Enterprise Education through Sloyd

Janne Elo

For the past few decades, enterprise education has been on the educational agenda. Though it is being pushed by EU and the Organisation for Economic Co-operation and Development (OECD) policy, as well as national policy in the Nordic countries, there are still questions regarding the implementation and nature of enterprise education. Since developing students' enterprise is a cross-curricular goal, in educational systems that are based on subject division, a better understanding of enterprise within the context of different school subjects is of importance. The school subject sloyd has repeatedly been highlighted as being well suited for enterprise education. This article focuses on outlining how enterprise education can be understood in the context of sloyd education from a theoretical perspective. The article is based on comparison between research literature and policy documents on enterprise on the one hand, and sloyd educational theory on the other. The main sloyd theoretical points of departure are the principle of areas of interest, the holistic sloyd process and sloyd as a holistic activity system. In addition to contributing to the research on enterprise, the article therefore contributes to the understanding of educative sloyd in contemporary society from a theoretical perspective, also pointing towards implications for teaching practice. Examining sloyd from the perspective of enterprise develops an understanding of how sloyd can contribute to solving contemporary challenges in education. The results highlight the importance of the holistic sloyd process as a prerequisite for enterprise education through sloyd. Basing teaching on areas of interest is a means for enterprise education to unfold in sloyd teaching. Paying attention to the forms of decision making pupils are involved in, as well as handling uncertainty and risk are also highlighted.

Keywords: enterprise education, entrepreneurship education, sloyd education, sloyd process, learning

Introduction

Entrepreneurship education and enterprise education are current themes in the educational debate that have encountered some challenges within educational practice as well as research. Enterprise education involves fostering a proactive and self-reliant attitude towards life in general, while entrepreneurship education is more clearly targeted at promoting future self-employment, business and economy (Jones & Iredale, 2010). On the one hand, basic education has been criticised by the OECD, amongst others, for not meeting the challenge of entrepreneurship and enterprise education (Mahieu, 2006). On the other hand, entrepreneurship education has been criticised, for instance, for being an expression of neoliberal governance (Komulainen, Keskitalo-Foley, Korhonen, & Lappalainen, 2010) or for being educationally "empty" and not bringing anything substantially new to education (Berglund & Holmgren, 2013; Elo, 2015; Leskinen, 1999). There appears to be many interpretations of the nature of enterprise and entrepreneurship education, partly due to its cross-disciplinary nature between economy and education. Entrepreneurship and enterprise education has been a part of the national core curriculum in Finland since 1994 as a cross-curricular theme (National Board of Education 1994, 2004). The implementation has, however, varied largely, and different surveys suggest that it has not become a significant part of the teaching approach in Finnish basic education (Niemi, 2012; Seikkula-Leino, 2007). Research has shown that teachers are not necessarily opposed to enterprise education, but they experience difficulty

in transforming what are perceived as abstract and elusive goals into teaching practice, and thus request guidance (Backström-Widjeskog, 2008; Elo, 2015). As enterprise education is a cross-curricular theme, a deepened understanding of how it can be enacted in different school subjects is needed.

Sloyd education has repeatedly been mentioned as being especially well suited for entrepreneurship education and enterprise education (Johannison & Madsén, 1997; Johannison, Madsén, & Wallentin, 2000; Johansson, 2002; Lepistö, Tervaselkä-Jalonen & Haapalahti, 2010; Lindfors, 2011; Nygren-Landgärds, 2003; Sjøvoll, 2011; Suojanen, 1999). The school subject sloyd appears mainly in the Nordic counties. Sloyd is described as a goal-oriented and holistic human activity where materials are transformed into artefacts based on the vison of a desired result (Hartvik, 2013; Kojonkoski-Rännäli, 1995). Sloyd covers elements from subjects such as crafts, design and technology and arts, perhaps more familiar outside the Nordic context. In the Finnish context, sloyd is generally studied as a compulsory subject in grades 1–7 in basic education, and as an optional subject in grades 8–9. In some upper secondary schools, sloyd can also be taught as a diploma course. Sloyd activities have long traditions and occur in many contexts, in education and in society in general. This article focuses on sloyd in the context of basic education. According to Hasselskog (2010), sloyd is characterised by student influence, individualisation and tangible "doing". Hartvik (2013) adds that this "doing" is complemented by "thinking", and sloyd thus covers both doing and thinking in an integrated process. The school subject sloyd has, since its introduction, been associated with the potential for personal development and character building (Borg, 2009; Hartvik, 2013). The subject is currently associated with goals such as developing students' inventiveness, creativity, initiative taking, self-reliance and risk-taking ability (Hasselskog, 2010; Lindström, 2009). Lindström (2009) suggests that these kinds of goals constitute the "real" value of sloyd, instead of the subject-technological goals traditionally emphasised.

The implementation of enterprise education requires knowledge of how it can be enacted in individual school subjects, and sloyd has been pointed out as suitable for this aim. Therefore, a closer examination of the connections between enterprise and sloyd is justified. The research question for this article is as follows: How can enterprise education be outlined in the context of sloyd education? Enterprise is approached from three sloyd educational points of departure; the principle of areas of interest, the holistic sloyd process and sloyd as a holistic activity system.

While this article outlines enterprise education in a sloyd educational context and points to the similarities and connections between the two, it does not attempt to prove that sloyd education in fact develops an enterprising mind-set. Making such a claim would be mere assumption. However, by discussing the aspects of sloyd education that are relevant for enterprise, this article can contribute to the discussion on enterprise in sloyd, and contribute to further the empirical research on sloyd's potential for enterprise education. This approach also illuminates the role of sloyd education in dealing with contemporary societal challenges.

The article consists of five chapters. After the introduction, chapter two focuses on the background for the study. Chapter three discusses entrepreneurship education and enterprise education. In chapter four, enterprise education is outlined in the context of sloyd education, and the article is concluded in chapter five.

