The craft process developing student decision making

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Abstract

In enterprise education, learning is problem-focused and holistic. A learning process that encourages people to learn by doing develops their problem-solving skills, participation, interaction, and decision making. Craft making includes practice, development, creativity, innovativeness, and the problem-solving process, and the craft teaching aims to promote students' substance skills of crafts and the skills they need in everyday life. Craft skills make people more active and help them to find practical solutions. Decision making seems to be one of the connecting themes between crafts and enterprise education. In this study, we examine school students' decision making during a craft process. The study was conducted during the spring term of 2013 and examines how the students make various decisions during the craft making process. Eight 13-year-old students were interviewed and the interview data analysed using thematic analysis. The results indicate that the quality of the students' decision making during a craft process is dependent on their personal goals, self-confidence, and previous experiences. In addition, there is a connection between the students' decision making and the social environment when they want to emphasize their own personality or similarity to their peers.

Key words: decision making, craft process, craft making, entrepreneurial mindset, enterprise education

Introduction

A person who completes all phases of a craft process (design, implementation, and evaluation) gains experience that strengthens and maintains the inner control ability of a human being (Kojonkoski-Rännäli, 1995). Crafts as a hands-on activity nurtures the makers' creativity and problem-solving skills and offers them an opportunity to test their ideas and see them realized (Rönkkö & Aerila, 2015). In the material making process, the hands and the mind are engaged simultaneously (Lepistö & Lindfors, 2015). Hands-on activities support the development of the students' comprehension skills and creativity as well as giving them an opportunity to experience the world and make conscious decisions based on that experience. It is an essential part of the students' intellectual and physical development (Sigman, 2008). However, the students must be allowed to experience both the anguish and the joy related to design and making, the slowness of the process and the elation of success. It is also important to understand that the evaluation of the internal and external results incorporates both interpretative and critical reflection. (Kojonkoski-Rännäli, 1995; Lepistö & Lindfors, 2015.) Thus craft teaching supports the students' development as responsible and active citizens in a versatile manner.

Enterprise education can develop and enrich the pedagogy of crafts teaching. A craft maker needs to adopt an entrepreneurial mindset when designing and making crafts, a mindset that can encompass the wide perception of possibilities, innovativeness, the accomplishment of a new activity, and risk-taking skills. (Lepistö & Rönkkö, 2009.) The entrepreneurial mindset requires the ability and courage to examine contents from new perspectives and to challenge the traditional practices. It involves risk taking, the desire for creative freedom, and an action orientation. The entrepreneurial mindset can be

defined as a learner's attitude that enables him or her spontaneously and courageously get into new situations. Teachers can encourage an entrepreneurial mindset by supporting learners to overcome their insecurities. (Leffler, 2009.) Learners should be able to tolerate a certain amount of uncertainty and complexity in the tasks and in the broader environment, and also desire to be creative (Gibb, 2002).

The functions of an entrepreneurial mindset are connected to the concepts of enterprise education (Gibb, 2005). Enterprise education refers to learning that is problem-focused and holistic. The learning process involves learning by doing (Cope & Watts, 2000) which develops the students' participation, interaction, decision making, and problem-solving skills (Rönkkö & Lepistö, 2015; Jones & Iredale, 2010). The main objective of enterprise education should be to broaden students' awareness (Jones, Matlay, & Maritz, 2012). Students should learn to commit themselves to social activities and to take responsibility for their environment and for society (Rönkkö & Lepistö, 2015).

The aims and content of enterprise education are directly linked to decision making (Drummond, 2012; FNBE, 2004; Henry, Hill, & Leitch, 2005; Jones & Iredale, 2010; Rae, 2000). In a school context, decision making is associated with the students' activities and behaviour (Cope, 2005) including taking risks, conducting experiments, accepting mistakes, and receiving feedback (Gibb, 2005). Students' experiences contain both an active and a passive dimension. The active dimension means that the experience provides an opportunity to be active and to test one's desires and plans and to make decisions. The passive dimension means that the experience includes outcomes, often of an unintended or unexpected quality that one has to tolerate. (Pepin, 2012.) Students who are open to new experiences are creative, curious, and adventurous and they are more alert to decision making (Ozgen & Minsky, 2013).

