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THE INTELLIGENCE OF THE HANDS: STUDYING THE ORIGIN OF PEDAGOGICAL CRAFT EDUCATION

By

BRYNJAR OLAFSSON * GISLI THORSTEINSSON **

*-** University of Iceland

ABSTRACT

Pedagogical craft was established in the Scandinavia around 1950 under the name Sloyd. The ideology was developed by European educators from 16th and 17th century. Sloyd aimed to educate children holistically via a carefully structured system for teaching craft. The child became the centre of the educational activities and the development of the capabilities of the whole person. Sloyd had a noted impact on the early development of manual training, manual arts, industrial education and technical education in many countries. The pedagogy had a humanistic character and its principles were guidelines for the whole activity in the subject. Individual development and self-realisation were at the centre of the subject, rather than just technical knowledge and skill taught by the teacher. The system aimed to fulfil the demands of a holistic education by fostering the entire human being's capabilities. At the same time, it prepared the individual for the future working life, in accordance with the needs of an industrial society.

Keywords: Pedagogy, Craft, Pedagogical Craft, Sloyd, General Education, Handicraft.

INTRODUCTION

Educational craft was spread to many countries including Germany, Mexico, United States of America and England. Pedagogical craft was established in Scandinavia as a school-based system of formative education in the 19th century, using the term Sloyd. Sloyd originally meant handy or skilful, and refers to the making of crafts (Chessin, 2007). However, the meaning of Sloyd in relation to education refers to the discussions amongst philosophers of those times about the value of craft for general education (Borg, 2008). The purpose of Sloyd was to use craft as a tool in general education to build the character of the child, 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 educational craft for school education. They emphasized the usefulness of constructing objects through formal educational methodology (Kantola et al., 1999). The model was disseminated by Salomon through thousands of teachers from all over the world who attended his classes. Sloyd had a noted impact on the early development of manual training, manual arts, industrial education and technical education in many countries, including the UK (Bennet, 1926). This article describes and discusses ideas from European educationalists that developed ideas for craft as a pedagogical approach towards general education.

Background of craft aimed at general education

Education in the Middle Ages was focused on theoretical studies (Myhre, 2001; Kapes, 1984 and Roberts, 1965). Nevertheless, educationalists, at this time, were discussing the importance of manual training (Anderson, 1926; Bennett, 1926, 1937 & McArdle, 2002) as a part of general education to establish harmony between the physical and mental faculties to prepare individuals better for life (Thorarinsson, 1891). Education for work was institutionalised during the 19th century (Bennett 1926, 1937). The main reason for this was the founding of general education systems and the demand for new skills from workers and citizens generally because of industrialisation (Kantola et al. 1999).

Comenius (1592-1671) who was often called "The Father of Modern Pedagogy", was an important scholar in the history of European education during the seventeenth century (Anderson, 1926). He advanced the idea of a

comprehensive curriculum involving both manual and liberal arts (McArdle, 2002). Comenius advocated education that was practical, objective, and cultural (Anderson, 1926). Comenius believed that human beings were born with a natural craving for knowledge and goodness, and that schools drive it out of them. He underlined the importance of teaching craft in public schools to enable individuals to identify their interests and to understand what life required from them (Thorarinsson, 1891).

In his book Didactica Magna (Comenius, 1633/1986) Comenius describes the fundamental principles of handicraft education and the importance of real life experiences. In order to learn, work should be done and the master should allow the disciples to learn through their own efforts, not just by him demonstrating the work to them. Comenius (Comenius, 1633/1986) mentions the importance of the right use of tools and the making of precise copies of artefacts. He believed it was important to start with simple things familiar to the students and to practice using tools in the traditional way (Comenius, 1633/1986 & Thane, 1914). However, despite his ideas regarding craft in education Comenius did not develop any practical methods for implementing his ideas (Thane, 1914).

In his two books "Essay on the Human Understanding" (1690/1980) and "Some Thoughts Concerning Education" (1693/2001) Locke (1632-1704) advocates the notion that education should prepare individuals for practical life through instruction in manual work and mechanical trades (McArdle, 2002). Locke emphasises physical exercise as an important part of education. He argues that craft is healthy for the mind and important in order to give the body enough physical movement (Locke, 1693/2001; Thorarinsson, 1891).

In "Some Thoughts Concerning Education" Locke (1693/2001) describes woodwork as a healthy and good preparation for theoretical studies: "In the next place, for a country gentleman I should propose … working in wood, as a carpenter, joiner, or turner, these being fit and healthy recreations for a man of study or business. For since the mind endures not to be constantly employed in the same thing or way, and sedentary or studious men should have some exercise, that at the same time might divert their minds and employ their bodies… (Locke, 1693 / 2001: § 204).