Background

The concepts enterprise education and entrepreneurship education have been present in national as well as international policy documents on education over the last few decades. According to Jones and Iredale (2010), *entrepreneurship education* is most appropriately used when referring to educational activities directly aiming at promoting self-employment and small business ownership. When referring to basic education's mission to foster an enterprising and proactive mind-set, *enterprise education* is suggested

as the appropriate concept. Enterprise education therefore does not necessarily have any connections with business or economy. It is rather a question of fostering a proactive attitude towards life, regardless of context. In the Finnish context, the concept entrepreneurship education is used in national policy documents and emerges in the current core curriculum as a cross-curricular theme called *Participatory Citizenship and Entrepreneurship* (National Board of Education, 2004). Entrepreneurship education was introduced in the curriculum in 1994, and according to the Finnish Ministry of Education (2009), all levels of education are expected to realise entrepreneurship education in a way suitable to the level in question. In the most recent core curriculum from 2014, to be implemented in the fall of 2016, entrepreneurship education is not explicitly mentioned. Goals associated with it can, however, be found in numerous chapters, most apparently in the description of the overall competence "working-life competence and entrepreneurship" (National Board of Education, 2014). Despite *entrepreneurship education* being the dominant concept in Finnish policy, the majority of the learning goals associated with it in the core curriculum from 2004 (National Board of Education, 2004) focus on developing a proactive and enterprising mind-set that can be expressed and utilised in a variety of contexts beyond just business and the wider economy. The goals are thus more consistent with *enterprise education.* According to the Ministry of Education (2009), it is the fostering of an enterprising spirit that should be the focus in basic education, with the focus shifting towards business and economy higher in the educational system. In the Finnish context, entrepreneurship education is often used as an umbrella concept covering the development of the enterprising and proactive mind-set of students, as well as the promotion of a future career as a self-employed entrepreneur. However, the concept enterprise education appears as a more suitable concept in basic education, especially in the lower grades, whereas entrepreneurship education becomes increasingly relevant at higher educational levels. This exemplifies the conceptual ambiguity that characterises the entire research field; the concepts enterprise and entrepreneurship are used interchangeably (Jones & Iredale, 2010).

This conceptual ambiguity certainly contributes to the difficulties teachers face when trying to grasp and implement enterprise education in general as well as in individual school subjects. On the school level, teachers have experienced difficulties in transforming the concept into educationally meaningful content, partly due to the varying interpretations. Teachers in basic education perceive the fostering of an enterprising and self-reliant attitude as a core goal for basic education, but they simultaneously experience difficulties in connecting these goals with specific educational practices (Elo, 2015). Enterprise education is, on the one hand, seen as important, but on the other hand, it is seen as elusive and challenging to implement. In comparison, subject goals are more easily understood and turned into teaching practice. Research on the connections between specific subjects and enterprise education is thus needed to bridge the gap between goal and practice.

Enterprise education

Enterprise education refers to the development and fostering of a personal attitude and personal attributes characterised by proactivity, creativity, initiative taking and an ability to translate ideas into action (Jones & Iredale, 2010). However, the concept of entrepreneurship education is used in the Finnish context as an umbrella concept, thus including enterprise education. The definition of entrepreneurship by the Finnish Ministry of Education (2009) is clearly influenced by the definition of entrepreneurship provided by the Commission of the European Communities (2005):

> Entrepreneurship is the individual's ability to translate ideas into action. It encompasses creativity, innovativeness and risk-taking, as well as an ability to plan and direct action towards the achievement of goals. These qualities support everyday life in education, at work, in leisure activities and in other societal activities. These qualities are needed in entrepreneurship, but they also enhance workers' awareness of their work and help them seize opportunities. (Ministry of Education, 2009, p.11.)

The definition above uses the concept of entrepreneurship, even though it largely defines the attributes of an enterprising individual. The definition states that enterprising qualities support everyday life, as well as entrepreneurship. The enterprising individual is described as having the ability to manage and coordinate goal-oriented processes where creative ideas are transformed into action. The Commission (2005) continues to define the skills and attitudes associated with enterprising individuals, that enterprise education is meant to develop:

> Skills relate to proactive project management (involving skills such as planning, organizing, managing, leadership and delegation, analyzing, communicating, de-briefing and evaluating and recording), and the ability to work both as an individual and collaboratively in teams. The judgment to identify one's strengths and weaknesses, and to assess and take risks as and when warranted is essential.
>
> An entrepreneurial attitude is characterised by initiative, pro-activity, independence and innovation in personal and social life, as much as at work. It also includes motivation and determination to meet objectives, whether personal goals or aims held in common with others, and/or at work. (Commission of the European Communities, 2005, p. 17.)

The Commission stresses proactive project work and the ability to plan, organise and carry out goal-oriented activities. This includes teamwork as well as individual work. The ability to identify strengths and weaknesses and the ability to take risks are stressed. Berglund and Holmgren (2013) state that the individual and the individual's characteristics often are in focus in the discourse on enterprise and entrepreneurship, although both enterprise and entrepreneurship have a strong social dimension and occur in social contexts. The Commission's (2005) definition can, however, be seen as covering both dimensions, highlighting both the individual and collaborative teamwork. Based on the definitions above, an enterprising individual appears to have a proactive attitude and the ability to turn ideas into action, which involves the ability to set goals and set up a strategy for reaching these goals, the ability to coordinate actions in accordance with the goals and strategy and the ability to continuously evaluate the outcome of the actions.

Enterprise education is concerned with the ways of working and the learning culture in school, rather than the subject-content. Despite an alleged lack of educational perspective on this research field, numerous sources have described the principles, characteristics, and features, as well as the educational practices, of enterprise education. Enterprise education is generally described as resting on a learner-centred and real-world oriented view on learning and social constructivism has been suggested as its pedagogical foundation (Rytkölä, Kesler, & Karhuvirta, 2011; Seikkula-Leino, 2007). Enterprise education has been defined by attempting to contrast it with "traditional teaching". Traditional teaching is portrayed as teacher centred, subject focused, uninspiring and obsolete, while enterprise education is presented as real-world oriented, authentic and inspiring. Stereotypical dichotomies or generalisations, however, do not necessarily increase the understanding of what a teaching practice focusing on enterprise might be in different school subjects, or what its theoretical foundations might be.