The focus of studies related to enterprise education has been on clarifying the concept of enterprise education, how it is carried out, and how people have reacted to it. For instance, research has examined student teachers' opinions on enterprise education (Lepistö & Rönkkö, 2013) and their critical views of it (Lepistö & Rönkkö, 2015). Researchers from several disciplines, including economics (Eskelinen, 2008), nursing (Lewenson & Truglio-Londrigan, 2014), and mathematics (Maji, Roy, & Biswas, 2002) have conducted studies on decision making. Kokko et al. (2015) researched students' learning with an interdisciplinary real-world learning context in which they worked collaboratively on an open-ended design task combining mathematics and craft. Educational research has approached the issue as it relates to teachers' decision making (Greenwood & Parkay, 1988) and to leadership (Shapiro & Stefkovich, 2011). The decision making in arts and crafts has been part of the research on the creative process (Ambrose & Harris, 2010) but the decision making process of the maker remains unexplored. The present study aims to fill the gap by investigating students' decision making in the craft making process, and if it is possible to promote students' decision making during the craft process by applying an entrepreneurial mindset in craft teaching.

In the study described in this article, the seventh-grade students' problem-solving process and decision-making skills are examined during a craft process. The focus is on the students' experiences during the decision making process. The objective of the study is to find out how the entrepreneurial mindset affects the students' experiences and what kind of enterprise education these experiences represent. The research questions are as follows: (1) what kind of decision making does craft making require? and (2) what are the themes connected with the students' decision making during a craft process?

The entrepreneurial mindset includes decision making

Enterprise education in basic education can be understood as a tool to help students to become more self-confident, to analyse business ideas, to communicate with others, to develop networks, and to lead and evaluate projects (Henry, 2013; Jones & Iredale, 2010). Students acquire diverse experience and are able to develop their learning environment. The individuals voluntarily take responsibility when they are allowed to define the basis of the learning, and to determine one that is suitable for their operational environment. (Leffler, 2009; Wilson et al., 2009.) Being able to make decisions that affect them at school encourages students to make independent and future-focused decisions in their own lives. Teaching the individual to take the initiative and responsibility should not only be the goal of enterprise education but of all teaching. (Henry, 2013; Jones & Iredale, 2010; Cope & Watts, 2000; Leffler, 2009.)

Decision making comprises choosing what to do and what not to do when striving to achieve a goal (Baron, 2008). Decision making consists of three parts: 1) the examination of the possible alternatives, 2) the expectations related to the consequences of action, and 3) the opportunity to assess the consequences (Hastie & Dawes, 2001). According to the normative model of decision making, a person selects the alternative that is the most useful and for which the existing conditions are the most favourable. The unprejudiced consideration of the best decision helps to achieve the goal because it maximizes the usability of the decision. (Baron, 2008.)

In a decision-making situation, a lack of usable information and uncertainty about the effects of the options creates either financial or psychological risk (Haataja et al., 2009). A psychological risk is one that affects a person's self-esteem and that person's confidence in his or her own abilities. The social risk is related to communality and interaction (Ristimäki, 2004). Although the decisions are made by an individual, they are affected by the situation, values, and the network in which he or she operates (Hicks, 2004). To guide their decision making, people need to adopt critical thinking when evaluating evidence through a multi-perspective analysis (Ozgen & Minsky, 2013). However, people's attitudes, opinions, and beliefs are important factors in their decision making (Hicks, 2004).

School students' decision-making skills have a positive effect on their self-confidence, self-belief, and personal values. They enhance the students' motivation to set and achieve ambitious goals, as well as to put the ideas they have developed based on their experience, capabilities, skills, and knowledge into practice. (Rae, 2000.) Learning to make decisions is one of the most significant capabilities a student can acquire and it should be developed from childhood to adulthood by giving them responsibility and the opportunity to choose (Haataja et al., 2009; Ozgen & Minsky, 2013; Veeber et al., 2015).