Rousseau (1712-1778) combined the works of Comenius and Locke in ´Emile´ (Rousseau, 1764/1979) with experiences from his own diverse background. Rousseau (1764/1979) seeks to describe a system of education that would enable the 'natural man' to survive in a ´corrupt society´. He employs the novelistic device of Emile and his tutor to illustrate how such an ideal citizen might be educated. Rousseau uses the character of young Emile to demonstrate his vision of an ideal education through nature and manual arts. He realizes the value of learning through problem-solving within an apprenticeship rather than rote learning in a classroom (McArdle, 2002). In Emile, Rousseau (1764/1979) describes the secret of pedagogy as body and spirit being in harmony when they nourish each other (Thorarinsson, 1891). Rousseau thought individuals practicing craft were the happiest human beings and therefore he wanted Emile to learn woodcraft (Rousseau, 1764/1979; Thorarinsson, 1891).

In the beginning of 18th century the German scholar Franke (1663-1727) started craft education at his school in Halle (Thane, 1914). Franke´s activities were practically based (Thorarinsson, 1891). His students were making things to use in daily life such as wooden boxes and tools for their homes and the school (Thane, 1914). The activities, however, also enabled the students to earn a living and were closer to so-called cottage industry than pedagogically based craft education (Thorarinsson, 1891).

Comenius and Franke were regarded as primary influences on the German educationalist Basedow (1723-1790) (Thane 1914). Basedow's pedagogical model emphasized handicrafts for all students in a curriculum intended to "give some account of man" (Anderson, 1926, p. 29). This was also closer to Rousseau's idea about the harmony between the spirit and the physical body. Basedow, therefore, underlined the importance of physical education (Thorarinsson, 1891) and used craft activities alongside theoretical studies to achieve the

balance between the physical and the spiritual. He argued that craft education was a good way to improve students' concentration and to prevent harm and frivolity when they got tired of reading books (Mikkelsen, 1891 & Thorarinsson, 1891). Basedow was also concerned about the value of imbuing students with a happy working spirit. For him physical exercises and games were an important part of education that motivated students without manipulation (Thorbjörnsson, 1990).

Pestalozzi (1746-1827) is known as the father of pedagogical craft or manual training (Bennett 1926; McArdle, 2002 & Thorarinsson, 1891). He developed further Rousseau's philosophy which had appeared in Emile (McArdle, 2002; Thorarinsson 1891) and named his ideas a "vocational alphabet" (A B C des Könnens). In Pestalozzi's methodology, drawing became an integral part of the curriculum. It was meant to sharpen the students' power of observation and description (Thane, 1914). Pestalozzi's intention was to improve the lives of poor students through education associated with work (Bennett, 1926). At the same time it was equally important to cultivate their minds and social consciences (McClure et al., 1985). Pestalozzi believed that schooling which emphasized only one side of education, either vocational or general, would create an individual who was of little value to society (McClure et al., 1985). He thought that by studying objects, students would gain impressions and experiences that could become a basis of knowledge (Bennett, 1926). Pestalozzi divided the human character into three main entities; the intellectual or the head, the moral or the heart and the physical or the hand (Brühlmeier, A. 1998 and Kuhlemann & Brühlmeier, 2002):

- The head was all about mental functions that lead a person to a realization of the world and to a reasonable judgement of things. This required perception, memory, imagination, thought and language.
- The heart was primarily involved with the basic moral feelings of love, faith, trust and thankfulness and secondarily the activity of the conscience, the sense of good and bad and the orientation towards moral values.
- The term 'hand' was parallel to 'craft education', 'vocational education', or 'education for work'. The intention was that practical activity combined with dexterity and physical strength developed common sense and encouraged the determination that one's actions should culminate in fruitful labour (Brühlmeier, 1998).

According to Pestalozzi craft training had to be embedded in peoples' general education. Consequently, every artistic ability had to be connected with the intellectual and moral powers (Barnard, 1859). Education of the body had to be in harmony with nature's demands and give sufficient space for the child's urge to move around and play. A functioning school in which children had to sit unnaturally still for hours was not in accordance with nature (Thorarinsson, 1891).