Enterprise education is often characterised as relying on problem-based projects that concern pupils' life-worlds. These projects employ investigation, experimentation and research using different ways of working, and they are based on authentic questions or authentic problems. In this context, authenticity refers to tasks or questions that the learner experiences as authentically interesting and intriguing. These projects give pupils the opportunity to be proactive and are described as the opposite of "the pedagogy of correct answers" (Kupferberg, 2014; Røe-Ødegård, 2003). Enterprise education builds on an interaction between convergent and divergent thinking and is grounded in pupils' ideas and thoughts and the transformation of those ideas into action (Falk-Lundqvist, Hallberg, Leffler, & Svedberg, 2011; Kupferberg, 2014). This practice supports decision making in situations where both questions and

answers are ambiguous and no self-evident solution exists (Elo, 2015). Making the process of learning in school oriented towards situations relevant to real life is emphasised in this approach, as is the interaction between schools and the surrounding society (Falk-Lundqvist et al., 2011; Røe-Ødegård, 2003).

Encouraging pupils to take risks and view mistakes as learning opportunities rather than failures have been pointed to as characteristics of enterprise education, along with the importance of a cross-curricular approach (Røe-Ødegård, 2003; Seikkula-Leino, 2007). Involving pupils in the planning, realisation and evaluation of teaching and emphasising their own responsibility for their learning have also been highlighted (Falk-Lundqvist et al., 2011; Røe-Ødegård, 2003). Pupils' inner motivation, intentional learning and desire to learn are emphasised in this scholarship, as is the development of a culture of doing things in manifold ways, as opposed to monotonous practice (Einarsson, 2014). Longer co-operative learning processes are seen as preferable to short and individual exercises (Falk-Lundqvist et al., 2011; Johannison, Madsén, & Wallentin, 2000). Finally, Dahlbeck (2014) points out that the goals associated with enterprise education differ from subject goals with regard to the duration of time it takes to achieve them. Goals associated with enterprise are long-term goals that cannot be evaluated, nor strived for, in a short timeframe.

The short description above is not intended to be interpreted as a complete description of enterprise education, but rather it should be seen as a comprehensive view of how enterprise education is described in Nordic research. An examination of these characteristics provides an understanding of what kind of learning culture and learning activities are associated with enterprise education, and it helps to outline enterprise education in the context of sloyd education. The description however also raises an important question. If the characteristics mentioned above se are specific to enterprise education, then what sets it apart from other contemporary understandings of "good education"? For instance, Illeris (2007) describes learning in very similar ways without mentioning enterprise. Thus enterprise education appears to be merely one perspective on a contemporary understanding of best practice in learning, rather than a pedagogical phenomenon with entirely unique characteristics.

Sloyd and enterprise

In the research on enterprise education and entrepreneurship education, practice-focused and creative school subjects, such as sloyd, are highlighted as being especially suitable for developing students' enterprising mind-set and traits. The connections between sloyd and entrepreneurship education have been discussed previously by Lepistö, Tervaselkä-Jalonen & Haapalahti (2010), among others. Lindfors (2011), however, points towards a need for more research on the connections between enterprise education and school subjects where concrete and project-oriented ways of working are utilised. In a sloyd educational context, Johansson (2002) states that the development of enterprise, initiative-taking ability and creativity are examples of the immaterial value connected to sloyd education. It would thus appear that researchers within the fields of sloyd education and enterprise education suggest that sloyd has the potential for developing personal characteristics and traits, such as creativity, problem-solving skills and an enterprising mind-set. Lindström (2006) adds that although sloyd has the potential to develop creativity, this potential is not automatically realised in all sloyd teaching. Hasselskog (2010) also claims that sloyd has been criticised for its excessive focus on the "doing" at the expense of "thinking" and reflection. The subject's potential to develop creativity or an enterprising mind-set does not mean that all teachers will realise this potential in their teaching. For instance, the teachers' diary entries in Johansson's (2002) dissertation show that teacher reflections, to a large degree, revolved around subject-technological issues or commenting on students' motivation, cooperation or independence. This would suggest that reflection on, for instance, the development of enterprise or

creativity was not in the foreground for the teachers. According to Hasselskog (2010), the identity of sloyd in contemporary education is vague. Additionally, the different backgrounds of teachers and their individual teaching philosophies lead to varying degrees of awareness of the potential that research has ascribed to sloyd. There appears to be a discrepancy between the immaterial values associated with sloyd in research or curricula and the concrete goals that are the foundation for teachers and actions and teaching. If teachers' main focus is on subject-technological goals, the potential to develop enterprise is not necessarily realised.

In the following the connections between sloyd education and enterprise education will be approached from three sloyd educational points of departure. Firstly from the perspective of the principle of areas of interest, secondly from the perspective of the holistic sloyd process, and thirdly from the perspective of sloyd as a holistic activity system. The choice of these three perspectives is based on their role as relevant theoretical perspectives on sloyd education practice. Viewing enterprise through these perspectives therefore not only adds to the theoretical understanding of enterprise through sloyd, but also adds to the understanding of what the practice of enterprise education through educative sloyd can be.

The principle of areas of interest

Since the introduction of the first curriculum for Finnish basic education in 1970, the didactical starting point for sloyd education has been the principle of "areas of interest" [swe: arbetsområde] (Hartvik, 2013). The principle means that students in sloyd education are not given a specific task to solve or presented with a specific product to manufacture, as was the case with the model series previously utilised. Instead, the area of interest defines the boundaries and limitations within which the student can freely design and plan an individual product and process, which is a product of the students' own visions, needs and values (Hartvik, 2013; Lindfors, 1993; Suojanen, 1999). The areas of interest are a means to enable holistic sloyd processes for the students, simultaneously enabling the teacher to guarantee subject content and individual variation. The areas of interest result in student projects that are unique and individual and build on a problem-solving approach.

Applying the areas of interest is relevant for enterprise education in sloyd since it creates the preconditions for many of the characteristics of enterprise education mentioned earlier. Firstly, it means that the process is rooted in the students' visons and ideas, giving room for their own planning and influence over the process. The whole process is focused on students turning their own ideas into action, thus being in line with the definition by the European Commission (2005). Since the processes in sloyd teaching based on areas of interest emanate from the students' own ideas and own planning, the process itself is perceived as authentic, and the students will thus encounter authentic problems, challenges and situations where the student has to transcend his or her current understanding in order to develop a solution. Compared to the criticised "traditional teaching", sloyd education based on areas of interest is rooted in learner proactivity and meets the demands of being real-world oriented. The role of the teacher is that of a coach and facilitator rather than that of a "traditional" teacher. The teacher gives room for the students' planning, strategical thinking and decision making in situations where both questions and answers are ambiguous, and no self-evident solution exists. Basing sloyd teaching on areas of interest means that there are no clearly defined questions, nor correct answers. Instead, each process is individual and the problems encountered are unique and individual. Therefore, no pre-defined correct answers exist, and the potential for developing problem-solving skills and for using investigating, experimenting and researching ways of working, applying previously acquired knowledge, are present. The processes in sloyd education are generally of a longer duration and span over several weeks or months, leading to the potential for involving different kinds of co-operation and interaction between pupils.

