

LEARNING-BY-WATCHING AS CONCEPT AND AS A REASON TO CHOOSE PROFESSIONAL HIGHER DESIGN EDUCATION

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ABSTRACT

This paper discusses the concept of learning-by-watching, defined as learning through visual observation and critically connected to Dewey's concept of learning-by-doing. It then presents and discusses learning-by-watching as a reason for choosing professional higher design education based on a questionnaire given to novice university students in their first year at three different Norwegian institutions of design education. The research concludes that watching family and professional designers seems important, but none of the students mention observing design teachers at previous schools as a reason for their choice to pursue professional higher design education. This finding could indicate that design teachers in Norway continue to follow the Forming doctrine, where showing students how to design was nearly forbidden.

Keywords: Learning-by-watching, learning-by-doing, John Dewey, professional higher design education.

1 INTRODUCTION

What is *learning-by-watching* and how important is it in choosing a professional higher design education? In order to answer this question, the empirical material for this investigation is based on a questionnaire given to first-year students from three design education programmes at the university level in Norway.

I connect the concept of *learning-by-watching* [1] to John Dewey's *learning-by-doing* and critically discuss his concept based on his own writings and on the aforementioned survey. The concept that I have developed, *learning-by-watching* [1], is a new term related to an old phenomenon, which runs parallel to Wenger and Lave's [2] *communities of practice*: 'Although the term may be new, the experience is not' [3:7]. My intention is not to deny the importance of doing; rather, it is to extend the meaning of learning-by-doing [4] to include learning-by-watching. The first portion of this paper focuses on defining learning-by-watching through the framework of learning-by-doing.

2 LEARNING-BY-WATCHING WITHIN LEARNING-BY-DOING

2.1 Learning-by-doing

Because learning-by-doing is connected to John Dewey, it is important to discuss aspects of Dewey's theories relevant to my current theme, *learning-by-watching*. Dewey was a pioneer and leader in the radical progressive education movement in the United States at the turn of the twentieth century, together with his colleague and friend George Herbert Mead [5]. Some ascribe the origin of the phrase 'learning-by-doing' to J. A. McLellan's 1889 volume, *Applied Psychology*, which used the following motto: 'Learn to Do by Knowing and to Know by Doing' [4]. Later, Dewey criticized parts of the radical education movement for its narrow understanding of learning-by-doing. He felt that the movement reduced it to activity, making it synonymous with experience.

Dewey inspired and influenced the writing of McLellan in *Applied Psychology*. Dewey was not a co-author, although his name appeared alongside McLellan's in an American edition published sometime after 1892 [6]. According to the title page of the current edition of the book, McLellan was the director of normal schools in Ontario, Canada [4]. For years, this book was unavailable in libraries worldwide,

so I suspect that many authors actually never read the original source of the learning-by-doing concept. McLellan mentions ‘learn to do by knowing and to know by doing’ several times in the book. First, he mentions the phrase when discussing what he calls the ‘...fundamental in *every stage of mental growth...*’ [4:44, author’s emphasis]; this phrase refers to educational principles in primary, secondary and higher education. The first stage he states, is *Mechanical*. The second is *Repetition of the principle of the mechanical stage* [4:45, author’s emphasis]. He continues on the same page:

There is one dictum of modern pedagogy which, *under proper limitations*, finds its application here: *Learn to do by doing*. This principle is by no means co-extensive with the whole of education, and is in fact much abused by some educational ‘reformers,’ but it is the basis of all early training. Reading can be learned only by reading; spelling only by spelling; writing only by writing; the fundamental operations of number only by performing them, and so on. The teacher must aim, therefore, at thoroughness and continuity of repetition, and while having constantly in view the *dawning intelligence* of the child, must avoid *undue* reliance upon the *rationale* of the subject-matter, and undue appeal to a reason as yet undeveloped [4:45, author’s emphasis].