The educational aims of the holistic craft process

The aim of craft teaching is to develop students' craft skills in such a way that their self-esteem improves and they learn to enjoy craft work. Consequently, the students' sense of responsibility deepens simultaneously with the growth of their knowledge of the materials. During the craft lessons, the students learn to work independently and learn perseverance and patience. In addition, they become acquainted with their cultural heritage. According to the Finnish core curriculum for crafts, the holistic craft process has a significant role in achieving these goals (FNBE, 2004) because the student is responsible for the development of ideas, design, production, and finally the assessment of both the artefact and the whole process. (Pöllänen, 2011; Rönkkö, 2011.)

The visual and technical design of the product is an important part of the holistic craft process (Kojonkoski-Rännäli, 1995). The holistic craft process enhances students' design skills. As a starting point for the designing, the maker looks for stimuli and experiences to incorporate into the craft product (Rönkkö & Aerila, 2015.) Doing research and conducting experiments, solving problems, and reflecting on one's actions are essential parts of all creative processes (Pöllänen, 2009). During the design phase, the craft maker defines the main purpose, properties, and the maintenance of the artefact. In addition, he or she needs specific information about the production process. (Seitamaa-Hakkarainen, 2000.) To turn ideas into a viable craft product, the maker has to obtain information about craft technologies, materials, and tools by asking, experimenting, and examining (Kojonkoski-Rännäli, 1995). The ideas will develop through the application of visual and technical solutions into a tangible artefact (Lawson, 2006; Sjöberg, 2009).

A person with well-developed craft skills will be able to choose suitable material for a task and also understand the properties of the material (Rönkkö, 2011). All activity in the world is based on various materials and consequently they are a central part of craft making. There is a dialogue between the maker and the material when the maker conducts various technical experiments related to the structure of the product and the behaviour of the material. Simultaneously, the maker tests and develops his or her craft skills. (Lepistö & Lindfors, 2015.) Veeber et al. (2015) state that in the craft process thinking and watching with the hands' requires that the maker touches and feels the material. Craft maker may even feel an affinity with the material when working towards the intended objectives. This cannot be achieved by just thinking about and observing the material from a distance. Ozgen and Minsky (2013) write about bisociative thinking, which focuses on imagination and intuition and is highly correlated with innovative behaviour. In bisociative thinking a person links the elements of various ideas and constructs a completely new and original idea. Those students with a highly developed bisociative thinking ability have a flexible mindset and can easily move from one step to another when making decisions during the craft process.

The craft maker takes pride in a hand-made product. When one develops one's craft skills and commits oneself to the realization of a craft product, one feels pride and joy. It is obvious that the satisfaction in making crafts is connected with the development of the skills. During the development process, a person needs time for reflection and to discover the best outcomes. (Kojonkoski-Rännäli, 1995.) Therefore, making crafts is time consuming. When the maker stops to reflect, think, and estimate, the product will be more satisfactory than if the process is rushed or steps omitted (Sennett, 2008).

A craft product is a tangible outcome of hands-on activity. The product also testifies to the holistic craft process. The thoughts of the maker become concrete in the design process and finally in the finished product (Rönkkö, 2011). Craft making and the craft product can act as instruments to express one's ethnic, political, and gender identity (Grimes & Milgram, 2000). The craft artefact often has individual or cultural meanings (Rönkkö, 2011; Kouhia, 2012). The craft makers express personal issues, such as their life situation and special experiences through their work (Kojonkoski-Rännäli, 1995; Rönkkö, 2011). This kind of craft making is a means of self-expression which reflects the maker's personal commitment to the process (Rönkkö, 2011).

Methods

Study context

The study was carried out in a medium-sized school with approximately 300 students in Western Finland during the spring term of 2013. The experimental pedagogical project started in January and it lasted about 14 weeks with three regular 60-minute lessons per week. It involved a total of 28 seventh-grade students, 13 girls and 15 boys (aged 13 years). The students had been able to choose either technical work or textile work for grades 5 to 7 according to their preference. In this group, 14 of the boys had selected technical and one textile work while 10 of the girls had chosen textile and three technical work. The study sample was 8 students (four girls from textile work and four boys from technical work). We aimed to choose students to represent the 7th grade student's views on decision making during the craft process and asked students to participate the interview voluntarily. The use of the volunteers' as interviewees was supported by the fact that the ones who want to participate in the interview want to tell about their thoughts openly.