The sloyd process

Process models for the sloyd process have been developed by several researchers within different fields of science. Peltonen (1988, 2009) and Lindfors (1991) have described the process from a sloyd educational perspective, while Anttila (1993) has studied the process from a sloyd scientific perspective. The difference in perspective lies mainly in sloyd education's focus on the educational and fostering the dimensions of sloyd, while sloyd science focuses mainly on the subject-technological dimensions (Nygren-Landgärds, 1997; Peltonen, 1995). Regarding the structure and the dimensions of the sloyd process, the different models all have a common denominator in describing the sloyd process as a process in which an individual turns a creative idea into action by designing and manufacturing an artefact. The sloyd process is thus described as a holistic process covering all stages from the creation of the idea to its design, planning and manufacturing, as well as the evaluation of the result and the process itself (Hartvik, 2013). Sloyd would thus exemplify an entrepreneurial process, as defined by the Commission (2005). According to Peltonen (2009), the sloyd process is always focused on causing changes in the lifeworld of the sloyd actor through sloyd actions. Peltonen (1988), however, states that though the sloyd process is holistic in nature, this does not necessarily emerge in the teaching of sloyd in school. Sloyd teaching does not automatically consider the holistic character and can easily focus on, for instance, only subject-technological issues. Instead of being holistic, the process can thus be partial, meaning that all stages are not included in the process. For instance, the stages of idea creation and planning can be excluded, leaving only the stage of manufacturing to the students (Harvik, 2013; Pöllänen, 2009). This reduces the students' role to executing readymade plans, and the sloyd process is reduced to tooling different materials into artefacts. In this context the areas of interest are a means to guarantee a holistic process.

A holistic process is not per definition an "instruction-free" process. The use of, for instance, working instructions does not necessarily endanger the holistic character of the process. Working instructions may concern only a small phase in the entire process, for instance, instructions on how to sew a zipper onto a garment. The instruction in this case can be seen mainly as a complement to the teacher's subject-technological teaching, not conflicting or interfering with the holistic character of the process at large and not limiting the students' influence over the process.

The potential of sloyd to develop enterprising attributes, behaviours or attitudes can be outlined further by examining descriptions of the sloyd process. Of the above mentioned models, this article focuses on the process model by Anttila (1993, appendix 1). Though having its roots in sloyd science, and thus not being specifically targeted at an educational context, according to Anttila (1993), the model is applicable in an educational context as well. The model has also been previously used in educational research by, for instance, Suojanen (1993) and Sjöberg (2009). The model describes the process of transforming creative ideas into action through different stages, from the creation of the idea to the finished artefact. Since both enterprise and the sloyd process are described as the process of transforming ideas into action, an examination of the sloyd process can help outline how enterprise can be understood in a sloyd education context and provide a theoretical perspective on the previously mentioned positive views on sloyd's potential in enterprise education. A basis for the model is that one or a few individuals are responsible for the entire process, i.e. the process is holistic (Anttila, 1993).

The model illustrates how the process proceeds through several action cycles. Anttila (1993) points out that the sloyd actor has to master both the phase of idea creation and the phase of idea realisation, giving the process its holistic character. The process begins with a phase of reflection where the individual strives to create a vision of the desired result of the process based on both internal and external input. The result of this phase is an ideal picture, or vision, of what the sloyd actor wants to achieve through the process. Anttila (1993) points out that this vision can be very vague in the beginning and that the end result may differ significantly from the original vision. In relation to the areas of interest, it would

be in this phase where the student is presented with the theme and framework of the area. The student's task is to ponder what possibilities the area of interest gives and what kind of an artefact he or she would like to manufacture. The emphasis in this stage is on creativity and coming up with ideas that are both in line with the area of interest and with one's own ideas, desires and ambitions. The process is thus rooted in the student's lifeworld, ideas and thoughts and is focused on turning these ideas into action, thus being an example of an enterprising process.

The process proceeds through several action cycles consisting of internal and external activities. The focus in the early action cycles is on design and product planning by processing the initial vision and setting up a strategy for its realisation. At this stage, the sloyd actor has to relate to the available resources, both in the form of material resources, available tools and time constraints and the personal resources consisting of, for example, knowledge and skills. In this stage, it is crucial that that sloyd actor surveys what resources the context provides that could be useful for reaching the desired vision, at the same time staying within the framework of the area of interest. This can be seen as an example of the kind of goal oriented project work the Commission (2005) highlights as characterising for enterprise. The vision is affected by surrounding values and is clarified alongside the development of the strategy for the manufacturing phase. Continuously through the process the sloyd actor has to assess his or her strengths and weaknesses and assess to what degree his or her current knowledge and skills are sufficient for reaching the desired result. This involves assessing the need for learning, new knowledge and development of one's own skills. This assessment is influenced by the context since it limits what is possible to do. The process as a whole is characterised by problem solving, which is repeatedly highlighted as crucial for enterprise education (Backström-Widjeskog, 2008; Elo, 2015; Kupferberg, 2014).

In due course, the process proceeds from planning to realisation. During the process, the vision is revised continuously, as is the strategy for realisation as a result of the oscillation between the internal visions and thoughts and the information and impressions from the surrounding context and from the manufacturing itself. The sloyd actor is thus influenced by both internal and external feedback (Anttila, 1993). External feedback might consist of comparing ideas with others, small scale testing and responses from working with the materials, tools or other artefacts. It can also consist of comparing the results of the process with the values and opinions in the surrounding social context. Internal feedback can consist of reflecting on one's own actions and the achieved results with the vision of the desired result and one's own values, opinions and attitudes. This means that the coordination of the process to achieve the envisioned result is continuous. The strategy and the vision are in constant transformation as new information, experiences or insights alter them. The sloyd actor must continuously assess whether the actions taken are appropriate and lead to the desired result, or whether there is a need to revise the vision or strategy. The process is thus iterative, and the sloyd actor constantly shifts between planning, realisation and evaluation. Anttila (1993) states that the evaluation takes place both forward and back in time. During the process, the sloyd actor encounters unexpected problems and challenges. This calls for decision making in situations where no single correct decision is at hand and where the question or problem itself might be ambiguous as well—a characteristic of enterprise education according to several scholars (Elo, 2015; Falk-Lundqvist et al., 2011; Kupferberg, 2014; Røe-Ødegård, 2003). This can be seen as a contrast to a learning process with well-defined questions and equally well-defined, correct answers.

