

Brynjar Olafsson and Gisli Thorsteinsson

Examining Design and Craft Education in Iceland

Curriculum development and present situation

Abstract

This article reports a research project that examined the background, status, understanding of and attitude to Design and Craft education (Hönnun og smíði) in Icelandic elementary schools. The main conclusions showed that certain aspects of Design and Craft need to be further defined in order to strengthen its position in the school system. Concepts were not clearly defined and research on Design and Craft education was lacking. The participants' attitudes to Design and Craft were positive and the subject was popular amongst students. However, results showed a lack of understanding of the differences between basic terms such as Art, Design and Craft. All of the interviewees thought Design and Craft were important subjects for individualized learning and wanted to give them a more prominent role in general education. Design and Craft education in the Icelandic National Curriculum has not been fully realised. The research identified that schools have not allocated extra hours for the subjects, even though local authorities were supportive and flexibility existed in the time schedule. Lack of finances was, furthermore, not a hindrance to increased Design and Craft education.

Keywords: Design and Craft (Hönnun og smíði), Sloyd, pedagogy, educational research, evaluation, The Icelandic National Curriculum.

Introduction

The subject of Icelandic Craft (Smíði) was established in the beginning of 1900 under influences from the Danish model for Sloyd (uppeldisleg smíði), (Thorarinsson, 1891; Mikkelsen, 1891). Supported by Parliament, the first Icelandic educational director Thorarinsson travelled to Scandinavia in the summer of 1890, to study educational systems for general education (Finnbogason, 1994). At this time, Sloyd was a new subject in Scandinavian schools, but had yet to be established in Iceland. During his journey in the summer 1890, Thorarinsson joined a summer course for in-service teachers in Mikkelsen's Handicrafts School in Copenhagen (Mikkelsen, 1891).

In the autumn of 1890, Thorarinsson (1891) gave a lecture at the Icelandic Teachers Association to introduce Sloyd to Icelandic educators. He referred to his studies in Mikkelsen's Sloyd school and suggested that Sloyd should be offered to Icelandic children (Magnuss, 1939). In his lecture, Thorarinsson used the term 'school industry' to demonstrate Sloyd. He defined it as a 'general education for life' to distinguish it from teaching handicrafts for commercial purposes (Thorarinsson, 1891).

Different curricula focusing mainly on craft were developed until 1999, when craft was re-established under the name Design and Craft, based on a rationale for technological literacy, innovation and design (Menntamálaráðuneytið, 1999). In 2007, the Design and Craft curriculum was revised from the curricula 2006. At present, Design and Craft is based on a rationale for craft education, technological literacy, innovation and design. It is compulsory for grades 1 – 8, but optional for grades 9 – 10. The main aim is to develop technological literacy and idea generation skills in students. The infrastructure of Design and Craft is influenced by the national curriculum in New Zealand, Canada and England.

Different terminology has been used for the subject and the subject area. The term Craft (Smíði) was used for the subject in the Icelandic National Curriculum until 1999, when it was changed to Design and Craft (Hönnun og smíði) (Menntamálaráðuneytið, 1999).

However, in 1989, a new subject area was established including Craft (Smíði), Art (Listir) and Textiles (Hannyrðir). In 1999, the subjects were separated into two subject areas. Textiles and Art were included in the area of the Arts, and Craft became a part of a new subject area for Information Technology and Technology Education, under the name Design and Craft (Hönnun og smíði) (Olafsson & Thorsteinsson, 2009). This new area included three new subjects: Design and Craft (Hönnun og smíði), Information Technology (Upplýsingatækni) and Innovation and Practical Use of Knowledge (Nýsköpun og hagnýting þekkingar). When the National Curriculum was revised in 2007, a new subject area for the arts was established to include Textiles (Textill), Art (Listir), Music (Tónlist), and Dance and Drama (Dans og leiklist). That same year, Design and Craft became an independent, technology-based subject (Menntamálaráðuneytið, 1999).

Little research has been undertaken in this area in Iceland. Research is needed to see if the subject is up-to-date and still needed. This research will enable educators to justify the subject's existence and/or say why teaching Design and Craft is still important (Olafsson & Thorsteinsson, 2009). Therefore, one of the present authors conducted a research project to examine the current situation in order to gain information about the status, the understanding of and the attitude to Design and Craft education in Icelandic elementary schools. This article firstly reports the background of the Icelandic Design and Craft education from the beginning of 1900 to the present. Secondly, the purpose of the research project is clarified. Aims, objectives and the research are detailed and methods for data collection and analysing the data. Subsequently, findings are discussed and conclusions drawn.

