

Revisiting sloyd: curriculum development of design and craft in Iceland

— sloyd pedagogy as the basis for design and craft education in Iceland —

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Abstract

Sloyd pedagogy was established in Iceland towards the end of 19 century, as the basis of Craft education. It was aimed at general education, with a pedagogical framework based on the pedagogy of Nordic Sloyd. Various curricula focusing on Sloyd pedagogy were developed until 1999, when the discipline was re-established as a new technological subject based on technological literacy, innovation and design. The new subject was named Design and Craft. It was influenced by the national curricula of New Zealand, Canada and England. Design and Craft education is compulsory for grades 1- 8 (ages 6-13), but is optional for grades 9-10 (ages 14-15). In Design and Craft, students base the generation of ideas and design on authentic problems and fashion their artefacts from resistant materials. The design systems are based on electronic circuits, mechanisms, pneumatics and structures. Sloyd pedagogy is still an important aspect of the subject: it has been developed and remains the basis of the curriculum. In 2013, a new curriculum for Design and Craft was established, with an increased focus on Sloyd pedagogy. This curriculum seems to have generated a new debate about the value of Sloyd pedagogy in general education. The article describes the establishment of Craft education in Iceland and how Sloyd pedagogy has developed within the subject area, since its inception.

Keywords: technology education; pedagogy; craft; Sloyd pedagogy; Iceland; technology; Design and Craft; Innovation Education; national curriculum.

Introduction

Sloyd pedagogy was adapted as part of general education in Nordic countries towards the end of 19 century. The initiators of Craft education in Iceland based their teaching on two main models of Sloyd pedagogy: a Danish model, developed by Axel Mikkelsen in Copenhagen, and a Swedish model, developed by Otto Salomon in Naas. The Sloyd pedagogy aims for the use of craft in developing individuals' capabilities, in order to create perfect citizens. Basic knowledge and skills are taught initially, in order to enable more advanced stages in the development of the individual.

Various curricula with a focus on craft were developed until 1999, when craft was updated as a subject with a focus on technology education. The new subject, named Design and Craft, was based on a rationale for technological literacy, innovation and design. The main aim of the subject was to develop technological literacy and ideation skills in students and the influence of technology education was apparent in students' design decisions and their ideation work, in solving real-life problems and design. This activity was connected to the craft-based making of artefacts from resistant materials and design systems based on electric/electronic circuits, mechanisms, pneumatics and structures. Technical skills and workshop management were an important part of the curriculum.

Traditional Sloyd pedagogy typically focuses on individual development and is based on the making of traditional artefacts, while, in modern Design and Craft, there is also a focus on solving real human needs and problems through ideation; i.e., technologically based tasks in solving the common needs of people. The

boundaries between craft and technology education are not always obvious, yet the subject seems to have re-awakened the debate regarding craft as a part of general education. The initial pedagogical values are still seen as valid and have once again gained attention. In 2013, the National Curriculum for Design and Craft was revised. Many changes were made to adapt the initial Sloyd pedagogy to the modern technological aspect of the subject.

The article firstly defines the Sloyd pedagogy and it then outlines the development of Craft education in Iceland between 1907 and 1989. It explains the curriculum change from Craft to Technology Education and, finally, it describes the National Curricula for Design and Craft published in 2007 and 2013. The pedagogical background of the new Icelandic Design and Craft subject is illustrated and the authors reflect on the pedagogical value of Sloyd as part of the curriculum.