The individual continually has to assess whether the decisions made and the course of action taken appear to coincide with the vision of the result and the strategy for reaching it. In the context of neuropsychology, Goldberg (2003) calls this kind of decision making adaptive and sees it as crucial for the executive function, i.e. an individual's ability to coordinate processes where ideas are transformed

into action. Goldberg (2003) divides decision making into adaptive and veridical. Veridical decision making consists of making a decision between well-defined choices as a response to a well-defined problem or situation. This type of decision making is, according to Goldberg (2003), the predominant one in education, but it is not associated with the development of a person's executive function and ability to transform ideas to action. Characterising for adaptive decision making is that both the problem itself and the decision alternatives are ambiguous. In other words, a "correct answer" does not exist, and the individual has to both define the problem and strive to find the most suitable alternative under the current conditions. Goldberg (2003) claims that this kind of decision making is the dominant one in contemporary society and that it is crucial for a person's ability to transform ideas to action. From this viewpoint, the sloyd process appears to be well suited for developing this ability since decision making during this process is predominantly adaptive.

Adaptive decisions occur in all stages of the sloyd process regarding design, choice of materials, strategy planning, choice of techniques, choice of tools, etc. In these situations, several different options are available and the sloyd actor has to assess what course of action is most likely to produce the desired result under the current circumstances, taking into account one's own skills and competence, as well as the surrounding context. Joining a corner in woodworking can serve as an example of this. From the available options, such as nails, screws, glue, dowel centres, biscuit joints, mortise and tenon joints or dovetail joints, the sloyd actor has to choose the one most appropriate for the situation in question. All methods may result in a functional solution but differ largely regarding their aesthetical qualities, their degree of difficulty and the time needed and considering the tools and machines needed. These kinds of decisions can be seen as adaptive since no single correct answer exists and several different factors, individual as well as contextual, influence the decision and have to be taken into account.

Anttila (1993) points out that the character of the different action cycles in the process can be very diverse; the model should be understood only as a schematic representation of the sloyd process. The cycles can be parallel, overlapping and of different scope and duration and their execution may require a good ability to coordinate. As the process proceeds, evaluation takes on a more prominent role as the sloyd actor evaluates to what extent the result of the process and strategy coincides with the vision of the desired result. At the end of the sloyd process, the processes of designing, product planning, strategy planning and manufacturing all come to an end and are evaluated.

Risk and uncertainty from the perspective of sloyd as a holistic activity system

Encouraging pupils to take risks and see mistakes as opportunities for learning instead of failures are two aspects of enterprise education often mentioned (Falk-Lundqvist et al., 2011; Johannison, Madsén, & Wallentin, 2000; Røe-Ødegård, 2003; Seikkula-Leino, 2007), and the ability to handle risk is pivotal for an enterprising individual as well as for the entrepreneur (Carlsrud & Brännback, 2009). Uncertainty and risk are prominent factors in a sloyd process when a student sets forth to tackle a creative and problem-solving process without knowing what challenges lie ahead and whether his or her own competence is sufficient for the task (Hasselskog, 2010; Kallio, 2014; Lepistö, Tervaselkä-Jalonen & Haapalahti, 2010). Kallio (2014) points out that the more creative and innovative the process is, the greater is the risk of failure. Therefore, the minimising of risk simultaneously minimises the creative space and risk is thus always an element in a creative, holistic sloyd process. Risk can be calculated and is dependent on the person's competence, while uncertainty is constantly present but not as controllable. In the sloyd process, uncertainty appears as the sloyd actor has to manage the constantly transforming process and the uncertainty of not knowing exactly what the end result will be like, by what means it can be achieved or if previously made adaptive decisions were the most appropriate. The uncertainty embedded in the process also has an emotional dimension, especially in the context of basic education, since failures and unexpected challenges are prone to influence the sloyd actor's self-view and

confidence. Exposing one's personal ideas and visions also poses a social risk since the reactions from peers cannot be predicted.

Lindfors's (1999) theory of sloyd as a holistic activity system can serve as a theoretical outset for further elaboration on enterprise, risk and uncertainty in sloyd education. Lindfors (1999) describes sloyd as an activity system where the sloyd actor strives to turn his or her ideas into action in dialogue with materials, tools and the context. The activity system consists of four worlds: the world of the actor, the technological-aesthetic world, the world of social interaction and the surrounding world. The sloyd actor's actions are constantly reflected against these worlds. According to Lindfors (1999), the world of the actor consists of the sloyd actor's own visions and desires. Reflection within the world of the actor involves reflection on the goals of the sloyd process as well as the extent to which one's own skills and competence are sufficient for reaching the desired goals. Reflection within the world of the actor thus involves assessing one's own strengths and weaknesses and a kind of risk assessment where one's own perceived competence in relation to the task or challenge is assessed. The world of the actor also involves assessing the need for further learning to complete the task.

The process of turning ideas into action is affected by the surrounding resources, and an ability to assess these resources is needed. This assessment occurs within the technological-aesthetic world (Lindfors, 1999). Reflection within the technological-aesthetic world involves taking into account the surrounding resources in the form of materials, tools, equipment, possible manufacturing techniques, time constraints etc. It also involves reflection on the prevailing aesthetic norms and values and taking these into account throughout the process. As a result of this reflection, the sloyd actor makes the best possible use of the existing resources in relation to the aesthetic norms. Making decisions in relation to the technological-aesthetic world involves uncertainty, especially in a school sloyd context since the novice sloyd actor does not have the sufficient experience or knowledge to judge the possibilities or limitations that the technological context poses. The technological aim of sloyd is that the students learn to understand this context through action, which inevitably involves the risk of misjudgement and failure, as well as the potential uncertainty of venturing into previously unfamiliar territory. Kallio (2014) points out that the assessment of risk is always subjective.