The most important part of the technical work included the students' designing a product themselves and then planning how it would be used. The learning task in question was to design and make an amplifier. The students were allowed to decide what it would look like and decorate it in any way they wanted. The students used plywood as a working material. They could choose either a battery- or a mains-powered version, and used ready-made circuitry. In textile work, the learning task was to design an outfit and make one piece of it. The goal of the learning task was that the students would learn to take the initiative, to understand instructions, and to estimate the quantity of material required. The students were allowed to choose the patterns, materials, and decoration themselves.

Study data and data analysis

The interview is considered a flexible method of data collection, not least because it can be used to clarify issues, such as underlying values and reasons (Rubin & Rubin, 2005). Silverman (2010) describes the interview as a method for getting inside the interviewees' heads and reporting matters from their perspective. In this study, although the questions were semi-structured, they were broad enough to elicit opinion from the interviewees (Rubin & Rubin, 2005). However, when planning an interview it is not sufficient to decide who to interview and what to ask them. Interviewing requires from the researcher careful planning, practice, and sensitivity towards the interviewees. The interviewer's task is to direct the progress of the interview, to motivate the interviewees, and to ensure that they keep to the point and within the theme (Fontana & Frey, 2005).

In this study eight students were interviewed three times during the craft process (brainstorming and design, production, and evaluation). Before the interviews, the researcher chose excerpts from the video material that best represented the events during the craft lessons. The fragment reminded the student of the phase in craft process. The themes of the interviews were defined in inspiration and design phase: 1) goal setting, 2) alternatives for designing 3) motivation to learn, in implementing phase: 1) the technical design 2) craft skills and in evaluation phase: 1) self-evaluation and 2) dialog with other students.

The data were analysed through qualitative content analysis (Krippendorff, 2004). Content analysis includes the systematic and objective analysis of the collected data (Neuendorf, 2002). In this study, the challenge in analysing the qualitative material gathered lay in determining the significance of the responses given by the interviewees. In addition, an expression can hold a different meaning for different people and in different environments. (Gall et al., 2003.)

The interpretation of the entrepreneurial elements of the crafts was based on the views of the decision making that occurred (e.g., Haataja et al., 2009; Baron, 2008). In addition, the interpretation involved referencing the studies of holistic craft (e.g., Kojonkoski-Rännäli, 1995; Sennett, 2008). First both authors read through the data several times. The first author coded and compiled the material in tables according to the above-mentioned themes, and the common discussions were implemented to deepen and deliberate them. The thematic text were categorized and generalized to clarify the students' decision-making experiences during the craft process.

The data and findings were supported by video material and photos taken during the process. The excerpts below were chosen to illustrate the interviewees' opinions on the decision-making process. Code names have been assigned to maintain the anonymity of the informants. The number after the code name (I–III) shows from which interview the fragment is taken, for example *John III*.

Results

Connection between personal goals and decision making

Making crafts requires knowledge and the skills to implement a design. The craft process produces experiences which develop the students' creativity, planning and problem-solving skills, and tolerance of insecurity (see e.g., Lepistö & Lindfors, 2015). Designing can be conceptualised as a process, a quest for something new, something that does not yet exist. It also challenges students to think in new ways and take risks. (See e.g., Kangas et al., 2013.) In this study, the crafts teachers gave the students learning tasks which had only a few compulsory elements. While the teachers helped the students and guided them through the learning process they gave them the opportunity to think and act independently (see e.g., Jones & Iredale, 2010; Kokko et al. 2015). The teachers adopted an entrepreneurial mindset in their teaching. In the tasks, the students on the one hand took advantage of their previous experiences and knowledge and on the other hand searched for new information. This kind of learning proved to be rewarding for most of the students and they enjoyed solving the problems.

> I am happy that I can design the product at will and decide how to implement it (John_III).

> I have been thinking about this des ign for a long time and waiting for dresses of this kind to be made (Lucy_I).

The majority of the students tried to find sensible solutions to the learning tasks. They pondered how to create a product that would simultaneously reflect their own style and be practical. Some of the students' ideas were connected to their hobbies, such as computer gaming. For example, Bill painted the battle field, text, and figures from his favourite game on his amplifier.