Based on Pestalozzi's ideas of training by observation and experience Froebel (1782-1852), developed the idea that children are inherently creative and express themselves best through action. He felt that handwork lay at the center of all learning (Thane, 1914). Froebel converted Pestalozzi's theories into practice with the development of the first "Kindergarten" in 1837. In this school the predominant idea was, "As activity precedes thinking, education must begin with doing; and that from this impulse to activity all education must evolve." (Bennett, 1926:166). From craft activities, students could discover, arrange, invent and control. While Froebel worked mainly at the kindergarten level his idea of, "self-activity and the creative tendency of the human mind," (Vaughn & Mays, 1924:24) would have a profound impact on the way future educators would look at how children learn.

Pestalozzi was not actually a teacher but the practical framework for his ideas was based on Fröbel's methods (1781 - 1852) (Thane 1914, McArdle, 2002 & Thorarinsson, 1891). In Fröbels Kindergarten, physical work was meant to be in harmony with the spiritual aspect. According to Fröbel's and Pestalozzi's ideas the spirit and the body were constantly cooperating, helping the child to understand the world around him (Thorarinsson, 1891). Fröbel had little or nothing to say about further craft activities in later educational stages. Pestalozzi, however, opened

experimental residential schools for the children of the poor (McArdle, 2002 & Thorarinsson, 1891) and although his instructional methods of using tools and manual labour to teach traditional school subjects were quite successful, his schools were not financial successful. However, Fellenberg (1771-1844), a contemporary of Pestalozzi, operated a number of these manual labour schools. His lasting contribution lies in the methods of administration and supervision he developed for this type of educational institution. Following the work of Pestolozzi and Fellenberg, many similar schools were established in Europe and America (McArdle, 2002).

Uno Cygnaeus and pedagogical craft for general education

The Finnish educationalist Dr. Cygnaeus (1810 - 1888) founded public schools in Finland 1866 (Kananoja, 1989). Cygnaeus developed Pestalozzi's and Fröbel's ideas further and introduced craft as a pedagogically based compulsory subject in order to improve general education in Finland (Thorarinsson, 1891). Cygnaeus maintained that handicraft in school would not provide vocational training (Thorbjornsson, 2006). Manual labour was an important aspect of the upbringing of all children. It contributed to an understanding between all classes of society and provided physical exercise (Bennett, 1937).

Cygnaeus observed various European school systems when developing a proposal for the Finnish system. After studying schools across Europe, he decided that the first step in creating a system of general education in Finland would be to train teachers (Kananoja, 1989). Cygnaeus started a teacher-training school in 1863 based on a curriculum that included a Pestalozzian view of manual labour or handicrafts (Figure 1). To emphasize this, craft became a part of the general curriculum (Kananoja, 1989).

Cygnaeus drew a sharp distinction between handicraft or manual arts as part of the general curriculum and handicraft as part of a technical or specialized education (Kananoja, 1989). He insisted that the handicrafts should be taught by regular teachers, not by special craftsmen (Bennett, 1937). In 1866 manual training in Finland

Figure 1. The photograph shows one of Cygeneus craft classes in Jyvaskyla around 1860.

developed in two ways; males in rural communities were required to take the program and teaching centres had to offer courses with related content (Vaughn & Mays, 1924). With the implementation of his system of universal education for all citizens, Finland became the first nation to make handwork an integral part of a national scheme of elementary education (Bennett 1926, Kananoja, 1989 & Kantola, 1997).

Otto Salomon and the development of the Sloyd pedagogy

The Swedish educationalist Salomon (1849–1907) developed Cygnaeus's ideas for pedagogically based craft education further using the term Sloyd (Thorarinsson, 1891, Kananoja, 1989; 1991 & Kantola, 1997). The term Sloyd is related to the old Icelandic word ´slægur´ with the original meaning being connected etymologically with the English word sleight (as in "sleight of hand"), cunning, artful, smart, crafty and clever (Nudansk Ordbog, 1990; Den Danske Ordbog, 2003-2005 & Borg, 2006). Sloyd comprises school activities which use craft to produce useful and decorative objects. It is a pedagogical system of manual training which seeks to develop the child in general, through learning technical skills in woodworking or in sewing and knitting, and making useful objects by hand (Borg, 2006 and Salomon, 1893, p63). Sloyd for boys and girls was introduced in the 1880s in the Nordic countries where different countries gave the subject different names for similar content. For example, in Iceland the teaching of Sloyd was introduced under the name ´school industry´ and was later named 'smidi'

(Thorarinsson, 1891).