The reflection within the world of social interaction involves reflecting on one's own actions and ideas in relation to the prevailing social norms. In the course of the process, the sloyd actor's ideas and visions become visible to the surrounding social context and the values of the peers influence the process through comments and feedback. In the context of enterprise and entrepreneurship, the social dimension of risk is highlighted (Ristimäki, 2004), and the relation between the sloyd actor and the world of social interaction can exemplify this risk taking. By making his or her own ideas visible in the process of turning them into action, the sloyd actor is inevitably exposed to the possible criticism of the social context, as well as the possible praise. Social risk taking thus occurs primarily in relation to the world of social interaction.

Finally, the surrounding world, consisting of the norms, attitudes and values of contemporary society, influences the process both directly and indirectly (Lindfors, 1999). An indirect influence may occur through curriculum and policy documents influencing the educational activities in the school. A direct influence may occur through the influence that contemporary values have on the sloyd actor in assessing his or her ideas and visions. By reflecting on these actions or visions within the surrounding world, the sloyd actor can position them in a contemporary societal context and thereby give them value. From an enterprising point of view, the potential of reflection within the surrounding world is a topic for further development. Reflecting on one's own actions and ideas in a wide societal context may be fruitful in attempting to develop the kind of proactive and future-oriented approach associated with enterprise.

This kind of reflection could be a means to connect the educational activities in schools to wider society, from the students' perspective, and may contribute to a sense of relevance for school learning.

Enterprise in sloyd education has been outlined above mainly from an individual perspective. However, educative sloyd has a communicative character, consisting of verbal and non-verbal communication (Hartvik, 2013; Johansson, 2002). Johansson's (2002) study shows how rich and diverse communication is during sloyd lessons, involving verbal and non-verbal communication through mediating artefacts. In the context of sloyd education, students co-operate and use peers as a crucial resource for realising the vision of the desired result. Thus, sloyd education is characterised by the kind of reciprocal action and co-operation that the Commission's (2005) definition of enterprising skills highlights. An elaboration of the communicative aspect of sloyd from the perspective of enterprise is justified but not pursued further in this article.

Conclusions

Sloyd has been pointed out as suitable for enterprise education since the 1990s´, simultaneously, several scholars claim that the immaterial values associated with sloyd in research and curricula are not necessarily realised in the practice of sloyd teaching. The potential of sloyd to develop enterprise is not automatically realised, teachers have to make appropriate decisions in order for this potential to unfold. This article therefore tackles the challenge of elaborating how the potential to develop enterprise can be understood from specific sloyd theoretical points of departure. In this concluding chapter, I will present the main results in a practice oriented fashion, pointing to the theoretical discussion´s implications for teaching practice.

From the discussion, it can be concluded that a key to enterprise education through sloyd is the character of the sloyd process as a holistic process that covers all the stages from the creation of the idea, planning and the creation of a strategy to the manufacturing and constant evaluation of the progress in relation to the vision of the desired result. The educative sloyd process is thus an example of a learning process in an educational context that focuses on translating ideas into action, in line with the European Commission's (2005) definition of entrepreneurship. The implication for the practice of sloyd teaching is therefore to ensure the holistic character of the pupils´ processes. This means ensuring that the pupils are actively involved in, and responsible for, all stages of the process. However, as a holistic process is not an instruction free process, the teacher has to direct careful attention to elements of instruction and guidance in the process not endangering it´s holistic character.

In order to ensure that the students' processes are of a holistic character, the principle of areas of interest plays a key role as the foundation for sloyd teaching. The implication of this conclusion is therefore to direct careful attention to the planning of the teaching and the areas of interest in order for them to allow as many of the above discussed elements of enterprise education as possible to unfold, simultaneously guaranteeing a relevant and sufficient subject content. Basing teaching on areas of interest is thus a means to realise sloyd teachings potential for enterprise education that has to be consciously utilised.

Furthermore, the discussion highlights the importance of the character of the decision making processes that pupils are involved in. Involving in predominantly adaptive decision making is seen as crucial for an individual's ability to manage and execute processes where ideas are turned into action. The implication is that setting up learning activities in a way where adaptive decisions are dominant, and taking the forms of decision making into account when guiding pupils, can be means to realising sloyd's potential for enterprise education. Focusing on adaptive decisions can also be seen as a contrast to "traditional teaching", which is characterised by veridical decision making.

The discussion also focused on risk and uncertainty being naturally present in a holistic sloyd process. This implicates that allowing risk and uncertainty to be present is of importance. An ambition to avoid risk or shield pupils from uncertainty is thus not desirable from the perspective of enterprise education. As Kallio (2014) stated, risk and uncertainty are ever present in a creative and innovative process. However, claiming that the presence of risk automatically would develop students' ability to handle risk and uncertainty is not necessarily a consistent argument. It could also be argued that an excessive amount of uncertainty could have negative effects on the students' self-view or view of self-efficacy. Risk and uncertainty is thus present but needs to be handled appropriately and is an aspect of enterprise education through sloyd in need of further research.

Overall, this article illustrates how enterprise education can be outlined in the context of sloyd education and contributes to the understanding of enterprise in sloyd. However, it does not attempt to argue that sloyd in fact develops enterprising abilities among students. It merely highlights areas that can be of interest for future empirical research with the aim of better understanding enterprise education in the practice of sloyd education. For these kinds of ambitions, action research could be a fruitful way to move ahead.

References:

Anttila, P. (1993). *Käsityön ja muotoilun teoreettiset perusteet* [The theoretical foundations of sloyd and design]. Porvoo: WSOY.

Backström-Widjeskog, B. (2008). *Du kan om du vill. Lärares tankar om fostran till företagsamhet* [You can if you want to. Teachers thoughts on entrepreneurship education]. Vasa: Åbo Akademi.

Berglund, K. & Holmgren, C. (2013). Entrepreneurship education in policy and practice. *International Journal of Entrepreneurial Venturing*, *5*(1), 9–27.

Borg, K. (2009). Alla dessa slöjdpåsar [All these sloyd-bags]. *KRUT, Kritisk utbildningstidskrift*, (133/134), 16-23.

