Nordic Innovation! What are We Talking about?

In recent years, the question about innovation has gained increased interest. In general understanding, this agenda refers to the growing focus and following policy initiatives of governments and communities to change and improve our human existence through the creation and application of new ideas. Innovation is – or is at least seen as - what is needed to solve our current and future problems and develop potentials. The Nordic countries have high scores in international indexes on innovation and creativity (Dutta 2011). The Nordic welfare models have been seen as a strong precondition for innovation in a changing world. The tradition of participating processes, agile enterprises and strong partnerships between government and business supported by strong and developed systems for adult education should enhance these societies capabilities in a globalized and networked world.

Innovation is supported and developed through the innovation policy development of national governments and multi-national institutions (Nordic, EU and OECD). Innovation seems to be a powerful explanatory factor behind difference in performance between companies, regions and countries and it is therefore in focus among policy initiatives and an instrument, which seeks to modernize and transform economies. Education is then seen as one of the instruments, which can be applied to strengthen creativity and innovation. The aspect of learning and education in relation to innovation is somewhat neglected in science. At a general level, it is seen as a way to build up Human Resources which can be activated in innovation processes, but this raises a very fundamental question: How do we develop education, teaching and pedagogies in a way, which makes participants from primary school to adult education more creative and innovative? – And how do we do that if we don't have a strong comprehensive theory about creativity and learning? A general answer to this is neither possible nor feasible but a number of insights might offer openings, inspirations and models for such developments. This means that when we discuss innovation and creativity we have the basic challenge of understanding what we are talking about? This is related to such new concepts, which can be seen as a kind of "floating designators" (Conolly, 2011) which evolves when societies are changing. These concepts are then part of ongoing discussion: What do we mean when we say "innovation"? How should we understand this concept and what are the implications in this or that definition?

This paper is then part of this evolving discourse about innovation and this contribution is not an end but should more be seen as an opening of the discussion on the one hand including the traditions and strengths of the Nordic tradition and on the other hand an option to and for a renewal of that very tradition.
Different Disciplinary Approaches

In research, there is an abundance of different approaches to and understandings of innovation. This contribution is not an overview or sort of state of the art in this regard. It is a tentative framework for discussion and reflections on the relationship between education, learning and innovation in a Nordic context. The staggering array of approaches should be used as an advantage to a process of deeper and more generative understanding where multiple lenses used across different areas could unfold and qualify the diversity of innovation.

How should we define innovation? In a Nordic context, we meet the following definition:

Innovation is a new or improved process, service, product or organization that creates economic or other public value. And innovation is important for both private and public sectors (Nordic Innovation, 2011)

The sources of innovation are found in demands from costumers, and technological development i.e. This is a very general and very including definition which makes sense in almost any context. On the other hand it also a definition, which makes it difficult to demark innovation from development and general renewal. It is also a definition, which especially focuses on the outcome of this very process. Even when they talk about “improves process” they also see this as an outcome.

If we then try another way round and try to include the relationship between creativity and innovation.

From Creativity to Innovation?
The term creativity is difficult to grasp. The etymology of the word refers back to the act of divine creation meaning creating something out of nothing (“creatio ex nihilo”). This has been related to the divine inspiration, which especially artists were and maybe are gifted with. This use and understanding of creativity is a product of 19th century romanticism but is also a part of our daily understanding of creativity. We very often see creativity as something special, coming out of inspiration, and constrained by rationality. A growing criticism of this notion from psychology, management theory, and also learning theory has opened up for a number of understandings, which first of all tells us that creativity is a phrase which is used to describe how we generate novelty. – And secondly, that it is a product of history and culture and it is difficult to define in a general sense but should be understood in the very socio-cultural context where it is debated and/ or where it occurs. Even though it could be argued that it is difficult to define something which one knows very little about (Amabile, 1996) – It could also be argued that a tentative definition opens up for research and re-definitions when we contrast definitions with actual research findings. So if we should define creativity it could tentatively be:

Turning potentials into accepted new form(s).
Meaning that when we talk about creativity we talk about a process where we turn something new or something existing into a new form. Acceptance is not a question of accepts of the novelty but that it should be considered, that the complex communications between different actors within a sudden domain communicate about this. It is very easy to create something new – but this novelty should also be accepted as something worth of judgement within a domain. This approach suggests a systemic understanding, which will be elaborated below.