> I wanted the amplifier to be connected to that game (Bill_III).

Those students who had previous knowledge and good craft skills were the more confident decision makers. Prior experience helped the students to succeed when planning the task and choosing the best solutions to support the completion of the task (see e.g., Haataja et al., 2009). The students with good craft knowledge and skills were able to check the quality of their work during the implementation of the design. They were also able to make decisions that improved the product and its features when necessary. Holistic craft necessitates students being able to develop or change the product's design, instructions, and implementation. For example, Lucy accepted a mistake she made and viewed it as a challenge and then tried to find a way to remedy it. She considered whether the incorrect implementation might be of some use and thus saw the situation as an opportunity to look at things in

a different way. Similarly, Gabriel said that his designs were not unchangeable because there is always an option to invent something new during the process.

> The most important thing is that the dress is suitable for me (Lucy_II).

> It is my habit. The product changes while I'm making it... It may change, something could be added or something left out. (Gabriel_I)

The level of the students' self-confidence was clearly seen when they made decisions. Those with good self-confidence set ambitious goals for both learning crafts and the features of the product. The objectives they set relating to the product could be seen in their decisions leading to a carefully made and finished product. The students needed perseverance and patience to reach their goals (see e.g., FNBE, 2004). Furthermore, those who had ambitious goals for the learning task often chose a new and challenging technique.

> Certainly I want to learn and implement something new and more challenging! (Gabriel_I).

The readiness to set ambitious goals and the ability to take risks are related to each other. The student is conscious of the risks but views the choice situation as an opportunity. A central concept of several theories related to enterprise education is that decision making always involves risk (see e.g., Gibb, 2005). This is a fact also in a corporate enterprise that accepts the risk triggered by its own actions and decision making (see e.g., Henry, 2013). In this study, the risks the students took were related to the choice of craft technique. This happened in different phases of the craft process when the maker made decisions affecting the final result.

> Well, perhaps I'll use it… I'll use the less difficult technique, because there is no certainty that I'll be able to test the more difficult one. (John_I)

In this study, the students with low self-confidence and no previous experience found the decision making the most challenging and, in some cases, they found it impossible. The aim of giving a free task with no compulsory elements was to support the brainstorming of ideas in order to design a usable and practical craft product. However, not all students were ready for the range of choices. Students who had a little confidence in their craft skills found it difficult to begin to work and produced weak designs.

> It depends on how difficult those techniques are… However, I will not take the risk that the product will be of no use because of the technique. (Eric_I)

> At first, I did not believe that anything would come of it. (Amanda_III).

Table 1 shows how the students' confidence and ambition were connected to their decision making. Students who had confidence and ambition were thorough during all phases of the craft process and sets goals for the planning and implementation of their design. Those students paid attention to the quality of their work and made corrections when necessary. Students lacking in confidence did not value the products they made and wanted to choose a ready-made model to avoid risk taking and decision making.

Table 1: Students' decision-making during the craft process is connected to their personal goals

Student who is confident and has ambitious goals	• Designs his or her own model and makes decisions related to the product's usability, details, and appearance and chooses material and craft techniques according to his or her vision. • Chooses challenging and instructive craft techniques. • Makes decisions which complicate implementation. • Utilizes his or her previous experience and craft skills and searches for new information when necessary. • Understands what the best working order is. • Keeps to the schedule. • Enjoys making decisions.
Student who is not confident and has no ambitious goals	• Makes no effort and does not succeed in brainstorming. • Needs plenty of support in starting the work and in the implementation. • Chooses a ready-made model instead of their own design. • Has inadequate decision-making skills. • Has no understanding of a good order of production. • Does not keep to the schedule. • Feels that the failure is caused by unreasonable demands.

Connection between social environment and decision making

A significant part of the holistic entrepreneurial mindset is acting in a social environment (Remes, 2003). During the design and production phase, the students often asked for help from their peers when they had to make decisions. It was obvious that in this group the social environment influenced the students' design and implementation in two ways. First, having a dialogue with their peers enhanced the brainstorming of ideas, and second, discussions during the design and implementation process helped them to further develop their ideas. As Veeber et al. (2015) state, craft requires the ability to be innovative rather than good craft skills.