Carlsrud, A., & Brännback, M. (2009). *Understanding the entrepreneurial Mind. Opening the black box*. New York: Springer

Commission of the European Communities, (2005). *Proposal for a recommendation of the European Parliament and of the Council on Key Competences for Lifelong Learning*. Retrieved from http://www.europarl.europa.eu/meetdocs/2004_2009/documents/com/com_com%282005%290548_/com_com%282005%290548_en.pdf

Dahlbeck, P. (2014). Kortsiktiga och långsiktiga mål [Short-term and long-term goals]. In B. Lelinge & P. Widén (Eds.), *Entreprenöriellt lärande i skolan* (p. 15–28). Lund: Studentlitteratur.

Einarsson, A. (2014). Entreprenöriellt lärande i dramapedagogik [Entrepreneurial learning in drama pedagogy]. In B. Lelinge & P. Widén (Eds.), *Entreprenöriellt lärande i skolan* (p. 55–72). Lund: Studentlitteratur.

Elo, J. (2015). *Företagsamhet i skola och utbildning. Lärares tankar om förutsättningarna att nå målen i temaområdet Deltagande, demokrati och entreprenörskap* [Enterprise in school and education. Teachers thoughts on the preconditions for reaching the goals of the cross-curricular theme Participatory citizenship and entrepreneurship]. Åbo: Åbo Akademi University Press.

Falk-Lundqvist, Å., Hallberg, P-G., Leffler, E., & Svedberg, G. (2011). *Entreprenöriell pedagogik i skolan – drivkrafter för elevers lärande* [Entrepreneurial pedagogy in school – incentives for students' learning]. Stockholm: Liber.

Goldberg, E. (2003). *Den civiliserade hjärnan. Frontalloberna och människans exekutiva funktioner* [The executive brain. Frontal lobes and the civilized mind]. Lund: Studentlitteratur

Hartvik, J. (2013). *Det planlagda och det som visar sig. Klasslärarstuderandes syn på undervisning i teknisk slöjd* [The envisioned and what appears. Class-teacher students´ views on teaching in technical sloyd]. Turku: Åbo Akademi.

Hasselskog, P. (2010). *Slöjdlärares förhållningssätt i undervisningen* [Sloyd teachers approach in teaching]. Göteborg: Göteborgs Universitet.

Johansson, M. (2002). *Slöjdpraktik i skolan – hand, tanke, kommunikation och andra medierande redskap* [Sloyd practice in school – hand, thought, communication and other mediating tools]. Göteborg: Göteborgs universitet.

Johannison, B., & Madsén, T. (1997). *I entreprenörskapets tecken. En studie av skolning i förnyelse* [In the signs of entrepreneurship. A study of schooling in change]. (Närings och handelsdepartementet, 1997:3). Stockholm: Fritze.

Johannison, B., Madsén, T., & Wallentin, C. (2000). *Aha! Företagsamt lärande! – en skola för förnyelse* [Aha! Entrepreneurial learning! – a school for change]. Stockholm: Sveriges Utbildningsradio AB.

Jones, B., & Iredale, N. (2010). Enterprise education as pedagogy. *Education + Training, 52*(1), 7–19.

Kallio, M. (2014). *Riskivastuullisuus turvallisuuskasvatuksen kulttuurissa. Oppilaiden vastuullisuus, turvallisuustaju ja tuottamistoiminnan riskiraja peruskoulun käsityön opetuksessa.* Turku: university of Turku.

Kojonkoski-Rännäli, S. (1995). *Ajatus käsissämme. Käsityön käsitteen merkityssisällön analyysi* [The thought in our hands. An analysis of the meaning of the concept handicraft]. Turku: Turun Yliopisto.

Komulainen, K., Keskitalo-Foley, S., Korhonen, M., & Lappalainen, S. (2010) *Yrittäjyyskasvatus hallintana* [Entrepreneurship education as governance]. Tampere: Vastapaino.

Kupferberg, F. (2014). Entreprenörskap som problembaserat lärande [Entrepreneurship as problem-based learning]. In B. Lelinge & P. Widén (Eds.) *Entreprenöriellt lärande i skolan* (p. 73–97). Lund: Studentlitteratur.

Lepistö, J., Tervaselkä-Jalonen, M & Haapalahti, R. (2010) Aktiivista yritteliäisyyttä käsityön opetuksessa. In H. Juuso, M. Kielinen, L. Kuure and A. Lindh *Koulun kehittämisen haaste. Näkökulmia harjoittelukouluissa tapahtuvaan tutkimukseen.* Oulun yliopiston opetuksen kehittämisyksikön julkaisuja. Dialogeja 13. 153–167.

Leskinen, P-L. (1999). *"Yrittäjällä on koko elämä kiinni yrityksessä" - Opiskelijoiden yrittäjyyskäsitykset ja niiden muutokset yritysprojektin aikana* ["The entrepreneur has his whole life tied to the business" – Students views on entrepreneurship and the development of it during a business project]. (Acta Wasaensia. No 71. Liiketaloustiede 27. Johtaminen ja organisaatiot). Vaasa: Universitas Wasaensis.

Lindfors, E. (2011). Kreativitet, innovation och entreprenörskap i det finska utbildningssystemet [Creativity, innovation and entrepreneurship in the Finnish educational system]. In Nordic Council of Ministers. *Kreativitet, innovasjon og entreprenörskap i utdanningssystemene i Norden. Bakgrunn og begreppsinnehåll basert på politisk initiering og strategivalg.* (TemaNord, 2011:517). Köpenhamn: Nordiska Ministerrådet.

Lindfors, L. (1991). *Slöjddidaktik. Inriktning på grundskolans textilslöjd* [Sloyd didactics. Focus on textile sloyd in basic education]. Helsingfors: Finn Lectura.

Lindfors, L. (1993). *Slöjdfostran i kulturkampen. Del I Studier i den finländska skolslöjdens läroplaner 1912-1994* [Sloyd in the cultural struggle. Part I. Studies in the Finnish sloyd curriculum 1912-1994]. (Publikationer från Pedagogiska fakulteten vid Åbo Akademi, 4/1993). Vasa: Åbo Akademi.

Lindfors, L., (1999). Sloyd education in the cultural struggle. Part VIII. An outline of a sloyd educational theory. (Reports from the Faculty of Education, Åbo Akademi University, 4/1999) Vasa: Åbo Akademi.