**Creativity and Innovation**

When we move to innovation we deal with the process where this novelty is transformed into a new practice. Or as Theodore Levitt (1963) formulated it: "Creativity is thinking up new things. Innovation is doing new things." - But the phrases are often used interchangeably and it can be difficult to differentiate. This can be explained by the development of these phrases where creativity is related to art and to scientific areas as psychology, art studies and to some extent philosophy whereas innovation is a child of social, science and especially economics and management. We can identify the same development as within creativity from seeing innovation as the outcome of the heroic individual to present day's focus on more organic and combinational models (Tuomin, 2006). Analytically, we can also identify a development where we move from innovation as something coming out of specific knowledge regimes (Science or development departments) to more horizontal models such as “user-driven innovation” (von Hippel, 1986), Open innovation and broad-based innovation (Chesbrough, 2003).

Innovation is turning new forms into accepted new practices – or simply innovation is turning creativity into new practices.

Concrete walls do not separate creativity and innovation – some would claim that the one creativity is thinking and therefore with a cognitive emphasis and innovation is doing and therefore behavioral. – Nemiro and Runco however state:

“Surely innovation requires some thought, and creative insights may follow from actual activity. Just as surely there can be some interplay; a creative idea may suggest an innovation, which in turn suggests new and creative possibilities. Part of the problem is the either–or assumption, the dichotomy that artificially separates creativity and innovation.” (Nemiro 2002)

**Incremental or Radical Innovation**

The question of radicalism is the next one. This is often seen as the difference between incremental and radical innovation and sometimes adding transformative innovation as the most radical form (Dewar & Dutton, 1986). Whereas incremental innovation is the small improvements which can be based
on the daily practice the more radical forms will be the result of threatening tensions within a field our challenges coming from the outside where more trivial solutions are unable to cope. This can be cursed but a variety of sources: Disruptive technologies, economic or political changes and so on. This diversity is only unified by the fact that innovations at higher order including changed values, organisations, management or products are needed. This is a learning process, which in the words of Engestöm could be classified as expansive learning. Which he defines as:

We speak of **expansive learning**, .. when a community of practice begins to analyse and transform itself. Such expansive learning is not any more limited to predefined contents and task. Rather, it is long-term process of refining the objects, tools and structures of the workplace (Engeström, 1994)

Whereas outside forces can be background to this – the innovative process is a question of organizing processes and structures, which enables participants to develop new knowledge, language and structures. This means supportive structures such as change laboratories, coaching and discursive analysis that supports and scaffolds the process where the participants meet otherness and reconfigure understandings and doings.

**What Would this Mean in a Nordic Context?**
A very low power distance, a tradition of institutionalized as well as informal negotiations between social partners and others in general characterize the Nordic cultures. In general, it means that these cultures are flexible, adaptable, including and supportive when you are a member of the culture. So, this has meant that there is a long tradition of involving employees in innovation processes. Today’s focus on user – and especially employee-driven innovation is predated by both structured involvement in development processes within especially the development of ICT-Systems in the Nordic countries, which even has given name as Scandinavian school of participatory design.

This again means that learning is an integrated part of innovation in a Nordic context. This could be related to the distinction between reproductive and developmental or expansive learning (Ellström, 2001, 2010). It is a framework which should generate understanding of the different forms of learning within the workplace. On the one hand, the process where employees acquire knowledge and routines such as they take place – on the other hand, the more strategic long time learning in which a developmental horizon defines the activities. These forms of learning do not exclude each other but it should be the prioritized interest of different shareholders to create a generative balance between the short time needs of the individual – becoming part of the work collective and being able to fulfil the expectations and a more longsighted perspective which on the one hand enables the employer to develop and ensure job security and job fulfilment and on the other hand supports the overall development of the enterprise. The development logic should therefore be in the interest of all shareholders in an enterprise.
There might also be a dilemma here that including cultures such as we suggest that we could understand the Nordic will seek to stabilize through sameness whereas innovation is about difference. In a practice, the recursiveness is a factor or element, which enables participants to identify this as a practice – what we do. This will be sustained by a sudden normatively – and transcending this normatively would normally lead to sanctions – to transform this normatively to include and appreciate difference is a question of developing cultures and of power. One could therefore suppose that the “Nordic model” is very solid when it comes to integration and sustaining more incremental innovations – but that it will have problems in accepting and supporting more radical transformations? This area however needs more research especially at local level.

**Scaffolding Learning?**

The actual practice in Nordic enterprises seems in general to have a practice which supports as well as scaffold learning and also includes employers in processes of development and innovation. In an article from 2004, Lorenz and Valeyre use EU-statics to characterize the organizational models within European enterprises. They identify four different models of organisation

- ‘learning’ forms of work organisation
- ‘lean’ forms of work organisation
- ‘taylorist’ forms of work organisation
- and ‘traditional’ forms of work organization

This typology is based on differences in work autonomy, inner or outer quality control, and involvement in problem solving, task complexity, and importance of teams. Using these factors the researchers come up with different pictures of which we will highlight only one.