The Background of Design and Craft Education in Iceland

To put the research into right context, it is necessary to give a brief description of the historical background of Craft in Iceland. Craft in Iceland was initially based on a model for Danish School Sloyd. It was developed by Axel Mikkelsen in his Handicraft school in Copenhagen. He established Sloyd as a general subject in Danish schools based on his own Sloyd model. Mikkelsen's system was not individually focused, but rather, was built on class instruction (Kananaja, 1989). The Danish School Sloyd was focused on bringing physical work into harmony with spiritual aspects (Olafsson & Thorsteinsson, 2009). The development of the potential of the whole child became the central focus. The curriculum was designed for students to acquire basic knowledge and skill in their early years, which later enabled more advanced stages in their individual development as good citizens.

The first national curriculum for the education of children was published in 1929. Craft was not mentioned, but was nevertheless 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. Craft was formally established as a subject in 1948, when guidelines for funding '*children and youth school education*' were given. Instruction was gender-based, with craft for boys and textiles for girls (Fræðslumálastjórnin, 1948). The first fundamental national curriculum for compulsory education was realised in 1960. The influence of Sloyd could be seen in the objectives for the craft subjects. They were gender-divided but the goals for boys and girls were similar and emphasised the general pedagogical values of the subject (Olafsson & Thorsteinsson, 2009).

In 1974, new laws for education were published. Compulsory education was modernised, and its aims and objectives were revised (Edelstein, 1988; Lög um grunnskóla 1974). Practical subjects gained more weight in order to meet different individual characteristics, abilities and interests (Lög um grunnskóla, 1974). Based on the above law, a new national curriculum was published in 1976–1977 (Menntamálaráðuneytið, 1977). In this curriculum 'Art and Handicraft' was established as a new area for craft education. This included 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 (see table 1).

From Craft (Smíði) to Technology Education (Tæknimennt)

The subject of Craft was re-established as a new technological subject in 1999, under the name Design and Craft (Menntamálaráðuneytið, 1999). The new subject Design and Craft 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 was to develop technological literacy and idea generation skills in students (Thorsteinsson, 2002; Thorsteinsson & Denton, 2003; Olafsson & Thorsteinsson, 2009). The infrastructure (see figure 1) of Design and Craft was influenced by the national curriculum in New Zealand, Canada and England.



Figure 1: Young Icelandic students at work in the craft room (© Arnason 2009)

When the Icelandic National Curriculum was revised in 2007, a new subject area for the arts was established which included textiles, art, music, dance and drama. That same year, Design and Craft became an independent, technologically-based subject (Menntamálaráðuneytið, 2007).

Year	Framework	Textile materials	Hard materials
1900	Rationale for Handicraft	School industry and home industry (Skólaiðnaður og heimilisiðnaður)	School industry and home industry (Skólaiðnaður og heimilisiðnaður)
1936	Laws for Child Education	Handwork (Handiðja)	Handwork (Handiðja)
1948	Draft for National Curriculum for children and youth	Girls Handicraft (Handavinna stúlkna)	Boys Handicraft (Skólasmíði pilta)
1960	<i>The National Curriculum (Compulsory)</i>	Girls Handicraft (Handavinna stúlkna)	Boys Handicraft (Handavinna drengja)
1977	<i>The National Curriculum (Compulsory)</i>	Art and Handicraft ► Textiles (Mynd- og handmennt ► Hannyrðir)	Art and Handicraft ► Craft (Mynd- og handmennt ► Smíði)
1989	<i>The National Curriculum (Compulsory)</i>	Art and Handicraft ► Textiles (Mynd- og handmennt ► Hannyrðir)	Art and Handicraft ► Craft (Mynd- og handmennt ► Smíði)
1999	<i>The National Curriculum (Compulsory)</i>	Arts ► Textiles (Listgreinar ► Textílmennnt)	Information and Technology Education ► Design and Craft (Upplýsinga- og tæknimennt ► Hönnun og smíði)
2007	<i>The National Curriculum (Compulsory)</i>	Arts ► Textiles (Listgreinar ► Textílmennnt)	Design and Craft (Hönnun og smíði)

Table 1: The table shows terms for craft education in Icelandic school history.