Already in this first introduction to the learning-by-doing concept, it seems that McLellan, inspired by Dewey, criticizes parts of the radical education movement for its narrow understanding of learning-by-doing, reducing it to activity. Further, under point 4, *Learn to Do by Knowing*, he writes, ‘It appears, then, that the maxim, “learn to do by doing” is, after all, but the complement of a wider and profounder principle *learn to do by knowing*’. [4:47, author’s emphasis]. Under the subtitle, *Training of Impulses. 1. The development of the intellect*, McLellan again mentions, ‘The child cannot *do* until he *knows*’ [4:129, author’s emphasis]. Then, under point 3, *Knowing and Doing must, therefore, be trained by the same process, and correlatively to each other*, he makes the following statement:

We are now able to state the psychological principle which reconciles the two precepts already given (pp. 45 and 46), ‘Learn to do by doing’ and ‘Learn to do by knowing.’ The principles when rightly interpreted include rather than exclude each other. Unless we *do*, we cannot *understand the ideas involved in action*, much less act. And unless we *know*, we cannot *understand the ideas involved in action*, much less act. And unless we *know*, we cannot act in a significant way, in a way which is really expressive of ideas [4:130, author’s emphasis].

Finally, under the subtitle *Criticism of Maxims. 3. Learn to Do by Doing*, McLellan continues with this statement:

The principle becomes false when it loses sight of the ideal factor, the element of knowledge required for doing; and when it implies that the doing should be merely habitual or mechanical. It, therefore, requires a supplement: *Learn to do by knowing*. We might combine the maxims, and say: *Learn to know by doing, and to do by knowing* [4:182, author’s emphasis].

Here, McLellan actually explains the motto for the book, which is seen as the origin of the learning-by-doing concept. In the book’s preface, McLellan mentions Dewey’s influence on his writings, saying that ‘the general mode of treatment in the part on mental science is that of Professor Dewey, whose work on Psychology has been so well received by students of philosophy’ [4:vi].

2.2 Dewey’s critique of the interpretation of the learning-by-doing concept

Later, Dewey in his book, *Schools of Tomorrow*, stresses that ‘learning by doing does not, of course, mean the substitution of manual occupations or handwork for text-book studying’ [7:255]. Thus, learning-by-doing seems to be a synonym for experience, and he stresses, ‘the hands, the eyes, the ears, in fact the whole body, become sources of information...’ [7:255]. Dewey includes reading in doing, and he also mentions *watching* processes and products as part of the learning-by-doing concept [4]: ‘the little children go into the shops as helpers and *watchers*, much as they go into the science laboratories, and they pick up almost as much theory and understanding of processes as the older children possess’ [7:255, my emphasis]. Further, on the same page, he writes, ‘Since sixth grade children are old enough and strong enough to begin doing the actual work of repairing and maintaining the building, in this grade they cease to be *watchers* and helpers and become workers’ [7:255, my emphasis].

2.3 Learning-by-watching

I developed the concept of learning-by-watching through my doctoral work about how Inuits or Eskimos learned to design and make vernacular contemporary clothing in North Alaska. Throughout childhood, the Inuit children learned just by watching the women designing and making numerous

garments at home. They never tried to make anything by themselves during childhood, and there was no active teaching. Nonetheless, when they tried for the first time as grown-ups, they managed to design and make the entire garment on their own, including a special kind of advanced trimming, the *qupak*. I do not believe that the ability to make Inuit clothing was an intrinsic skill among the Inuit. There must have been a learning process for gaining design mastery and for gaining competence in the making of these garments, yet this learning did not occur in schools or courses but within the homes of the Inuit. To a large extent, designing and making Inupiaq clothing was tacit knowledge expressed through practice rather than through words, particularly according to visual matters of the design, whose considerations are different from technical matters. When learning happened non-verbally, particularly through learning-by-watching, there was no great need to verbalise this knowledge.

I define the concept of *learning-by-watching* [1] as learning through *visual* observation, while *learning-by-observation* [12] is a more holistic and generic concept involving observation with all of the senses. Thus, watching is the most important sense in use when learning to design – a mainly visual practice. This facet distinguishes it from music, where I suppose learning-by-listening dominates over watching. I think we have paid too little attention to learning-by-watching in design education at all levels, and we should better exploit its potential.