The Origins of Sloyd Education

Sloyd pedagogy was established in the eighteenth century via the school-based system of formative craft education. Sloyd is a pedagogical system that applies practical training, with the central purpose of bolstering the general development of the student. The system largely refers to woodworking, sewing or knitting and its aim is to teach the construction of useful objects using the hands (Borg, 2006; Salomon, 1893). The principal aims of teaching are as follows:

- The facilitation of diligence and contentment in work.
- The fostering of respect for difficult and meticulous physical work.
- The development of independence and decision-making skills.
- The provision of training based on orderliness, precision, cleanliness and caution.
- Training the precision of the eye and learning and appreciating the value of form.
- Developing a sense of touch and laboriousness.
- Facilitating concentration, industriousness, stability and patience.
- Facilitation of increased physical strength.
- The acquisition of skill in the handling of tools.
- The undertaking of work requiring precision and the creation of useful products

(Thorbjornsson, 1992).

The purpose of Sloyd was to establish craft as a tool within general education, in order to build the character of students, thus encouraging moral behaviour, greater intelligence and industriousness (Thorarinsson, 1891). Uno Cygnaeus (in Finland) and Otto Salomon (in Sweden) were major leaders in the development of a systematic model for pedagogical Sloyd: they emphasised the usefulness of constructing objects through the methodology of a formal educational (Kantola, Nikkanen and Kananoja, 1999).

Craft Education in Iceland 1907-1989

The originators of craft education in Iceland introduced Danish School Sloyd for Icelandic educators and authorities in the 1890s. Consequently, their work became the basis for the establishing of school laws, in terms of general craft education and curriculum development. The first public school laws were established in Icelandic parliament in 1907 (*Log um fraedslu barna*, 1907). However, ideas for educational craft, or 'school industry', were not included. Some of the possible reasons for this were lack of school buildings and facilities, lack of interest on the part of the authorities and the importance of the participation of children in the live economy.

The first national curriculum for the education of children was published in 1929. It outlined seven years of school education for children living in urban areas and four years of education for children in rural areas. Craft

or school industry was still not mentioned, although drawing was recommended as a subject (Eliasson, 1944). Although crafts were not mentioned, they were taught in several schools that had the necessary facilities.

When a new law for children's education was passed in 1936, craft was given mandatory status. It was first established as a subject in 1948, when guidelines were provided for funding 'children and youth school education'. Instruction was gender based, with craft for boys and textiles for girls (Fraedslumalastjornin, 1948).

The first integral national curriculum for compulsory education was published in 1960. In this, the goals for each school subject were defined and the influence of Sloyd was apparent in the objectives for the craft subjects. These were gender divided, yet the goals for boys and girls were similar, emphasising the general pedagogical values of the subject.

In 1974, new laws for education were published. Compulsory education was modernised and its aims and objectives were reviewed (Edelstein, 1988). In these laws, the role of general education was further defined in a democratic way: '...to enhance healthy individual development and individually based education' (Log um grunnskola, 1974). Practical subjects gained more weight, in order to satisfy individual characteristics, abilities and interests (Log um grunnskóla, 1974). Increased emphasis was placed on 'creativity and balance between theoretical and vocational studies' (1/5 minimum and 1/2 maximum) (Log um grunnskola, 1974).

Based on the above law, a new national curriculum was published in 1976-1977 (The Ministry of Education, 1977). In this curriculum, Art and Handicraft was established as a new area of craft education and incorporated art, textiles and craft. For the first time, all the subjects were compulsory for both boys and girls. The rationale was pedagogically based. This curriculum was slightly revised in 1989 and a further national curriculum, with fundamental changes, was passed in 1999. In it, the factors that mediated cultural heritage were not always as visible as in the formal curriculum.

From Craft to Technology Education

Technology education is the probably the most recent developmental stage, in terms of practical technological education throughout the world (Kanonoja et al., 2000), and implies the utilising of new technology in education. The term technology education was first used by Uno Cygnaeus, when planning Finnish teacher-training programmes including Sloyd education in 1861 (Kananoja et al., 2003).