**Table 6**

<table>
<thead>
<tr>
<th>National Differences in Organisational Models</th>
<th>Learning organisation</th>
<th>Lean production</th>
<th>Taylorism</th>
<th>Traditional organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>38.9</td>
<td>25.1</td>
<td>13.0</td>
<td>22.1</td>
</tr>
<tr>
<td>Denmark</td>
<td>60.0</td>
<td>21.9</td>
<td>6.8</td>
<td>11.3</td>
</tr>
<tr>
<td>Germany</td>
<td>44.3</td>
<td>19.6</td>
<td>14.3</td>
<td>21.9</td>
</tr>
<tr>
<td>Greece</td>
<td>18.7</td>
<td>25.6</td>
<td>28.0</td>
<td>27.7</td>
</tr>
<tr>
<td>Italy</td>
<td>30.0</td>
<td>23.6</td>
<td>20.9</td>
<td>25.4</td>
</tr>
<tr>
<td>Spain</td>
<td>20.1</td>
<td>38.8</td>
<td>18.5</td>
<td>22.5</td>
</tr>
<tr>
<td>France</td>
<td>38.0</td>
<td>33.3</td>
<td>11.1</td>
<td>17.7</td>
</tr>
<tr>
<td>Ireland</td>
<td>24.0</td>
<td>37.8</td>
<td>20.7</td>
<td>17.6</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>42.8</td>
<td>25.4</td>
<td>11.9</td>
<td>20.0</td>
</tr>
<tr>
<td>Netherlands</td>
<td>64.0</td>
<td>17.2</td>
<td>5.3</td>
<td>13.5</td>
</tr>
<tr>
<td>Portugal</td>
<td>26.1</td>
<td>28.1</td>
<td>23.0</td>
<td>22.8</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>34.8</td>
<td>40.6</td>
<td>10.9</td>
<td>13.7</td>
</tr>
<tr>
<td>Finland</td>
<td>47.8</td>
<td>27.6</td>
<td>12.5</td>
<td>12.1</td>
</tr>
<tr>
<td>Sweden</td>
<td>52.6</td>
<td>18.5</td>
<td>7.1</td>
<td>21.7</td>
</tr>
<tr>
<td>Austria</td>
<td>47.5</td>
<td>21.5</td>
<td>13.1</td>
<td>18.0</td>
</tr>
<tr>
<td>EU-15</td>
<td>39.1</td>
<td>28.2</td>
<td>13.6</td>
<td>19.1</td>
</tr>
</tbody>
</table>

Source: Third Working Condition survey. European Foundation for the Improvement of Living and Working Conditions
It seems that the Nordic countries (in this case Sweden, Denmark and Finland) come out with figures, which supports the picture of organisations with a high degree of empowerment and involvement among the employees in general (Lorenz and Valeyre, 2005)

This development seems to have continued at least through the 1990’ies. The Danish researcher Jørgen Goul-Andersen made a survey in 1985 and in 2000 and among other interesting findings he came up with the figures shown in the following table:

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Ofte</td>
<td>34</td>
<td>69</td>
</tr>
<tr>
<td>Af og til</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>Kræves ikke</td>
<td>40</td>
<td>11</td>
</tr>
<tr>
<td>Ved ikke/ubesvaret</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>N (=100 pct.)</td>
<td>978</td>
<td>894</td>
</tr>
</tbody>
</table>

(Kold Andersen, 2004).

The growing globalization and the spread of Japanese management thinking (LEAN) would probably move organisations towards the LEAN-models. It again would influence the general involvement of the workforce in innovation- and development processes. At the same time, we have a general political agenda about user-driven and employer-driven innovation. Does this constitute a new general picture? We don’t have data or research, which would enable us to answer this question. A limited survey from Denmark suggests that the involvement of workforce in these processes make the workers feel that they are getting less involved (Redder, 2010).

**Innovation and Learning**

Innovation is a learning process, where participants use and develop competences. When we relate it to education we could then first state that in education need to learn something but in learning something we also learn something else. In a Nordic tradition, we organize learning as a dialogue based process where group work, project based collaboration and other forms which focus on learning more as a knowledge-building process than a process of transfer. Therefore learners develop language, understandings and also
competences to participate in collaborative work situations. When and if the overall aim is to improve learners’ competence towards innovation educational developments could focus on:

- Learning about innovation (Content)
- Learning to make innovation (Process)
- Learning to be innovative (Outcome)

The preconditions for such developments seem to be strong in our tradition. The interesting question is how we develop curriculum and education to strengthen these traditions and also to re-focus them without losing the more generic competences already being developed within the Nordic educational tradition?

