipment in order to make the instructions more effective in a less time-consuming way and to
ensure clarity and accessibility to the tasks. The teachers use these forms of instruction for individual pupils more than for whole classes.

The teacher at Larch School thinks that it is enriching and interesting for pupils to be in the borderline zone between manual and digital. He likes to believe in a confluence between digital and manual technology in the subject of Art. He thinks that older technology produces friction between chalks and crayons in relation to the ground scratched upon:

My opinion, I have tested this Sketchpad *(a digital drawing tool, my comment)*, is that you lose the sensual aspect. The feeling of having a piece of paper with a structure and can feel frictions. Many people ask, “How can you keep the blackboard”. I say, “I happen to hate the whiteboard”. Because the pen slips around on the plastic. I like feeling that I do something, I get a friction, and then these pens also get dry quickly. Because I’m not very hooked on computers.

The teacher at Lime School reflects on material items in relation to digital images:

I don’t think that the subject of Art should be merely technological. I don’t think it would be felicitous or become particularly sustainable. I would never advocate that. Because I think that art is material. A computer is a banal thing, it’s flat. And I think it’s important that people can see that what has been done in a computer is like a photograph of that time, you can go under the surface and see what’s there.

The essence of what the teacher at Lime School states is that in education there should be an aesthetic perspective on digital images which makes the images represent problems so that they are interesting besides being nice images; that they are images which speak and say something, and something about the pupil who made it. Her attitude to digital art in education is that the introduction of the digital in the subject must be accepted by the teachers themselves before they can find a good way to use the technology. The sacred for this teacher is the pupil’s personal art development. It is a negotiation, and only when the teacher thinks that something qualitatively new is developing out of the new medium can it be given support.

Most of the schools use the opportunities they have to offer pupils ways of searching and inspirational help by googling pictures and information about pictures. This chiefly applies when Art assignments are connected to choosing image material to be processed that is taken from mass media and from the history of art. The Art teachers Helga and Helena at Hawthorn School say:

Helga: Our art page is lively now.
Helena: But I don’t know if the pupils use it very much.
Helga: No, we use it. We have got all our things there.
Helena: The idea is that they should be able to go there.
Helga: The shared site.
Helena: It’s there we put … assignments, work descriptions of what they should do, slideshows and
I: Hmm, it sounds as if a lot has happened.
Helena: Yes, really.
Helga: And now it feels so self-evident.

The addition will successively increase as the teacher didactically tries out new digital tasks and projects and brings them into the year planning. We have seen art rooms with interactive whiteboards where Art teachers connect their computers to them and show presentations and the Internet. Slowly, the old art teachers’ folders and grey film slide boxes are being replaced by PowerPoint presentations and digital document cameras.

**Students at work**

The first thing that is added to the subject as regards the pupils’ active use of digital media is searching for models on the Internet. The most common digital activity in Art is precisely searching on the Internet. Digital media are partly replacing and complementing other inspirational materials that are found in art rooms, in libraries, in teaching materials and example materials collected by the teachers.

We find that random search as well as more focused search methods are more appropriate and lead to viable alternatives. Both teachers and pupils point out that it is important not to allow these processes to take a lot of time. Other methods are used parallel to this, e.g. borrowing books and periodicals from the library, looking at examples put up in the Art room, and having access to collections of books in that room. What is partially new, besides the amount of available information having increased, is the greater possibility to find examples of images the pupils conceive as useful for their purposes. The search for image models may be made to be able to reproduce shapes, to obtain help with perspectives, colour tests, but also to acquire general inspiration, ideas and models for their own representations.

In one municipality, a teacher (Alder School) had organised art competitions where pupils were asked to produce pictures digitally or manually. In total, the digital images have increased during the last few years, but they are still in the clear minority compared to conventional pictures. The different themes that were varied in different years all had in common that the pupils were given an opportunity to reflect in Art on themes about identity and a connection to our time. These tasks resulted in art exhibitions with prizes supported by local trade and industry.