The term technology covers all the technologies individuals develop and use in their lives. UNESCO, the United Nations Education, Social and Cultural Organisation, defines technology as: '...the know-how and creative processes that may assist people to utilise tools, resources and systems to solve problems and to enhance control over the natural and made environment, in an endeavour to improve the human condition' (Unesco, 1985). The above quote outlines the purposeful application of knowledge and understanding, in order to generate processes and build products that meet human needs. In terms of human needs, communities decide upon the technology that is developed and how it is used (Page, Thorsteinsson, Lehtonen & Niculescu, 2008).

The Icelandic Craft subject was re-established as a new technological subject in 1999, under the name 'Design and Craft' (Menntamalaraduneytid, 1999), and was based on a rationale for technological literacy, innovation and design. It became compulsory for grades 1-8, but optional for grades 9-10. The main aim of the subject was to develop technological literacy and ideation skills in students (Thorsteinsson, 2002; Thorsteinsson & Denton, 2003). The infrastructure of Design and Craft was influenced by the national curriculum in New Zealand,

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Gisli Thorsteinsson, Brynjar Olafsson

Canada and England and a new Icelandic model for Innovation Education: this model arose from the craft subject and focused on idea generation.

After a few years' curriculum development, craft became an independent cross-curricular subject, under the name 'Innovation and Practical Use of Knowledge' (Thorsteinsson, 2002; Thorsteinsson & Denton, 2003). The curriculum development project had focused on the development of students' ideation, including searching for needs and problems in the students' environments and the identification of appropriate solutions (Thorsteinsson & Denton, 2003; Gunnarsdottir, 2001). The new subject became cross-curricular and was aimed at general education, rather than being related to design-type subjects. In the new Design and Craft subject, the influences of the Innovation project were seen in the opportunities students were given, with regards to their design decisions.

Students based their ideation on real-life problem solving and design and this activity was based on the fashioning of artefacts from resistant materials and design systems based on electric/electronic circuits, mechanisms, pneumatics and structures (Menntamalaraduneytid, 1999). The emphasis was on technological-based craft, with a focus on design and innovation. The undertakings were expanded from earlier in the curriculum, featuring traditional aspects of technology education. It was also recommended that students' idea generation processes be supported and that they possessed the relevant knowledge in the making of artefacts; for example, sustainable design, the history of industry and health and safety.

Curriculum for Design and Craft Published in 2007

The 1999 curriculum for Design and Craft was controversial, in that the older generation of elementary school craft teachers were conservative and were not willing to change their traditions. The younger generation, however, were interested in making some changes, such as allowing students the freedom to make their own design decisions and the undertaking of more technological-based projects. Teachers with a vocational background had also been interested in improving students' workmanship and had often shown a greater understanding of the values of technology education. Many teachers, however, felt the steps towards technology were too big and were uncomfortable working with electronics. They also lacked the sufficient knowledge, skills and interest to teach the subject. Some argued that the development of the curriculum was not moving in the right direction (Olafsson, Himarsson and Svavarson, 2005).

When the national curriculum was revised in 2005-06, it was decided to ask the Design and Craft Teachers' Association whether they had any suggestions. Discussions had taken place on their website and in meetings and, taking the teachers' views into account, it was decided that the technological aspect of the curriculum would be minimised. Thus, Design and Craft and ICT became separate subjects (Menntamalaraduneytid, 1999 & 2007).

The new curriculum for Design and Craft emphasised individualised learning and flexible instruction, yet innovation and idea generation were still important aspects of the curriculum. Working with unseasoned wood and glass was adopted for the first time and the original Sloyd values were revisited and were once again included in the curriculum (Olafsson et al., 2005). Design and Craft became an independent subject in the new national curriculum and there is still a focus on idea generation.

Technical literacy is also important, as are technical skills and workshop management (Menntamalaraduneytid, 2007). However, the new curriculum focuses more on the individual, as tasks are more craft-based than technological-based. The curriculum has moved from manufacturing processes, such as mass production, to handicraft-based processes. Training students to organise their work is still important.