**Learning about Innovation**

One step could be to incorporate innovation as part of curriculum in school, college and adult education. This would be within the educational rationality that whenever education meets new challenges then this increased complexity is handled through transferring it into subject matter into a school discipline. Even though we have an underlying scepticism towards this approach one should also accept the importance of such a project. – It would be a way of opening up this discourse for more people. It would enable learners to develop concepts, language and also critical reflections thereby bringing the learner into the innovative process as an articulated participant who can contribute with and express experiences and ideas. But developing innovation into subject matter will not secure innovative generic competencies and it will not be a part of transforming education and educational institutions if that is on the agenda (as well).

**Learning to make Innovation**

How do we then learn to be innovative? We learn to be innovative through making innovations, and when we do that we could see it as either a kind of extra-curricular activities, which could illustrate what innovation is about and might be source of inspiration for the participants. – Or we could see innovation as the core of educational activities accepting that education basically is innovative for the individual. It means that education brings form to latencies and makes them understandable and at the same time enables the learners to participate in and create new practice. The ladder then transforming the individual innovation (I have learned and created something which is new for me) into societal innovation (we have created something which is new and beneficial to society and evaluated as such). If this should become part of the agenda it means that education should change from what Bereiter and Scardamalia call belief mode into design mode, as they state:

When in belief mode, we are concerned with what we and other people believe or ought to believe. Our response to ideas in this mode is to agree or disagree, to present arguments and evidence for or against, to express and try to resolve doubts. When in design mode, we are concerned with
the usefulness, adequacy, improvability, and developmental potential of ideas.

Education is rarely working in this design mode whereas it is the key principle in most development work outside educational settings. Design mode could be organized as project work where the aim is to develop operational solutions to real world problems, which are evaluated as such. This means that the focus very often is on idea improvement and ideas evaluated in relation to their application in this very context and not within the educational setting as such.

The process of innovation can be seen as a systemic process where the initial idea ration brings forth new ways of doing things or new things which again are undergoing evaluation within a sudden field which selects, refines and brings forth the novelty into a domain. The idea ration is not something which comes out of a genius or a sudden flash of imagination but it is embedded in the cultures, languages ways of doing things which then again is transformed through the observations and design made by the individual or the collective. It is interactive and not-linear process driven by difference, scaffolded by constraints and validated through authentic feedback.

The pedagogical process will therefore be to establish settings for these processes – open up for design mode and especially the interaction between different rationalities within education and using them as demarcations of different knowledge domains and supporting transformative processes and dialogues across these demarcations. Constraints are important supporters for creative and innovative processes.

Learning to be Innovative

Innovation is situated in a context and is at the same time a question of transcending this context. It is difficult to define the exact competencies, which are needed to do that – but if we should try to identify more generic competencies they could be:

- The competence to observe and describe practice. This is the ability to see potentials and constraints in a given practice. Education can offer lenses to make these observations and support the development of language and concepts, which make articulations possible

- The competence to identify and develop potentials is a question of having capability of seeing different options and evolving these beyond their immediate use – education is an important framework for this. The rationality of education is not necessarily usability here and now. Education enables experimentation and reciprocal inspiration.

- Transformative competence: - Is the competence to use, apply and combine knowledge, abilities and experience across tasks, and domains in different interactions and organisational settings.
Final Reflections – an Educational Process?

Otherness is an essential part of innovation and learning. Popular notions such as “Thinking out of the Box” reflect the demand for understanding from a different point of view. In the same way, as education is about understanding yourself and letting society understand you through estrangement. About being enabled to reflect on your-self and thereby enabling communication with others. In that respect, we can only confirm that innovation is a learning process. That we basically know and are capable of more through this process: That we learn – We do not know what will be the expected outcome, but we do know that the process suggested is likely to generate outcomes in the form of new products and new methodologies. We are learning in such a process, but it is also a process of being educated.

What does it mean to become educated? It means that you have opened yourself to the world, and the world to yourself. Ideally, this is what happens in education. By meeting the unfamiliar setting of the school you become aware of the difference between yourself and the rest. This opens up for establishing relations with the other while keeping your integrity, for developing language, understandings and a disciplinary vocabulary that enables you to understand and make you intelligible to the world. The innovation process is both a process of learning to be able to do more, understand more, and it is an educational process transforming the participants through the meeting with otherness.

References:


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