Teachers have sometimes aimed to change a task from manual to digital handling. One reason for this is that the time is ripe to replace one technology with another since the resources are now available. Another reason is that new tools for a similar purpose could make the work more effective. One example of this is teachers at Hawthorn School who have introduced Pointillism an additive colour mixture that was practised by Impressionists such as Georges Seurat (1859–1891) by means of the
paint program the pupils have on their own computers. The teachers and their pupils thought that the tasks were successful but time-consuming. The new technology required a long time which the manual placing of innumerable small colour dots beside each other had also previously done. Instead of making the work more effective, the pupils were given an idea of how the paint program functioned and felt that as a side-effect of the task they had learned more about the program.

At Lime School, the teacher argued that the addition of new digital image handling requires that the subject of Art be seen in a holistic perspective. The teacher argues that images may well be stored digitally, but it is not a self-evident advantage if they are produced digitally, with fewer opportunities for reflection during the production process. An example of conceptions about how digital tools can be used in the subject of Art is illustrated in the following section of an interview with boys at Hawthorn School:

I: If you were to work with digital media in the lessons, what do you think what you do would be called, would it be tasks of free things?
Boy (1): Draw freely, I think.

The boys see digital applications chiefly as something one does at home, or as corresponding to free tasks when the ordinary ones have been completed. These work areas are thus not embedded in the ordinary teaching of Art. The kind of addition to the teaching of Art that digital media offer is largely associated with possibilities the pupils have when they have completed ordinary tasks. A couple of girls at Hawthorn School express a premonition about future changes when digital tools gain a greater influence:

Girl (1): I think that will change a lot.
Girl (2): Yes.
Girl (1): Because when you draw on the computer you don’t sketch in the same way, then you don’t get the same ideas.

The girls reveal essential differences from the boys as regards both the choice of content and the work process when digital tools are introduced. The new content the teachers and pupils chiefly associate with digital media principally concerns the ability to learn to use digital software to handle images. What is new is that the ways of producing images are more about different forms of montage techniques than about creating completely from scratch. To the extent pupils use a sketchpad on which they draw figures that are then given successive finishing treatments, it is nevertheless the very possibilities of saving in different layers, trying out different colours and additions or reductions of forms etc. that are the “new things”.

At Lime School, there has not been very much use of computers in the subject, “so I started with this two years ago”, says the teacher, referring to a digitally-based Art
project whose purpose is to put a picture of oneself in an advertising context, in an advertising image. She adds drily, “And I only had an old computer that could hardly start, now I have at least two that almost start, that manage to start within a lesson”.

In the studied environments digital tools could rarely be used by all pupils at the same time. Pupils may be offered to solve a task either with traditional media, digital media or a combination of them. These possibilities are most often not offered until forms 8 and 9, in connection with pupils being given opportunities to make deeper studies in various areas (Larch, Alder and Hawthorn Schools). In these cases, a polyvocal mode of working develops where pupils can work with different themes and areas at the same time. This also implies that the pupils are encouraged to support and help each other, and also to assume different roles in a working process. In these cases, the addition leads naturally to the embedment of digital media, when digital applications are used together with manual ones in accordance with the pupils’ needs and possibilities to carry out their tasks.

Digital media can be incorporated in the subject as a further tool in what is otherwise manually-based teaching. The digital media are then integrated into the education in a more cautious way, rather than ‘being added’. Digital art can be integrated into a certain part of the subject of Art, e.g. in film production, but not in other parts. The teacher at Larch School argues, “Moving pictures digitally, there we have a stronger tradition at this school of working with film, and I think that editing films digitally functions fairly well”.

When the reason for using digital media in Art teaching is in the first place the mastering of some kind of software, this most often requires that the groups are in a whole class and are given access to sufficient numbers of computers so that at most pupils can work together in pairs. For similar purposes, almost all schools are equipped with at least one such computer room. In practice, however, it is very seldom that these rooms are used in connection with the teaching of Art.