Salomon's theories were strongly influenced by Cygnaeus (Salomon, 1892). Cygnaeus taught Salomon that the hand and mind worked in concert (Thorbjornsson, 1990). Cygnaeus encouraged Salomon to study Rousseau, Pestalozzi, Fröbel and other pedagogues (Kananoja, 1989). Salomon adapted many ideas from them; ideas which he later developed into a collective theory and a system for teaching handicraft in elementary schools. Salomon believed that the Sloyd system should be a part of general education for all students, both girls and boys and that instructors should be properly trained in the techniques of the system and not merely tradesmen (Bennett, 1937; Thorbjornsson, 1990 & Thorarinsson, 1891).

However, contrary to the views of Cygnaeus, Salomon felt there should not be a division between handicraft as part of the general curriculum and handicraft as part of a technical or specialized education (Salomon's letters to Cygnaeus 1877 - 1887). In a letter to Salomon, October 28th, 1877 Cygnaeus wrote : "Even if we agree, that Sloyd is important in the folk school, I think that the handicraft methods must be substantially different in the common folk school and in a special vocational school. In the former, handicrafts must be considered and handled first and foremost as a formal means of civilization and organized accordingly, so that the aim will be the development of the child's sense for form and beauty and general dexterity, and the drill of craftsmanship of all the possible work will be avoided. In the handicraft school the aim must be dexterity in various crafts and practicing it in order to secure the sale and economic profit of the products. The former concept of the aim of crafts has the natural development connection to the pedagogical system of Pestalozzi and Fröbel, and it should have the undeniable importance" (Salomon's letters to Cygnaeus, 1877 - 1887).

Salomon's system for educational Sloyd was more structured than Cygnaeus's (Bennett, 1926). The child became the centre of Salomon's didactic system and he focussed on the development of the capabilities of the whole person. He underlined the importance of teaching basic knowledge and skill in the beginning to enable more advanced stages in the development of the individual as a good citizen (Moreno, 1999), (Figure 2). Salomon was focused on the analysis of processes and their use in educational instruction. There were three key elements in his system; „ (i) making useful objects; (ii) analysis of processes, and (iii) educational method" (Bennett, 1926:64). Salomon's system included the following aims (Salomon, 1892):

- To instil a taste for and an appreciation of work in general;
- To create a respect for hard, honest, physical labour;
- To develop independence and self-reliance;
- To provide training in the habits of order, accuracy, cleanliness and neatness;
- To train the eye to see accurately and to appreciate the sense of beauty in form;
- To develop the sense of touch and develop manual dexterity;
- To inculcate habits of concentration, industry, perseverance and patience;
- To promote the development of the body's physical powers;
- To acquire dexterity in the use of tools;
- To execute precise work and to produce useful products.

Salomon established his international Sloyd school in Nääs in south Sweden and it became a world training centre for Sloyd teachers in 1875 (Bennett, 1926 & Thorbjornsson, 1990). Five Icelandic teachers joined his

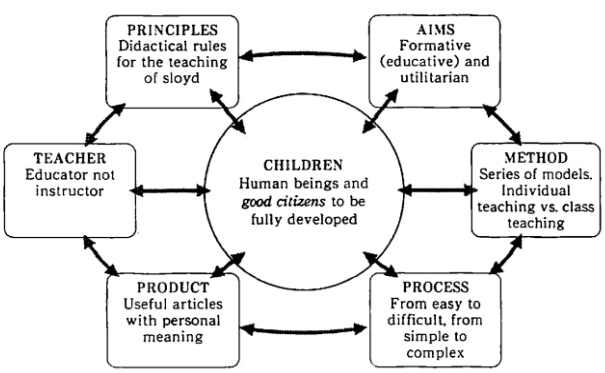

Figure 2. The didactic system of Salomon for Sloyd education developed by Moreno (Moreno, 1998).

courses during the years from 1875 to 1917 (Bennett, 1937). In 1904 he published ´The Teacher's Hand-Book of Sloyd´, which was designed to assist teachers in applying a Sloyd course in their school (Salomon, 1904). It contains all the information required for the implementation and explanation of Sloyd. It also defined wood characteristics and tool purposes, gave an explanation of the exercises, and example lists of models (Thorarinsson, 1891; Salomon, 1904).

Salomon's Sloyd centre in Nääs gained international recognition. Until the outbreak of the First World War, over 1500 foreign participants (teachers) from over forty countries arrived to take part in the handicraft courses at Nääs. In just a few decades, Salomon's Sloyd teaching methods developed into an international educational movement (Thorbjornsson, 1990). Various international supporters held lectures, wrote newspaper articles and books, formed societies and taught handicraft at their schools. Educational Sloyd was demonstrated at international exhibitions (Thorbjornsson, 1990).