New factors are outdoor education, green woodwork, sustainable design and health and safety. Teachers have gained more freedom in constructing the school curriculum and in managing their teaching; there are no specified aims for each year. However, the final aims for key stages (4th, 7th and 10th grade) are outlined (Menntamalaraduneytid, 2007).

The Present Curriculum in Craft and Design (2013)

In 2013, the Ministry of Education, Science and Culture published a new National Curriculum. The guidelines outline a new policy that is designed to nurture knowledge, skills and attitudes, thus enhancing the strengths of the individual, so that they become a critical, active and competent participant within a democratic society in the future. These fundamental pillars support autonomy and initiative and are integrated in the curriculum at all stages. They have an influence on:

- choice of subjects and content of teaching, play and study
- work procedures and methods taught to children
- the working methods of teachers and other school staff.

(Menntamalaraduneytid, 2011)

In addition, during school evaluations, an assessment must be made, incorporating how effective the pillars have been in supporting teaching, play and study.

The new curriculum took effect in 2013 and provides a framework for schools: this is intended to be used by managers, teachers and other educational staff. It also serves to inform pupils, parents and the general public.

The aims set for each subject were minimised and the former construction of the curricula simplified. In short, the new curriculum aims to increase teachers' freedom in implementing the National Curricula within the school-based context and to support their professional development. For the first time, teachers have been given the opportunity to evaluate the various aspects of their work. Due to the nature of their subjects, many art and craft teachers have used similar criteria for assessing their students in past years; however, they are now given a formal opportunity to use different criteria.

The main objective of assessment is to guide pupils through their education and the criteria for the assessment of key competences are stipulated in the following five points, which are common for all subject areas:

- Pupils' competence in expressing their thoughts, feelings and opinions orally, in writing or in another manner. Competence to communicate their knowledge and skills and express themselves clearly and intelligently, taking part in conversations and discussions.
- Creative thinking and initiative in the presentation and processing of material. Competence in knowledge and skill, drawing conclusions, having the confidence to seek new solutions and the use of critical thinking and reasoning.
- Competence to work independently, in cooperation with others and under supervision.
- Competence in the use of various media, in seeking, processing and communicating knowledge and in using information in a responsible, creative and critical manner.
- Pupils' competence in being responsible for their education and in evaluating their work methods and performance.

(Menntamalaraduneytid, 2011)

Instead of being an independent subject within the National curriculum, Design and Craft is now part of vocational education, along with textiles and home economics. The main aims of the curricula are to ensure that students are independent, supporting their enthusiasm for their work, the development of their

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attentiveness and respect for work and the development of valuable skills required within the workplace. Furthermore, there is a focus on handicraft and culture and preparation for further vocational education.

In the present Design and Craft curriculum, there is an emphasis on the fields of handiwork, design and technology and environment, as seen in Table 1.

Table 1: Main Fields within the Design and Craft Curriculum

Field	Contents
Handiwork	Students must: <ul style="list-style-type: none"> ▪ Be able to use craft tools in a correct and responsible manner ▪ Know the common materials used in craft ▪ Be able to work independently ▪ Know the importance of vocational skills and knowledge in modern society
Design and technology	Students must be able to: <ul style="list-style-type: none"> ▪ Demonstrate their own ideas through freehand drawings, and subsequently describe them ▪ Work independently, following a freehand drawing, and provide a description of making an artefact ▪ Make a plan for material usage and calculate the cost ▪ Make different joints from wood Base their design on technology, aesthetics and sustainability <ul style="list-style-type: none"> ▪ Explain the usage of various technologies in the economy ▪ Explain the impact of innovation on their environment and society
Environment	Students must be able to: <ul style="list-style-type: none"> ▪ Base their design on sustainability ▪ Understand the value and possibility of recycling ▪ Use suitable working positions and to be able to select appropriate protective clothing during their work

(Menntamalaraduneytid, 2013)

There is little reference to technology education within this curriculum. Nevertheless, teachers' freedom has increased and thus they may set students different tasks within the framework of the curriculum. They can give students technological based projects, providing they follow the guidelines of the new curriculum, which is based on traditional handiwork. Sustainable design is also an important element of the new curriculum and is an important aspect of preparation for further education.