One reason for this is tradition. Teachers and pupils are not used to leaving the Art room except as a last resort. The room in itself is regarded as ‘sacred’; it constitutes a large part of the subject’s ‘core’. Another reason is that if the teacher were to leave half the group and let the other half remain, difficulties with classroom management and potentially even safety quite often arise. Most teachers and pupils report that when computers are used, they are the stationary ones in the Art room, or those that are wheeled in on computer trolleys.

We find few examples of teachers organising the teaching by booking pupils to work with equipment in special computer rooms. One of the stated reasons is that the computers are not equipped with image processing programs since the licences for them are expensive. The teachers also say they are not familiar enough with the software, and that it is complicated and difficult to book online sessions, to be certain that everything functions, to administrate the opening and saving of works etc. To some extent, pictures seen on the screen are also used as models to be copied
directly onto paper. Only in a few cases could we observe examples of pupils who had chosen to press paper directly onto the screen in order to trace out a figure. Similar procedures are rarely permitted in transfers of pictures from books to paper. Tracing is not considered to lead to any learning in the art of drawing and hence the teacher most often offers alternative methods for pupils who want to create similarity with what is to be represented by means of transfer techniques.

It is not very common for pupils to actively scan in analogue drawings that are then mounted in the computer, but quite often their own photos are processed from a camera directly to the computer. Nor is it common for all pupils to work with tasks where digital processing takes place simultaneously. The reason is partly that equipment is lacking, but also that the tasks given to the pupils in the subject of Art are rarely about the digital handling of pictures. The example below is taken from the teachers Helga and Helena at Hawthorn School whose pupils all have their own laptops:

Helga: I think it has a fairly high status to be good at drawing and painting. They also want to work practically. They want to work with colours and pencils, above all lead pencils.
Helena: Because we can feel that one digital task per form or age group is enough.
Helga: There aren’t that many lessons, I want to keep the tradition...

This indicates that digitalisation is not only a matter of equipment but also of how digitalisation can be connected to the teachers’ way of understanding the subject – their subject paradigm.

**Critique**

On an overarching level, the Swedish Agency of Education states in its introductory text to the curriculum that all school subjects are linked to three concurrent goals: *personal development* in the pupil, *democratic fostering* of goals and *study and vocational* goals. These goals are exemplified below on the basis of one of the schools, namely Larch School.

For personal development one can chiefly mention the teachers and pupils who emphasise the goal of the subject of Art of giving expression to one’s own identity and at the same time developing as a person as regards confidence in one’s own ability. The purpose of being seen and being able to represent in images is linked to identity creating processes. Depending on the subject conception, personal development can sometimes be in opposition to digital image production.

The teacher at Larch School has tested digital image processing with several pupils. He says:

Had 10 computers in a class and let them work. A lot is about technical muddle, unfortunately. I feel that I’m not a computer technician, and will never be one; at the same
time I feel that I want more of it because this is a new medium and it belongs to the future. I also can experience that pupils in some classes are rather tired of computers. It may be exciting for a change to see what the brain, the hand, the eye can accomplish.

He exhorts the pupils to be patient, try things out, experiment and think of what the pupil wants to do with her/his picture. He tells them, “Learn one thing from me, I hate stress, it’s destructive. You can rush about in sport, but you must relax here”.

“Content is king”, says the Art teacher at Larch School. He adds:

If they have to do something, it must be interesting. What do you want to depict both for adults and for pupils of your own age. I’m adamant about the content and how it is presented. Regardless of whether they work with photography, often combined with some image processing program, film or pure computer graphics, where they might get a picture from the Internet and remake it. I strongly emphasise the content in the ninth form.

This Larch School teacher’s subject paradigm is to focus on the communicative aspect of the subject, “My task in this subject is to give pupils an art competence in a world full of images that is constantly growing”. He also emphasises creativity, “Creativity may be an end in itself in all subjects. But in some subjects it is tangible, in Art, Music and Swedish”. The teacher has a generally positive view of the digitalisation of the subject, but also points out many obstacles.