Table 1 shows a historical overview of the different terms used for craft education in the Icelandic school system. It also outlines the terms used for different national guidance and curricula for craft and textiles. National curricula for craft education in Iceland have been based on different laws for general education. In the first public school laws established by the Icelandic parliament in 1907, craft (school industry) was not included. When the first national curriculum for the education of children was published in 1929, craft or school industry was still not mentioned, but drawing was recommended as a subject (Eliasson, 1944). When a new law for children's education was passed in 1936, craft was given mandatory status. However, craft was first established as a subject in 1948. Instruction was gender-based with craft for boys and textiles for girls (Fræðslumálastjórnin 1948).

The first integral national curriculum for compulsory education was published in 1960. It was gender-divided but emphasised the general pedagogical values of the subject. Based on the above law, a new national curriculum was published in 1976-1977 (Menntamálaráðuneytið, 1977). In this curriculum, 'Art and Handicraft' was established as a new area for craft education. This included art, textiles and craft. For the first time, all the subjects were compulsory for both boys and girls. This curriculum was slightly revised in 1989. In Iceland, Craft was re-established as a new technological subject in 1999, under the name Design and Craft (Menntamálaráðuneytið, 1999). The new subject was based on a rationale for technological literacy, innovation and design (Thorsteinsson, 2002; Thorsteinsson & Denton 2003). The present curriculum for Design and Craft, released in 2007, emphasised individualised learning and flexible instruction. Innovation and idea generation are an important part of the curriculum.



Figure 2: Young students at work in the classroom (© Arnason 2008)

The figure below shows the background of the Design and Craft subject. The emphasis was on technologically-based craft, focusing on design and innovation. These undertakings were expanded from an earlier curriculum with traditional aspects from technology education. It was also recommended to support the students' process of idea generation and the making of artefacts with relevant knowledge, for example, concerning sustainable design, the history of industry and health and safety.