I do not see *learning-by-watching* as a contradiction to Schön's highlighting of coaching. In his books, *The Reflective Practitioner* and *Educating the Reflective Practitioner* [15, 16], Schön's major case was actually a design *learning* situation more than a design *practice* situation. In it, the architecture teacher ('Quist') was a senior practitioner coaching an architect student ('Petra'), a junior practitioner in a design studio. In this design learning context, Schön primarily focused on *verbal* coaching, and the architect teacher's visual drawing was secondary. My contribution is to extend the theoretical concepts of practice and *learning* for the reflective practitioner. Learning as *watching* is important. Learning-by-watching is also important *within* learning-by-doing, allowing you to watch what you are doing yourself, experience what you do and reflect on it.

As mentioned, John Dewey's concept of learning-by-doing has been misinterpreted because authors obviously have not read what he actually wrote about it. Ken Friedman makes a similar observation about the concept of tacit knowledge:

One example of this is the confusion concerning tacit knowledge that emerged as designers became acquainted with the term articulated by Michael Polanyi (1966) in *The Tacit Dimension*. Once again, ignorance and the failure to read are at fault. Proposing tacit knowledge as the primary foundation of design research reflects a surface acquaintance with the concept of tacit knowledge, and it is generally put forward by people who have not read what Polanyi has to say about research [13:154].

Here, Friedman is referring to tacit knowledge connected to design research and not to design education, but I also think many teachers in design have not read Polanyi's writings either. I see learning-by-watching as the way people have learned tacit knowledge [14] visually as reflective practitioners [15, 16] since humankind started to design and make things. However, we have not developed theories about this phenomenon, as we have not been conscious enough to benefit from it in design education. Maybe because it is too obvious to design educators?

I also see learning-by-watching as a broadening of Etienne Wenger's learning theory of *communities of practice* [3]. Wenger, however, did not mention *how* the members of a community of practice actually learn. I regard learning-by-watching to be a crucial way of learning within a community of practice, particularly within a visual field like designing. In a more audio or ear-minded field like music, I would regard learning-by-listening as most crucial. Both learning by *watching* and by *listening*, I would call *observation* with a generic term – learning-by-observation.

3 LEARNING-BY-WATCHING AS A REASON FOR CHOOSING PROFESSIONAL HIGHER DESIGN EDUCATION

Watching seems important in learning vernacular design [1], but the question here is whether and how watching is important for choosing higher design education. In a pilot study for the future research project Design Literacy, we created a questionnaire by QuestBack in 2011. It was sent to all of the novice first-year university students at three different institutions of design education in Norway: the Institute of Product Design at Oslo and Akershus University College, the Institute of Design at Oslo School of Architecture and Design and the Department of Design at Oslo National Academy of the

Arts. The students were not asked, 'How did you learn to design?' but rather, 'Are there any particular experiences, events or people that have motivated you to choose this program?'

One of the students provided the following answer:

I was at a design fair when I was in upper secondary school. There, Merete Nes showed images of her process and discussed her diploma thesis at AHO. And then, she told what projects she had worked on after she had finished school. This is many years ago now, and there was not as much talk about design as nowadays. Therefore, I had never heard of industrial design. When I saw the hand-drawn sketches of a toothbrush Merete had made, I knew what I was going to be and where I should take my education (My translation from Norwegian).