Digital media may appear to be a way of knowing ‘useful’ knowledge and motivating for basics in a media-specific area in order to learn to reproduce and produce. This should be chiefly connected to the more instrumental mastery of techniques.

At Larch School, it is largely on the Art teacher’s initiative that digitalisation of the subject is made possible.

If I had not been interested in including digital technology in my subject, I could have decided not to bother about it at all. But somehow I want to keep up with the times, even if my knowledge is somewhat limited. And the older one is, the slower one is to learn new things. But I’m still curious and want to be familiar with their experiences and their knowledge and interests. So I want to offer.

In interviews with pupils at Larch School, similar points of view are expressed concerning working manually or digitally:

Boy (1): … It’s more that you become good at Photoshop, but you become better technically by hand and at drawing if it’s manual …

The statement may be interpreted as if different kinds of digital software can provide instrumental capacity with limited scope, whereas being able ‘to draw’ includes a wider capacity. Pupils at Larch School also stress the importance of the subject of Art providing time to work freely. Thinking of possibilities to have more
digital art work in the subject of Art, they argue as if this might take time away from
the scope for ‘free activity’ that is given when they have completed different tasks.

Pupils’ opportunities to show and spread the results of their efforts in the subject
of Art are often encouraged by their Art teachers. However, the works quite often
remain placed only in the pupils’ picture files and, when they are shown, this most
frequently happens in the Art room. On some occasions, works that have been
produced are exhibited in corridors, in libraries, or in some other public place within
the school – and also in the vicinity of the school.

Digital media have increased the possibilities of spreading pupils’ works to a great
extent. Sometimes works are e.g. exhibited on classes’ homepages that are accessible
to parents and also function as publicity for the school (Hawthorn School). Similar
dissemination is even more common in subjects where the school has a clear plan for
the media work in its entirety, an explicit profile, or an established option in some
schools. Most often, it is precisely examples of works in these options that are shown
(Hawthorn School).

The teachers at Larch School have a greater focus on digital tools in connection
with presentations of specific tasks, often where digital items have been included in
exhibitions on TV monitors in junior common rooms close to the library of part of
the municipality. At another school (Hawthorn) the subject of Art is well represented
digitally on the classes’ homepages and in various contexts where works are
exhibited. A clear example of this also comes from Alder School where artworks and
art projects are shown and linked.

The teachers who think they can master techniques to handle and process images
(Alder School) see more possibilities than problems with assessing digital works as an
important part of the pupil’s achievements in Art. Yet they emphasise needs for
further education to be able to manage this, and that it is not a matter of saving time
but of more time for handling this kind of pictures in connection with assessment.
Other teachers also take a positive attitude to assessing digital images (Hawthorn and
Larch Schools), but state that the ways of assessing must be developed and adapted:

Those who are not very good at Art, who have performed somewhat weakly earlier on, they
have not had a very strong result on the computer task either. /…/ I had a girl who thought
*Sketch Up* was very difficult, she was just longing for, of, how I long for working as usual, I’ll
get a Fail for this task. She was worried. She was not interested in computers. She got very
stressed by seeing everyone around her making very nice buildings, so it was a bit stressful,
but at the same time it’s supposed to suit everybody. And it’s good for them to see that they
are now required to be able to handle many different tools. /…/ and I feel that when they
have got this on their computers they have no excuses, – no but I was ill then – but then
I can almost demand that they work at home too… (Teacher, Hawthorn School).

Both the teachers and the pupils thought the work was instructive and that it
was possible by means of the software to construct space formations in a new way.
The teachers also thought that greater value was added through the pupils’ way of accounting for their work directly to the teacher on the screen. The pupils’ presentation of their work was made via guidance on the screen so that the pupils could describe and show how the work had been designed to their teacher.