Aksel Mikkelsen and the Danish School Sloyd

Mikkelsen (1849 -1929), established Sloyd as a general subject in Danish schools after attending a course in Nääs with Salomon. Subsequently Mikkelsen established his Handicraft School (1883) in Copenhagen and started to educate schoolteachers to teach Sloyd in Denmark 1885 (Kantola et al., 1999). Mikkelsen formed his own Sloyd model known as Danish School Sloyd. Unlike Salomon, Mikkelsen´s system was not individually focused but was built on class instruction (Kananoja, 1989). Mikkelsen developed small workbenches and tools for children, both left- and right-handed (Figure 3). In Danish Sloyd the saw was used as the main tool and all classes started with models made with a saw without using a plane. Files and sandpaper were not used: they were forbidden because they could hide faults. Students were given exercises to train them in the use of tools. For example, they had to saw and plane together rhythmically. The lesson plan had to be flexible to meet the varying needs of individual pupils. Woodwork was the only undertaking because the school time allocated to Sloyd was felt to be too limited, even to learn one kind of Sloyd thoroughly (Bennett, 1937).

Figure 3. From a Danish Sloyd classroom around 1900.

The general underlying factors and principles of the Danish Sloyd system were:

- The starting point of all Sloyd instruction should be the natural interests of the child (The Danish Sloyd Guide 1893, p2).
- The material used should be wood and the tools should be only those in common use. In general, the things made should be objects used in daily life, especially those that require a coat of paint to be finished (The Danish Sloyd Guide, 1893, p3).
- The course of instruction should be organized so as to consist of (a) a small or limited number of groups of models and exercises progressively arranged, and (b) an unlimited number of coordinated extra models. (The Danish Sloyd Guide, 1893, p3).
- Preparatory exercises should precede the work of making the models whenever it is thought desirable to single out a particular process for practice, but the preparatory exercises should always be followed by the making of the corresponding model (The Danish Sloyd Guide, 1893, p3)
- Both class and individual instruction should be employed. Class instruction should be employed to show working positions, demonstrate the proper use of the tools and the sequence of operations needed for the correct construction, etc. (The Danish Sloyd Guide, 1893, p4).
- In class instruction, the general appearance of a model or exercise piece and the general method of making it should be taught by showing the model itself and explaining it; whereas the details of construction and

procedure should be taught through the use of drawings on the blackboard, which should be copied by the pupils into their notebooks (The Danish Sloyd Guide, 1893, p4).

- Tools should be selected or especially constructed to suit the child's size and strength, and no tool should be used by a pupil until its use and "technology" have been fully explained (The Danish Sloyd Guide, 1893, p5).
- The marks of the cutting tools should not be "effaced by the finishing" (The Danish Sloyd Guide, 1893, p5).

Another Dane, Meldgaard, had visited the Swedish Sloyd school at Nääs like Mikkelsen. He developed the Sloyd subject along similar lines to Salomon. Like Salomon, Meldgaard preferred individual instruction. A violent personal dispute arose between Meldgaard and Mikkelsen which led to two mutually antagonistic Sloyd schools in the country for many years. Because of this, the Danish Sloyd subject was not able to keep up with general pedagogic developments for a long time

Conclusion

Sloyd is analysed as a school activity based on craft that was intended for personal development. The aims were pedagogical, rather than teaching individuals to make objects for a living (Thorarinsson, 1891). The educators and philosophers Comenius, Locke, Rousseau , Franke, Pestalozzi and Fröbel all emphasised the importance of physical training and dealing with real undertakings as a part of general education. Subsequently they influenced the scholars who established the Sloyd movement in Scandinavia and the originators of craft education in Iceland. Educational craft spread to many countries around the world. Later it also became a background for new subjects based on the original pedagogical values. New endeavours such as technology, science, innovation and design education has emerged. However the Sloyd values are still valid but might be of less visible due to technological or design aspects. It is important to remember the history and focus of pedagogical craft education as its original values are still valid in the modern world.

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ABOUT THE AUTHOR

Gisli Thorsteinsson is an Assistant Professor at Iceland University of Education, in the Department of Design and Craft. At present, he is also a Ph.D student at Loughborough University, where he is exploring the values of using Virtual Learning Environment for ideation in general and school education. Gisli has been the Chairman of the Association of Icelandic Industrial Arts Teachers since 1995 and is associated with the NST Coalition of Industrial Arts Teachers in Scandinavia. From 2000 he has been on the Board of Nordic Craft; the Pan Scandinavian co-operative researching art and design projects in Scandinavia. In 1999 he was involved in the National Curriculum development for technology education in Iceland and wrote the curriculum part for design and craft.