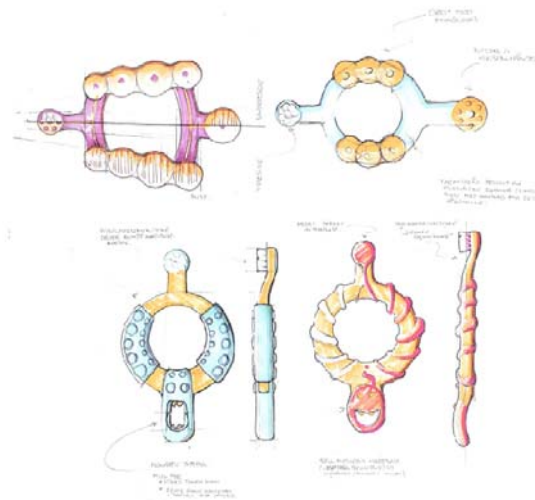


Figure 1. The toothbrush Merete Nes drew and designed

Figure 1 shows hand-drawn sketches of a toothbrush made by Merete Nes. The student's comments show that she had not even known about industrial design before she saw these drawings from the degree programme in industrial design. Often, a designer or artist is a son, daughter or grandchild of a designer or artist. Of course, this phenomenon could be due to inherited capabilities, but more likely, I think *watching* family members make something could influence the younger generation.

When we asked novice design students about this questions, they gave the following examples:

- Mom with my upbringing with design and sewing - and not least knowledge...
- My grandmother and uncle are artists, Mom has always regretted that she did not choose a more "creative" profession.
- There's not a craft we did not make at home: felting, painting, clay, embroidery, knitting, sewing, carpentry, you name it!
- Thanks to my mom, I have always done needlework, sewing and design.

Though the questionnaire was a pilot for a larger future research project about design knowledge from kindergarten through PhD studies, it showed that watching plays an important role in various contexts. None of the asked novice design students mentioned watching design teachers practicing at primary or secondary schools as a decisive factor for choosing professional design education. All of the students that mentioned watching others designing, told about family or professional designers, not design teachers. Could this finding indicate that design teachers do not show the young design students in primary or secondary school how to design?

What traditionally has been regarded as learning [8] involves students listening to a teacher who orally explains a phenomenon (speaking to the whole class or to a single student), perhaps supplemented by writing on a board or drawing a sketch or map. These activities are intended to have a pedagogical purpose; they are not considered to be activities for their own sake. From my experience, these activities were rare for teachers in arts and crafts education, called *Forming*, in primary and lower secondary school in Norway from 1960 to 1997. *Forming* merged the subjects of drawing, textiles and woodworking [9]. In *Forming*, learning-by-doing often was the ideal, and the misunderstanding of the concept went even further, in my opinion. It often just meant *doing*, with the learning left out –

reduced to activity, as Dewey and McLellan pointed out. In Forming lessons, students were encouraged to express their inner feelings, influenced by the romantic theory of Viktor Lowenfeld [10], stressing the natural growth of children's drawing without disturbing teaching. There was nothing to learn, even by doing; students just needed opportunities to express themselves. One result of this doctrine was that teachers never demonstrated or instructed, and students rarely watched any samples, models or patterns, nor any artefacts or processes. To a certain extent, the influence of this view on learning-by-doing still exists in the current Art and Craft subject. Indeed, the importance of learning-by-watching has been overlooked in this mainly visual subject. I think the same is true in professional design education; even there, a more conscious way of learning-by-watching could be developed.

In order to develop a better understanding of how design is learned and practiced in general (design thinking), I hope that these interpretations can contribute to an adaptive theory about the practice and learning of design – with a focus on learning-by-watching in a reflective community of practice [11]. To fill the rather vast holes in this patchwork of design research, I have suggested herein some research 'patches', some stitch work, that I regard as particularly important for strengthening and developing the fabric of design learning in the future.

4 CONCLUSION

In this paper, I have critically discussed my concept of learning-by-watching, defined as learning through visual observation, in connection with Dewey's concept learning-by-doing. I have also presented and discussed learning-by-watching as a reason for choosing professional higher design education based on a questionnaire of novice university-level students in their first year at three different institutions of design education in Norway. The research concludes that watching family and professional designers seems to be an important factor in this decision, but none of the students mention watching design teachers at previous schools as a reason for choosing professional higher design education. This finding could indicate that design teachers in Norway still follow the Forming doctrine, where showing students how to design was almost forbidden.

Perhaps further research will demonstrate that learning-by-watching is a more important part of professional design learning than design educators realize today.

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