In the rationale of the Design and Craft curriculum, it is evident in that there are references to the pedagogical ideas of the Sloyd pioneers. There is an emphasis on student development, respect for work, independence, skills and precision. Thus, it is apparent that the current Design and Craft national curricula is still grounded in craft, Sloyd pedagogy, handicraft traditions and general pedagogical aims.

Discussion and Conclusion

In the beginning, Sloyd pedagogy was defined as a school activity based on craft and the aims were pedagogical, rather than teaching students to make objects for a living (Thorarinsson, 1890). Although a lot of changes have occurred over time, these aims are still the basis of the Design and Craft subject.

Many western countries have addressed the challenges of the future by establishing a new subject within

schools. This is referred to as technology education and its main purpose is to promote technological literacy within citizens (International Technology Education Association, 2000).

Technology education is not exactly the same as Sloyd pedagogy, but the two have much in common. The differences between Sloyd and technology education are not obvious, but mostly concern ideological issues. In Sloyd, traditional objects are typically made, while technological design processes, interpreted as processes of creation and invention for real human needs, typically involve a shift from models to the fashioning of prototypes. Sloyd education is largely concerned with individual needs, while technological education seeks solutions to the common needs of people (Kantola, 1997). In the Sloyd process, design is a very important aspect of a product. In technology education, the innovations in seeking a solution to problems have a central meaning.

In many countries, technology education has developed as a result of or through craft education. Thus, as a school subject, it often incorporates the traditional craft areas of working with resistive materials and technical drawing. Technology education provides an opportunity for students to increase their knowledge and understanding of technology, in order to develop their technological literacy (Menntamalaraduneytid, 1999). This includes the ability to form and modify the physical world, in terms of meeting human needs, by using specific techniques, materials and tools.

Regardless of whether we want it or not, there are, and will be in the future, huge changes in society and in the world at large. One of the most important of these is environmental change: to be able to continue to live on earth, the human race has begun to take care of the environment by being careful with the products and systems it uses. On that basis, it is obvious that, if we want to progress with Sloyd and consider societal demands, we cannot reject outside technology. We can view technology from both an individual perspective and a societal perspective. The individual perspective refers to the actual end-use situation and the functional appropriateness of the products and systems. The issue is consumer perspectives. Is the product a good one? Does it function? Does it satisfy one's needs? Is it kind on the environment? The culture of technology views technology from a societal point of view; thus, technology education, in addition to Sloyd pedagogy, may possibly ensure further societal input into the subject of Design and Craft.

The main value of the Sloyd pedagogy, as part of Design and Craft, is the practical application of the educational forces inherent in the appropriate employment of manual work. This involves the development of the bodily and cognitive abilities of the student (Bennett, 1937). The reward is both maturing and educating, which leads to the development of a multitude of abilities that have actual value in life and cannot be developed to the same degree by other means. An important upshot of educational craft is the student's enjoyment of physical work and his respect for it, along with the facilitation of independent working, orderliness, precision, development of attention, diligence, increased physical strength, the development of eye-coordination through observing and defining and the bolstering of the productive capabilities of the hands.

It is important to develop the Sloyd pedagogy further, within the context of modern Design and Craft, and adapt it in accordance with future curricula. Keeping the Sloyd pedagogy alive in the future is dependent upon constant re-evaluation of the content and ongoing discussion of pedagogical values. The authors hope that the development of Sloyd pedagogy will continue, in terms of both educational craft and technology education.

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**Revisiting sloyd: curriculum development of design and craft in Iceland
– sloyd pedagogy as the basis for design and craft education in Iceland –**
Gisli Thorsteinsson, Brynjar Olafsson

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