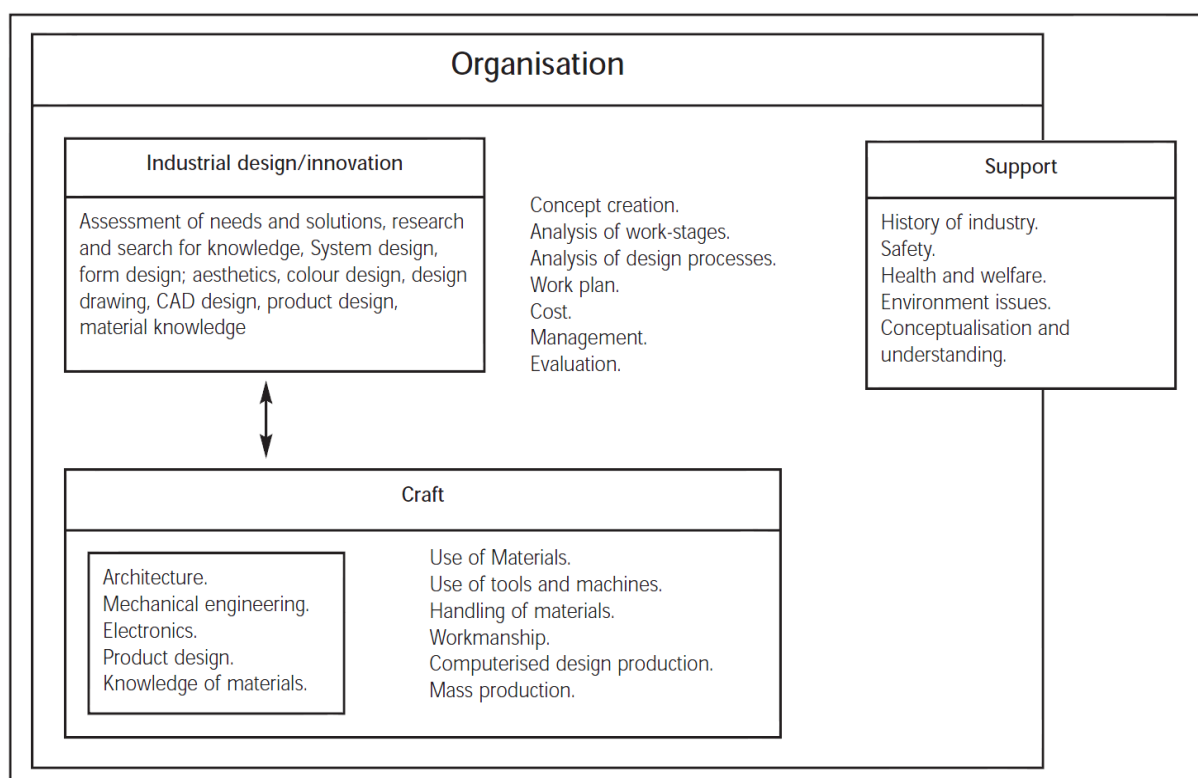


Table 2: The figure shows the infrastructure of Design and Craft in Iceland 1999 (Menntamálaráðuneytið, 1997).

The present curriculum for Design and Craft published in 2007

A new curriculum for Design and Craft in 2007 emphasised individualised learning and flexible instruction. Innovation and idea generation were still an important part of the curriculum. Work with unseasoned wood and glass was adopted for the first time. The old Sloyd values were revisited and were once again included (Menntamálaráðuneytið, 2007).

Design and Craft became an independent subject in the new national curriculum. The two curricula from 1999 and 2007 are similar. The major emphases are listed in table 2 and illustrate the main differences (Menntamálaráðuneytið, 1999 & 2007).

Main emphasis 1999	Main emphasis 2007
1. Design and invention	1. Design and invention
2. Technical literacy	2. Technical literacy
3. Technical skills and workshop management	3. Technical skills and workshop management
4. Manufacturing and organizing the work	4. Handicraft and organizing the work
5. Focus on society	5. Focus on individuals
6. Industrial manufacturing	6. Outdoor education and green woodwork
7. Supportive source material	7. Sustainable design
8. Craft culture	8. Health and safety
9. Emphasis on technology based tasks	9. Emphasis on craft-based tasks

Table 2: The table shows the main differences between the Design and Craft curricula from 1999 and 2007 (Olafsson & Thorsteinsson, 2009).

The focus on idea generation is still colouring the curriculum. Technical literacy is also important, as are technical skills and workshop management (Menntamálaráðuneytið, 2007; Olafsson & Thorsteinsson, 2009). However, the new curriculum now focuses more on the individual, and tasks are more craft-based than technological (see figure 9). The curriculum moves from the manufacturing process, for example, mass production, to handicraft-based processes. Training students to organise their work is still important (Olafsson & Thorsteinsson, 2009). New factors are outdoor education and green woodwork, sustainable design and health and safety. According to the new curriculum, teachers gained more freedom to construct the school curriculum and manage their teaching, as aims for each year are not listed. Final aims for key stages (4th, 7th and 10th grade) are listed (Menntamálaráðuneytið, 2007).

Examining the status and attitude to Design and Craft

The Department of Design and Craft in the School of Education at the University of Iceland undertook an educational research project in the area of Design and Craft 2009. The main aim of this study was to examine students and educators attitude to the subject Design and Craft in compulsory education in Iceland and to contribute to the on-going discussion about the subject's status. The main research questions were:

1. What are the students' attitudes to the subject Design and Craft?
2. What are the general attitudes of students and educators to Arts and Design and Craft education?
3. What is the present position of Design and Craft in Icelandic compulsory education?

The data instruments were selected to enable triangulation and reliability. In order to analyse the data, the qualitative and inductive methodology, as developed by Glaser and Strauss (1967), was used. The specific instruments are listed in the table below.

<i>Data Sources</i>
a) Questionnaires
b) Literature review
c) Semi-structured interviews

Table 3: Data collection methods used in the research

Data for this research was gathered by means of interviews and questionnaires. Other additional material was also taken into account such as the national curricula and statistic. Four elementary schools in Reykjavik were randomly chosen to participate in the study. From these schools, 78 students from grade nine were chosen. Written questionnaires were given to each of the students. such as the national curricula and statistical information. FourAll of the 78 students answered the questionnaires.