> The students talked about other students' designs… so, you could still get ideas and help from the others (Tilda_I).

> It was nice because in the classroom there were plenty of people and it was not like in the other classes where you work silently (Bill_III).

The students were focused on the task in hand and most of them worked eagerly and independently. They talked to each other during the working process and sometimes that distracted their concentration on the task. However, the students enjoyed the free spirit in the craft classroom and the freedom to make their own decisions. It seemed that the discussions between the students did not disturb other students. The social environment had a positive influence on the development of the product and motivated some other students to work in the best possible way. An enthusiastic student encouraged other students to proceed in the process.

> I asked my friends for help and of course we had discussions with each other... but fortunately it did not take all the working time! (Bill_II)

The students knew that they could make personal decisions. In a safe environment, the students were not afraid to express original ideas and understood they all had the right to be appreciated and accepted as they are (see e.g., Louhela, 2012). Although several students strove to create a new, innovative product, there were also students who were happy to make something more conventional. It seems that discussions during the design phase prompted some of the students to copy other students' designs. Therefore, not all students were happy to reveal their ideas to the other students.

> It does not need to be different but it is nicer if the product is going to be at least a little bit different than the others make… it should look like your own. (John_I)

> Our clothes are quite similar. --- The material is different, and we can make them differently. (Amanda_III)

The personality that emerges in a social environment encourages the students' to set themselves ambitious goals, and they are happy to show their talent to other students. In addition, it is important that the students get positive feedback from other students. The classroom dynamics and practices based on the teaching and learning objectives, the students' needs and abilities, and the opportunities the learning environment offers (see e.g., Jones & Iredale, 2010) support the development of the students' entrepreneurial mindset.

> The quality of the sound and the appearance of the product are important to me. Therefore, I want to show that I can make it. (Bill_I)

> It depends on who says… If my best friend says something, it affects my work. (Lucy_III)

The students often asked for the teacher's help when making their decisions. They had usually already planned what to do next, but sought approval of their plans. The input of a teacher or a friend can advance a student's own ideas because they reveal new options, or sometimes a completely new goal (see e.g., Baron, 2008). The teacher's involvement requires an open dialogue between the two parties, the acceptance of differences, the giving and receiving of feedback, and mutual trust (See e.g., Haataja et al., 2009). One challenge for the teacher is to develop a teaching style that encourages learning by doing, discussions, experiments, learning from trial and error, calculated risk taking, creative problem solving, and interaction with the surrounding community (see e.g., Jones & Iredale, 2010).

> We were not sure how to proceed and asked the teacher to help us. (John_II)

Table 2 shows the significance of the social environment in the students' decision making during the craft process. The students who were confident of their skills and certain about what they were doing made individual decisions independently. Craft making is generally an individual activity (see e.g., Kojonkoski-Rännäli, 2014; Rönkkö, 2011) but it can also be collaborative in practice (see e.g., Veeber et al., 2015; Kokko et al. 2015; Pöllänen & Vartiainen, 2013; Kangas et al. 2013). The students' desire to emphasize their own personality was evident in their craft product, for instance in the personal details and choice of material. Those choices offered them an opportunity to express their previous experience, memories, and feelings (see e.g., Rönkkö, 2011). For the craft-skill orientated students it was important to make a craft artefact that had a carefully finished appearance (see e.g., Rönkkö, 2011)

Table 2: Students' decision-making during a craft process is connected to social environment

A student who wants to make a similar product to their peers	• Makes similar designs or designs with a few small differences. • Wants to show his or her own product to other students. • Asks for help from other students.
A student who wants to emphasize his or her own personality and craft skills	• Makes distinctive designs. • Emphasizes individuality. • Wants to show his or her craft skills to other students.

Discussion

In craft learning, the students' decision making is based on their prior experience, personal skills, self-confidence, and their social environment that includes other students and friends. In addition, the decision making is guided by multi-sensory material knowledge and the physical interaction with the chosen material (Laamanen & Seitamaa-Hakkarainen, 2014; Evans, Wallace, Cheshire, & Sener, 2005). In this study, making choices in the craft work was understood as an opportunity to produce personal and diverse designs.