Pupils who are positive regarding digital works as an important factor in the subject of Art are represented, but few pupils explicitly choose to place manual production on an equal footing with production with digital tools in relation to the marking.

As regards the assessment of digital works, the teacher at Lime School says about the quality of the images, “Um, it’s flashy. And then I base the mark on how the composition is made, how much I can see that it’s not just faked, and that’s the difficult aspect of these new programs they have at home”. PhotoFiltre is an image editor that can be downloaded without cost. She thinks that with Photoshop it is too easy to get a good result, “But those who have made it at home, it looks as if they have taken pictures without manipulation, you don’t see that it’s inserted and I tell them that”. She demands documentation of the creative process, “Then I have at least got a process, that they have had an idea”. It is not enough that the product is well made. She wants to know, “What have you done yourself, and how did you think? For all the pictures they make, regardless of whether it’s advertising or something else, I always ask what did you think, for they give themselves a mark, they give themselves a desired mark”.

Pupils at Hawthorn School were asked about different aspects of assessing digital image productions:

I: Do you think your marks would be better if you worked more with computers?
Boy (1): If we could draw a picture and print it, then it would be better.
I: It’s more difficult with a computer to create depth?
Boy (1): Yes.
Boy (2): I think so too.
Boy (3): Me too.
I: . . . In a number of years, what will the teaching of Art be like then, can you see any changes?
Boy (1): I think it will be more digital.
Boy (2): More photography, Photoshop and such things.
Boy (3): The technology is developing, so there will probably be more digital features in Art.
I: Do you think that’s good, positive for you?
Boy (1): It depends on the ability to draw by hand, if you are bad at drawing by hand, then it’s more fun to work digitally; if you are not so good at drawing digitally, it’s more fun to draw by hand.

Pupils often express a pragmatic attitude that seems to be based on the idea that computers as tools are something one has to be able to master to make it possible to do so much with them – and that the need increases if images cannot be produced in other ways. It seems as if digital tools, when they are actually used, make pupils regard the results in a different way compared to images made manually.
Mastering digital software is not associated with independent creation to the same extent as if it is done manually. There are indications that some pupils are relatively conservative in the sense that “the subject of art is fine as it is”, fairly independent of how the subject is practised in the school in question (Marner 2013).

As regards ‘Critique’, a common viewpoint among the pupils is thus that digital image production should not be assessed in the same way as manual production. Manual image production is more valuable and it is not fair to be able to get good marks if one is only good at computers. Some teachers express a somewhat more nuanced criticism where digital media are also distinguished from manual production.

The Art teachers who are aware of the pupils’ knowledge of art-related digital media which they have acquired outside of school can include it their total assessment of the pupil in the subject of Art. The Art teachers who have no form of cooperation with teachers in similar media options, or are unfamiliar with the pupils’ leisure activities involving digital media, seem not to include anything but what is produced directly in the subject of Art for assessment. Nor do the pupils in general report any correspondence between results in options and results in the subject of Art.

**Leisure and school**

At Hawthorn and Alder Schools the digital artwork has both developed in special optional subjects and gradually also been given scope in the subject of Art itself:

I can get hold of interested pupils in lessons and offer them to sign up for a Photoshop course or a photography course /.../ a number of times. Out of perhaps ten interested pupils, I get about six who think it’s exciting enough to go on, although they will have to work with learning a new technique (Teacher, Alder School).

This way of offering options as complements turns out, when the options are run by the Art teachers themselves, to be gateways to subsequently offering all pupils who have Art to work in the subject with digital media. In the interviews and observations it is especially obvious that in school environments where the digital image medium has come to be successively added to the subject of art, there is or has been a background of special profiles run by Art teachers, and as options for especially interested pupils. However, the creation of digital art requires software that is fairly expensive, e.g. Photoshop was not available in any computer lab we visited or on the trolleys, ‘nomads’, which are often used in the schools. The creation of digital art is still the weak link in the chain.