Purposeful sampling was used to establish the interviews. The participants were selected according to their ability to contribute to the issues examined (Maxwell, 2005). The majority of the interviewees in the study were people connected to craft instruction in compulsory education in one way or another. Among them were two employees of the local school authority in Reykjavik, one architect, four principals and three Design and Craft teachers. The research study was built on *grounded theory*, where a pattern is sought in the data and open questions are used. The data was treated as follows:

1. Raw data collected;
2. Raw data summarised;
3. Summaries analysed and classified into categories;
4. Findings discussed and conclusions written for each data source;
5. All the categories from the three data sources brought together and classified;
6. Overall discussion written and triangulation established;
7. Conclusions were drawn relating to the research questions.

Open coding was used in the process of data analysis, based on grounded theory principles. In open coding, the researcher forms initial categories of information about the phenomena being studied (Creswell, 1998). In open coding, the researcher maintains an open mind in order to find as many ideas and issues as possible. Similarities in the outcome are classified into main categories that can be used for discussions and conclusions or for further research (Emerson, 1995).

Main findings

The findings that emerged from the data were classified into five main categories resulting from both the qualitative and quantitative part of the research. These were: Concepts, Official policy, Students' attitudes, Educators' attitudes and Finance.

a. Concepts

The participants used many concepts relating to the areas of Art and Design and Craft. However, they understood them differently. Subsequently, this affected the research. Some of the participants thought, for example, that Design and Craft belonged to the subject area of Art. Others talked about 'arts and crafts' as a subject or a subject area, even though it does not formally exist in the National Curriculum. For example, the educational director in Reykjavik and a vice principal in one of the local schools stated that instruction in Arts and Crafts was blossoming in a certain school in Reykjavik. And yet, this school had not had a practicing Design and Craft teacher for some years. The children were, however, working with art-related projects from textile materials. Design and Craft teachers who took part in the research stated that the concept of art and craft was used more to describe Art than Design and Craft.

b. Official policy

The research could not identify a specific educational policy for subjects in elementary schools. Nevertheless, the city of Reykjavik supported individualised learning with emphasis on the subject areas of Art and Design and Craft. The educational director of Reykjavik stated "that students should have more influence on their progress and students with specific interest in Art and Design and Craft should be given extra time". However, none of the schools that participated in the research had put this into practice. Rooms for Design and Craft in the most recent schools in Reykjavik were very small and were without traditional woodworking machines. This arrangement was based on ideas for Design and Craft as a cross-curricular subject. The policy of these schools was that instruction should take place in different classrooms and be a part of other subjects.

Table 4 shows the average number of lessons given per week for Art and Design and Craft in elementary schools in Iceland. Lessons given in these subject areas are less than the National Curriculum defines as the minimum of five hours per week from first to eighth grade. It also shows that extra hours offered (3.5 per week) are not used for Art and Design and Craft.