Lindström, L. (2006). Kan kreativitet läras ut? [Can creativity be taught?]. In C. Nygren-Landgärds & K. Borg (Eds.), *Lärandeprocesser genom skapande arbete i vetenskaplig belysning. Artiklar från forskarutbildningskurs*. (p. 70–83) Vasa: Åbo Akademi.

Lindström, L. (2009). Estetiska lärprocesser om, i, med och genom slöjd [Aesthetic learning processes about, in, with and through sloyd]. *KRUT, Kritisk utbildningstidskrift,* (133/134), 57–70.

Mahieu, R. (2006). *Agents of change and policies of scale. A policy study of entrepreneurship and enterprise in education.* Umeå: Umeå University.

Ministry of Education. (2009). *Guidelines for entrepreneurship education*. Helsinki: Ministry of Education.

National Board of Education. (1994). *Grunderna för grundskolans läroplan 1994* [National core curriculum 1994]. Helsinki: National Board of Education.

National Board of Education. (2004*). Grunderna för läroplanen för den grundläggande utbildningen 2004* [National core curriculum 2004]. Helsinki: National Board of Education.

National Board of Education, (2014). *Grunderna för läroplanen för den grundläggande utbildningen 2014* [National core curriculum 2014]. Helsinki: National Board of Education.

Niemi, E. (2012) (Eds.). *Aihekokonaisuuksien tavoitteiden toteuttamisen seuranta-arvioniti 2010* [Evaluation of the goal acievement of cross-curricular themes 2010] (Koulutuksen seurantaraportit, 2012: 1). Helsinki: National Board of Education.

Nygren-Landgärds, C. (1997). *Det tänkta och det upplevda undervisningsämnet. En studie om undervisning i slöjdpedagogik* [The envisioned and the experienced school subject. A study of teaching in sloyd education]. (Rapporter från Pedagogiska fakulteten vid Åbo Akademi nr 15/97). Vasa: Åbo Akademi.

Nygren-Landgärds, C. (2003). *Skolslöjd nu och då – men vad sen?* [School sloyd now and then – but what next?]. (Rapport från Pedagogiska fakulteten vid Åbo Akademi, 5/2003) Vasa: Åbo Akademi.

Peltonen, J. (1988). *Käsityökasvatuksen perusteet. Koulukäsityön ja sen opetuksen teoria sekä teoreettinen ja empiirinen tutkimus peruskoulun yläasteen teknisen työn oppisisällöistä ja opetuksesta* [The basics of sloyd education]. (Turun yliopiston kasvatustieteen tiedekunta, A:132/1988) Turku: Turun yliopisto.

Peltonen, J. (1995). Slöjdpedagogik som vetenskapsområde [Sloyd education as a field of science]. In L. Lindfors & J. Peltonen (Eds.), *Slöjdkompetens i nordisk kultur. Del II. Bidrag av forskarnätverk 1995*. (Techne Serien. Forskning i slöjdpedagogik B:1/95). Vasa: Åbo Akademi.

Peltonen, J. (2009). Technology as a value construction and its implications for sloyd/technology education. In Metsärinne, M. (Ed.). *Käsityökasvatus tieteenalana 20v. Sloyd education 20 years as a discipline.* (Techne Series. Research in Sloyd Education and Craft Science, A:15/2009) Rauma: NordFo.

Pöllänen, S. (2009). Contextualizing craft. Pedagogical models for craft education. *The International Journal of Art & Design Education, 28*(3), 249–260

Ristimäki, K. (2004). *Yrittäjyyskasvatus* [Entrepreneurship education]. Järvenpää: Yrityssanoma Oy.

Rytkölä, T., Kesler, M., & Karhuvirta, T., (2011). Yrittäjyys-, kansalais- ja tiedekasvatus yhteisen sateenvarjon alla [Entrepreneurship-, civic-, and science education under a common umbrella]. In T. Rytkölä, E. Ruskovaara, & M. R. Järvinen, (Eds.), *Yrittäjyyskasvatus perus- ja toisella asteella – näkökulmia pedagogiikan kehittämiseen* (p. 125–143), Helsinki: Kerhokeskus.

Røe-Ødegård, I. K. (2003). *Læreprosesser i pedagogisk entreprenørskap. Å lære i dilemma og kaos* [Learning processes in pedagogic entrepreneurship. To learn in dilemma and chaos]. Kristiansand: Norwegian Academic Press.

Seikkula-Leino, J. (2007). *Opetussuunnitelmauudistus ja yrittäjyyskasvatuksen toteuttaminen* [The curriculum reform and implementation of entrepreneurship education]. (Opetusministeriön julkaisuja, 2007:28). Helsinki: Ministry of Education.

Seitamaa-Hakkarainen, P. (2000). *The weaving-design process as a dual-space search.* Helsinki: University of Helsinki

Sjöberg, B. (2009). *Med formgivning i fokus. En studie om holistisk slöjd i lärarutbildningen* [Design in focus. As study on holistic sloyd]. Vasa: Åbo Akademi.

Sjøvoll, J. (2011). Kreativitet, innovasjon og entreprenørskap i utdannings-systemene i Norden [Creativity, innovation and entrepreneurship in Nordic education]. In Nordic Council of Ministers. *Kreativitet, innovasjon og entreprenörskap i utdanningssystemene i Norden. Bakgrunn og begreppsinnehåll basert på politisk initiering og strategivalg.* (TemaNord, 2011:517). Köpenhamn: Nordiska Ministerrådet.

Suojanen, U. (1993). *Käsityökasvatuksen perusteet* [The basics of sloyd education]. Porvoo: WSOY.

Suojanen, U. (1999). Slöjdens möjligheter att stödja fostran till företagsamhet. [The possibilities of sloyd to support entrepreneurship education]. In M. Porko (Ed.). *Slöjd i informationssamfundet. Konflikt eller konsensus. Arbejdsseminar på Slöjdhöjskolen i Esbjerg 1-3 oktober 1998.* (Techne Series. Research in Sloyd Education and Craft Science, B:6/1999) Vasa: NordFo.

Janne Elo, PhD, is a University Lecturer in General and Adult Education, and project manager for the research project "Företagsamhetsprojektet" (The Enterprise Project) at the Åbo Akademi University, Faculty of Education and Welfare Studies. His reserach profile focuses mainly on enterprise education.

Appendix 1:1 The sloyd process by Anttila (1993, p. 111); translated to English in Seitamaa-Hakkarainen (2000, p. 43).