Craft making includes abstract situations such as the makers' thinking processes (Rönkkö, 2011; Kangas et al. 2013). Thinking is required to find and select potential options for future activity and personal goals (Baron, 2008). It develops in the craft making process and the new knowledge acquired as a result affects the design and implementation of the holistic craft process (Pöllänen, 2011). Even if it involves a risk, the students are ready to take the responsibility for the design and implementation of the craft product. From the social perspective, decision making includes the right to be oneself and express one's own opinions (Haataja et al., 2009). This is consistent to design thinking as the purpose of design learning is to provide a framework for teaching students to become actively involved in shaping their environment (Kangas et al., 2013). Design thinking and entrepreneurial mindset have similar important features: it is constructive in nature, it addresses ill-defined problems, it is solution-focused, and it is dominated by problem solving (Gray 2013).

Any decision maker considers different options and the arguments that have been made for and against them (Baron, 2008). In the context of the current research, other students and the teacher influenced the students' understanding of the requirements of the task. The ability to set realistic objectives is connected to self-confidence. In craft making, the decisions may have a positive effect immediately or affect only the final outcome of the project. For a student, the immediate advantage can be for instance, praise from a friend or overcoming a difficult stage and moving on to an easier one. The reward at the end of the project is reaching a long term goal. The student assesses the advantage based on his or her earlier experience (Haataja et al., 2009).

The risks related to craft learning include making mistakes, but the process should encourage learning from those mistakes (Haataja et al., 2009), in a process involving a series of minor risks. During the

process, the makers have to make several courageous decisions and that develops their risk-taking skills and strengthens their risk tolerance. When designing a craft product, the makers experiment with the modelling of craft materials and the results of those experiments determine the order of the implementation. The students in the current research assessed different alternatives, either independently or together with the teacher. Eventually, the students had to make a decision and begin making the product according to their plan. However, during the process they sometimes found themselves in unpredictable situations. The better the skills and control of matters the makers had, the easier it was for them to act to meet the demands of the new situation. Being able to adjust their aims to address a changing situation improves their ability to solve similar problems in future. The teacher's guidance on decision making is necessary for a young student, but an older student should be encouraged to take more responsibility of his or her craft making (e.g., Seitamaa-Hakkarainen, 2000.)

In a learning environment that enhances the entrepreneurial mindset, the learning takes place in social interaction (Rae, 2000). Experiences should be reflexive, not merely reactive. The experimental learning transaction involves developing an awareness of how internal conditions (an individual's potential and interests) and surrounding conditions (pertaining to the environment) are together a part of the students' learning (Pepin, 2012.) Furthermore, it is necessary to have dialogue in order to create the atmosphere of mutual respect and confidence (Giroux, 1990). This brings out the differences between the students' personality, experience, and opinions and helps them to understand each other better. In this study, the dialogue took place in the conversations between the teacher and the students as well as between the students. The students took responsibility for their learning and for the interaction with others. When working together, they discussed the working process, and that helped them to understand and accept their classmates' different ways of acting during the process (Remes, 2003.)

Teachers have to be able to accept different views, prompt dialogue between students, give feedback and receive it, and create and maintain mutual trust. Although teachers guide the learners according to their own views, they should give the learners freedom to choose other solutions if they do not regard the teachers' ideas as appropriate for them (Haataja et al., 2009; Kangas et al., 2013). This is not always unproblematic because the students' goals may not be the best possible ones from the point of view of learning. In that case, the teacher should try to make the learners to understand the negative effects of their decisions.

This study has been implemented in the context of the current guidelines, the Finnish core curriculum for primary education, 2004. The topic is even more relevant now as Finnish primary education adopts a new curriculum from the beginning of August 2016. One of its focus areas is 'Changes in working life, enterprise, and entrepreneurial attitude' and these concepts should be put into practice in all subjects. The aim of the core curriculum is to help the students to understand the common priorities, workings, and needs of the school community, the public sector, the business world, and the organizations within the social framework. In crafts, the new curriculum emphasizes that documentation enables one to reflect activity and deepens interaction. It helps the students to express their thoughts related to the craft artefact they have designed and teachers to guide student decision making according to learning goals (FNBE, 2014).

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