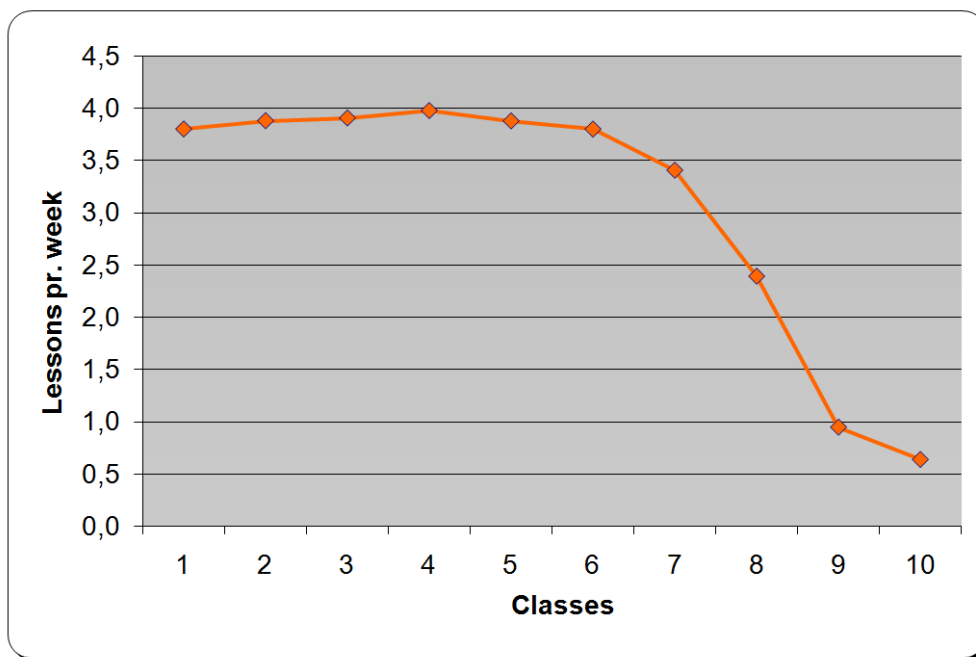


Table 4. The average number of lessons in Iceland in Art and Design and Craft 2000-2003 (Source: Hagstofa Islands).

c. Student's attitudes

The findings regarding students' attitudes were based on questionnaires given to 78 students in four schools. The research identified Design and Craft as the third most popular subject in Icelandic schools (see table 4). The other two most popular subjects were Sports and Home Economics. However, when students were asked about the importance of subjects in general for their education, the theoretical subjects were considered more important than Design and Craft (see table 5).

Table 5 shows the most popular subjects in Icelandic schools. It shows what percentage of students selected subjects as "very interesting" or "interesting".

Subject	Most popular (%)
Sports	78
Home Economics	77
Design and Craft	64

Table 5 The most popular subjects

Table 6 shows what percentage of students selected subjects as "very important" or "important".

Subject	Most important (%)
English	96
Maths	94
Icelandic	82
Design and Craft	29
Arts	10

Table 6. The most important subjects.

One of the findings was a negative correlation between grades in theoretical subjects and whether students like them using Pearson's 'r' statistical test (Grimm, 1993). Students who got poorer grades in theoretical subjects liked them less, $r=-0,24$ ($p<0,05$). On the other hand, there was no correlation between grades in theoretical subjects and whether students liked practical subjects. All students liked the practical subjects regardless of their grades in the theoretical subjects. Strong correlation was measured between questions asking about the importance of practical subjects and whether they liked them, $r=0,46$ ($p=0,01$). Students who liked practical subjects found them to be more important.

d. *Educators' attitudes*

All participants in the qualitative part of the research wanted to give Art and Design and Craft more weight in schools. It was, however, not clear how they wanted to achieve this. Nevertheless, they most often wanted to increase the time given to the subjects and to integrate them with other subjects. One of the principals said "... if you think about the individuals' development ... you have to conclude that Art and Design and Craft are important." Another factor was the opinion that Design and Craft was important to keep the students happy. Two of the principals stated that Arts and Crafts made students happier and therefore, they performed better in their theoretical studies.

e. *Finance*

The Design and Craft teachers were aware that their subject was more expensive than most other subject. Some mentioned this as a hindrance for further growth of Design and Craft in schools. However, the principals did not consider this a problem. Two principals said finance was based on the school curriculum and priorities. One of them said it more important to understand "...why theoretical subjects were so inexpensive".

Discussions

Interviews and questionnaires indicated that the majority of students, regardless of their ability in theoretical subjects, were positive toward Design and Craft. Educators participating in the research were also positive. These results demonstrated that Design and Craft was an important part of the curriculum and was supportive of students' well-being in the school. The principals also considered that Design and Craft promoted students' happiness and led to them doing better in theoretical subjects.

Icelandic school laws put emphasis on a balance between theoretical and practical subjects in compulsory education. The authorities have therefore promised to increase time given to practical subjects in school (Menntamálaráðuneytið, 1979, 1991, 2006). However, this has still not been carried out. The research could not identify a specific educational policy to support practical subjects in elementary schools.

Jonasson (2001) listed six problems regarding Craft education in compulsory education:

- Lack of clearly defined terms and concepts;
- Arguments for the value of Crafts in education differ and do not always agree;
- Lack of research to demonstrate the value of Craft in education;
- Strong traditions for theoretical education;
- Lack of official defenders for Craft education, especially inside the educational system;
- Craft education is usually more expensive than theoretical education.

Similar to Jonasson (2001), the research showed that educators understood the concepts Arts and Design and Craft differently. Some of educators considered teaching Design and Craft could be carried out without traditional machines commonly used in schools. This probably indicates a lack of knowledge or understanding of the subject. However, the Design and Craft teachers considered it impossible to teach the subject without using these machines.