Pupils who themselves work relatively actively with digital media outside of school can also experience it as compensation for not having them in the teaching of Art. Yet the leisure use of digital media does not result in any great demand or in
direct demands to work with them in the teaching of Art. In our material there are thus few pupils who have clearly asked to be able to work, within the framework of the subject of Art, with interests in digital art media that they cultivate in their leisure time. Leisure use where the computer is a ‘toy’ is compared with scrawling or drawing but not for keeping by some of the boys interviewed.

I: Do you use art and digital media... in your leisure time?
Girl (1): Yes, paint.
Girl (2): I draw in Photoshop with a drawing pad.
I: Is there a drawing pad here?
Girl (1): No.
I: And what do you do with the things you have done?
Girl (2): I save them and put them on my blog. But art is also taking photos, I suppose.
There are very many in our class who take photos . . .
Girl (1): You get ideas about how to create.

The girls confirm here that they transfer ideas to Art in the school from their leisure time even if the teachers do not use pupils’ leisure interests in art as a basis for tasks.

The Art teacher at Larch School noted that film and photography occur in young people’s leisure time. The teacher pointed out a problem with leisure work with art, namely the quality. Drawing and painting have decreased and photography and film have increased as leisure activities. The reason for the interest in art in leisure time is that digital media have become easily available, simple and cheap.

What seems to influence the permeability between digital media in pupils’ leisure time and at school is the extent to which pupils are allowed to work with digital art media in the subject of Art. In the school environments where teachers in the subject of Art add in elements of digital image production, one can also observe how the working methods are affected.

**Discussion**

The four schools used for this article have teachers who developed methods for introducing digital art media in some items of the teaching of Art, but these are more the exception than the rule. The teachers’ pupils have accepted this but not pressed for development by way of more digital media in the teaching. The results show that digital media are chiefly used as a means for acquiring information about and letting oneself be inspired by choices of subjects and as models for further processing. The digital art media are used for the purpose of documenting and accounting and, in some cases, also for spreading the produced material in wider circles than in classrooms and adjacent exhibition areas.

Only in connection with particularly specified tasks are there examples of image production where digital tools are used. Examples of this occur in a couple of schools in whole groups, but more often in Art options led mainly by Art teachers outside the
ordinary teaching of Art. This is done in the form of new tasks directly aimed at using and learning to master specific software for image processing. These may either be purchased licences obtained by the schools, or free programs downloaded by pupils. In these cases, the tasks are usually processed on computers and it is relatively unusual for them to be then printed out in the form of completed paper images. Work with the digital editing of moving images is also a frequent feature.

Pupils are often offered an opportunity to choose extra tasks themselves when they have completed the ordinary ones. The pupils who want to, and have possible access to their own or borrowed laptops, may then work with their own images, but without special assistance from the teachers. However, this happens only to a small extent in comparison with manually produced pictures. In addition, teachers sometimes clarify that special tasks of producing images can be performed manually, digitally and manually in combination, or only digitally. These opportunities are however chiefly offered in connection with individual tasks.

In the empirical material and the statements that were studied it is uncommon to produce images with the aid of digital media. Digital media are still rarely used in media-specific use for production. The explanation is that both teachers and pupils do not regard digital media as being primarily connected to the production of images for educational use. Creation by means of digital art media in connection with image production develops pupils’ power of combination. The creation is also promoted by being able to use models and by testing and retesting them. The kind of acquisition digital media provide opportunities for is thus somewhat different from traditional creation. It is not a priori based on skills in manual techniques such as being able to draw or express oneself ‘freely’ in the sense of modernism. It is more a matter of handling technique in order to be able to reuse and change images in new ways.

Some degree of consensus among teachers and pupils is required in order for these kinds of appropriation to become an accepted form of creative activity. One conception is that ability to create can equally well take place via the acquisition of models as via actively changing models. We cannot see any such consensus in this material among the pupils nor among the teachers. Yet there is some degree of consensus that digital media should have some scope within the framework of the teaching of Art.

In studies of school environments that may largely be described as cautious add-on environments, the emphasis is still however on imitating traditional technology but with elements of digital media. It is only when digital media's potential more clearly influences both the content and the working methods that we can expect that the pupils have made the digital tools their own through appropriation. In order to discuss how digital media flow into the teaching of Art and out of it, the case studies are summarised in Table 2 above. At Lime School, the focus in the teaching of Art is aesthetic practical and the permeability of digital media is quite limited. The possible
needs pupils may have for digital media in connection with image production are expected to be compensated through work in their leisure time.

At the Alder, Hawthorn and Larch Schools the prevailing subject paradigms are more evenly distributed into both the aesthetic practical and the communicative focus. As a result, the environments are semi-permeable as regards the use of digital art media. The relevance of art media is linked to the idea that it is positive to reuse images for new purposes, and that part of the artwork is to be able to present it outside a strict school context. We can see in the material that teachers and pupils are cautiously optimistic about digital media but are not prepared to give them a prominent position in the subject. It is instead in the phases of laboratory preparatory work that digital media are used in the studied environments. When it is a matter of proper image production it is connected to film or photography, and in some cases the task is to practise the use of image processing programs.

The subject paradigm that the subject of Art is associated with in school environments that cautiously add elements of digital media has been characterised as environments where digital media should be seen as inserted complements amid the dominance of traditional manual work. The degree and type of digital media are negotiated through testing in environments chiefly outside the ordinary subject of Art. When these tests are implemented by the Art teachers themselves, they gradually become elements of ordinary teaching. The fact that this transfer takes place when opportunities are offered results in the teaching practice itself not being affected to any great extent. In the subject conception, a need can be discerned among the teachers to keep control over what should be presented in the form of tasks and in what order this should happen, most often to everybody in the group at the same time.

If subject representatives of different media-specific subjects, in this case of the subject of Art, were to pay greater attention to the breadth of what is media-specific in the subject of Art, the teacher’s role as “design consultant” (Dons 2006) in the subject would be strengthened. It is thereby emphasised that what is media-specific in Art includes digital media. This might in turn lead to Art teaching that includes

| Schools   | Digital art & media influence | Connection to the subject of Art | Subject paradigm in Art       |
|-----------|-----------------------------|---------------------------------|-------------------------------|
| Lime      | Barely permeable            | Small Addition Compensation in home environment | Aesthetic practical          |
| Alder/ Larch | Semi-permeable            | Some Addition/Compensation      | Aesthetic practical/ communicative |
| Hawthorn  | Semi-permeable             | Some Addition                   | Aesthetic practical/ communicative |
more than traditional pictorial expressions. The working methods are characterised by being dialogic and the subject paradigms are either aesthetic-practical (Lime School) or aesthetic-practical and communicative (Hawthorn, Alder and Larch Schools). It is only when these conditions are changed that we can assume that a media ecology will arise that might come to be required to ensure a higher degree of fusion between analogue and digital image production. As the four studied school environments currently are, there is little to indicate that pupils will make demands for paradigmatic changes in either the content or the working methods. On the other hand, the collected empirical material shows that the teachers’ interest in and familiarity with digital media also successively increased the pupils’ willingness to use them in Art lessons.

The subject of Art is related to being able to be part of heterotopia (Wild 2011) based on Foucault’s concept of panopticon or alternative places (heterotopia). The definition of the subject of Art as a special place with a special mission that shakes up the usual subjects of the ordinary school world requires a clear shift or distinctive character in order to become valid. This distinctive character, which at the same time may be seen as a subject’s ‘sacred’, its distinctive feature and distinguishing mark, presupposes that the subject’s paradigm is based on special qualities that are not shared with other subjects. But if these special qualities change from a panopticon of a traditional territory to entering new arenas (heterotopia) in the school environment – the paradigm of the subject of Art may be shifted in a more communicative direction.

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