The interviewees rarely referred to the rationale for Design and Craft represented in the Icelandic National Curriculum. This might indicate a lack of understanding of the purpose of teaching the subject in schools. However, some of them mentioned pedagogical values for students' personal development and support for individualised learning, suggesting that studying Design and Craft was a good preparation for the students' future.

Academic drift is the movement away from vocational study, either by students or institutions. It can result in more emphasis on academic study and a decrease in the appreciation of vocational qualifications (Edwards & Miller, 2008). Academic drift has been identified as already established in the Icelandic educational system (Jonasson, 2006). This may be one of the main reasons why it has been difficult to get educational authorities to increase the time given to Art and Design and Craft. Another aspect is that Art and Design and Craft have rarely been mentioned in educational literature.

The interviewees agreed that lack of finance was not a hindrance for schools if they wanted to emphasise Art and Design and Craft; rather, it was a matter of priority and planning. However, it would be interesting to examine whether schools were truly interested in increasing the time given to the subjects, as indicated in the interviews.

The research raised more questions than it answered and more research is needed to further examine the issues that have been identified. Further research might also give answers to the question: "How can we support Art and Design and Craft in compulsory education in Iceland?"

Conclusions and the authors' reflections

Concepts and terms already defined in the Icelandic National Curriculum relating to Design and Craft are often poorly understood and wrongly used among educators. This situation could be improved through better teacher training and in-service education. More research is needed, as well as more discussion, regarding the rationale for Design and Craft, including pedagogical values.

There is a positive attitude amongst educational authorities towards the subject. However, the authorities have not taken full responsibility for fulfilling the aims and objectives for the subject found in the Icelandic National Curriculum. In order to fulfil its aims and objectives for knowledge and skill acquisition, it is important for students to get all the lessons stipulated in the National Curriculum. New schools have to be provided with appropriate facilities and woodworking equipment.

Our research revealed that principals do not consider finance as a problem. However, many schools have underlined their intention to support Design and Craft education in their schools without having taken specific actions to support those intentions.

It is obvious from the research that the subject Design and Craft plays an important role in students' general education. It is popular and can improve their wellbeing and progress in all subjects. This is also a reason for increasing the number of lessons given to students. However, the students thought English and Mathematics were more important than Art and Design and Craft. This might be because there are standardised tests in these subjects carried out in grades four, seven and ten. Offering standardised exams for Design and Craft might be a way of promoting a balance between these subjects and thus make Design and Craft more important for students.

Design and Craft is a relatively young subject in Iceland. It is pedagogically-based and has inherited a long tradition for teaching handicraft as a part of general education. These pedagogical values are still valid, but educators need to be made aware of these values and it is important to keep the subject up-to-date. However, it obvious that more research is needed to re-awaken the debate about craft as a part of general education. Keeping the subject alive for the future will depend on a constant re-evaluation of the content of the curriculum as well as an on-going discussion about pedagogical values.

Brynjar Olafsson

Lecturer
University of Iceland
Email address: brynjar@hi.is

Gisli Thorsteinsson

Lecturer
University of Iceland
Email address: cdt@hi.is

References

- Creswell, W.C. (1998). *Qualitative Inquiry and Research Design*. California: Sage
- Edelstein, W. (1988). *Skóli, nám, samfélag [School, study, society]*. Reykjavík: Iðunn.
- Edwards, R. & Miller, K. (2008). Academic drift in vocational qualifications? Explorations through the lens of literacy. *Journal of Vocational Education and Training*, 60(2), 123–131.
- Eliasson, H. (Ed.). (1944). *Lög og reglur um skóla- og menningarmál á Íslandi sem í gildi eru í marzlok 1944*. Reykjavík: Fræðslumálastjórnin.
- Emerson, R.M., Fretz, R.I., Shaw, L.L. (1995). *Writing Ethnographic Fieldnotes*. Chicago: University of Chicago Press.
- Finnbogason, G. (1994). *Lýðmenntun*. Reykjavík: Rannsóknarstofnun Kennaraháskóla Íslands.
- Fræðslumálastjórnin. (1948). *Drög að námsskrám fyrir barnaskóla og gagnfræðaskóla*. Reykjavík: Fræðslumálastjórnin.
- Glaser, Barney G., Strauss, A.L. (1967). *The discovery of grounded theory: strategies for qualitative research*. Chicago: Aldine.
- Grimm, G.L. (1993). *Statistical Applications for the Behavioral Sciences*. New York: John Wiley and Sons.
- Jonasson, J.T. (2001). *Safn greina og bókarkafla frá árunum 1990–1999 um menntamál, einkum um þróun íslenska skólakerfisins*. Reykjavík: Höfundur.
- Jonasson, J. T. (2006). *Frá gæslu til skóla : um þróun leikskóla á Íslandi*. Reykjavík: Félagsvísindastofnun Háskóla Íslands.
- Kananoja, T. (1989). *Tyo, taito ja teknologia: yleissivistävän koulun toiminnallisuuteen ja työhön kasvattamisesta*. Turku: Kasvatustieteiden laitos, Turun yliopisto.
- Kananoja, T. (1991). Uno Cygnaeus, der Vater des finnischen Volksschulwesens und seine Ideen zur Slöjdpädagogik. In: Oberliesen, R., Wiemann, G. (Eds.) *Arbeit und Technik im Unterricht. Sonnenberg Internationale Berichte zur Geschichte I. Symposium im Nääs, 29. Juli - 04. August*. Brunswick: Jasper Horst.
- Lög um grunnskóla* (1974).
- Magnuss, G. M. (1939). *Saga alþýðufræðslunnar á Íslandi*. Reykjavík: Samband íslenskra barnakennara.
- Maxwell, J. A. (2005). *Qualitative Research Design, An Interactive Approach*. California: SAGE Publications.
- Menntamálaráðuneytið [The Icelandic Ministry of Education]. (1977). *The Icelandic National Curriculum*. Reykjavík: Menntamálaráðuneytið.

- Menntamálaráðuneytið [The Icelandic Ministry of Education]. (1979). *Endurskoðun námsefnis á grunnskólastigi. Skýrsla um starfsemi skólarannsóknardeildar menntamálaráðuneytisins 1967-1978*. Reykjavík: Menntamálaráðuneytið.
- Menntamálaráðuneytið (skólarannsóknardeild) [The Icelandic Ministry of Education (Department of Research)]. (1991). *Til nýrrar aldar. Framkvæmdaáætlun menntamálaráðuneytisins í skólamálu til ársins 2000*. Reykjavík: Menntamálaráðuneytið.
- Menntamálaráðuneytið [The Icelandic Ministry of Education]. (1997). *Markmið upplýsinga- og tæknimennta í grunnskólum og framhaldsskólum, skýrsla forvinnuhóps á námssviði upplýsinga- og tæknimennta*. Reykjavík: Menntamálaráðuneytið.
- Menntamálaráðuneytið [The Icelandic Ministry of Education]. (1999). *The Icelandic National Curriculum*. Reykjavík: Menntamálaráðuneytið.
- Menntamálaráðuneytið [The Icelandic Ministry of Education]. (2006). Skólastarf og skólaumbætur -10 skref til sóknar. Feched 23. maí, 2007, af <http://www.ki.is/lisalib/getfile.aspx?itemid=1943>
- Menntamálaráðuneytið [The Icelandic Ministry of Education]. (2007). *The Icelandic National Curriculum*. Reykjavík: Menntamálaráðuneytið.
- Mikkelsen, A. (1891). Opdrageren [The pedagogue], (a journal for Sloyd education), 3(1). Kjøbenhavn: Sløjdlærerskolen.
- Olafsson, B. & Thorsteinsson G. (2009). Design and Craft Education in Iceland, Pedagogical Background and Development: A literature review. *Design and Technology Education: An International Journal*, 14(2), 10–24.
- Thorarinsson, J. (1891). Um kennslu í skólaiðnaði. *Tímarit um uppeldis- og menntamál*, 4(1), 3–20.
- Thorsteinsson, G. (2002). Innovation and practical use of knowledge. *Data International Research Conference*, 2002, 171–177.
- Thorsteinsson, G. & Denton, H. (2003). The Development of Innovation Education in Iceland: a Pathway to Modern Pedagogy and Potential Value in the UK. *The Journal of Design and Technology Education*, 8(3), 172-179.