Assuring the Acquisition of Expertise
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Networks as agents of innovation: Networking patterns of VET & higher professional education teachers

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Summary: This paper concentrates on the networking processes in the context of educational changes, focusing on Estonian VET reforms during the last decade. We follow the concept of social innovation (SI) to explain the educational changes/implementation process, emphasizing on networking as a facilitating/mediating mechanism in the educational change process. Based on the results of the quantitative survey different types of innovation networks will be identified. Secondly, the relationship between networking and educational innovations will be analysed.

Keywords: Teacher networks, educational change, social innovation, Estonian survey

Introduction
The VET systems and particularly teachers are continuously challenged by more or less permanent changes. The educational changes are often characterized as ‘top-down innovations’ (Hofman/Dijkstra 2010) and overwhelming attention is placed on teachers’ ability and motivation to adopt and implement the changes (Struyven/De Meyt 2010; Fullan 2001). Networking is considered to be one of the mechanisms which could facilitate the process of adoption and implementation of innovations, but the knowledge and empirical evidence regarding the functioning and patterns of teachers’ networking and their capability to support educational changes is rather vague (de Lima 2010; Hofman/Dijkstra 2010; Coburn/Lin Russel 2008). This paper aims at identifying and describing the teachers’ networking patterns, and explaining the relationship between the networks and educational innovations. We will concentrate on the networking processes in the context of Estonian VET reforms, following the change of the concept of VET from “Soviet dual” system into the school-based system in the context of radical socioeconomic and political changes.

Theoretical framework: Networking in (educational) change process
In approaching the mechanisms which could facilitate and mediate the process of adoption and implementation of educational changes/reform, we follow the concept of social innovation (SI). This explains the change processes from two perspectives. One approach originates from sociological theories and explains SI as distinct kind of innovation which has specific social goals and which develops from the grassroots level initiatives (Moulaert et al. 2005; Mulgan 2006). The other approach proceeding from economic and organisational theories sees SI as co-developmental or accompanying process induced by technological–economical, business or organizational changes (Pot/Vilhe 2009). As VET reform can be considered as top-down innovations we follow the second approach to SI. The innovation, to be actually implemented - adopted and accepted by actors, should be accompanied by changes in meanings, everyday practices and social structures (Tuomi 2007), that is, changes should occur not only in regulative, but also in normative and cultural-cognitive levels of social institutions (Scott 2001).
The theorists of SI emphasize the social mechanisms which have to accompany the innovations in order to mediate and facilitate the process of adoption and implementation of innovation. Accordingly, SI considers interaction processes - networking, collective learning etc. - to be fundamental in the innovation process (Marcey/Mumford 2007; Heiskala/Hämäläinen 2007a). In order to analyze the networking processes we follow the network perspective (e.g. Wasserman/Faust, 1995; Scott, 2000) which provides a framework for studying the structure and patterning of relationships (Jones et al. 2001). In this paper the special focus is made on exploring the relationship between the characteristics of network and its relations to reform-guided innovations. To characterize a network, the following features are important: (a) type of actors in the network; (b) characteristics determining the nature of the relationship (incl. centralization, density, strength of ties, connectedness, size of the network, etc.); (c) genesis of the network; and (d) the network substance (what the interaction is about) (Scott 2000; Hatalla 2006; de Lima 2010).

(Historical) background and VET reforms after transition period

The Soviet VET system in Estonia, an extremely centralized and related to the planned economy, was completely interrupted in the process of the transition to market economy. The previous system of practical training was completely destroyed because of privatization and extensive restructuring of enterprises. At the beginning of 1990s until 1995/1997 almost single determining factor of changes was liberal adjustment of VET schools to dramatically changed environment. In this period, the state intervention was minimal and social partners (employers, unions) were too weak to initiate and support reforms in VET. Since 1997 the period of extensive reform of VET began. The most important steps of reform included: restructuring of the VET schools' network; development and implementation of national qualification system and creation and establishment of national curricula in VET in the partnership with schools, teachers, employers and sector organisations. The reforms have been accompanied by extensive investments into the content and infrastructure of VET schools and teachers' development, supported by EU Programmes. The processes of change in VET have led to ever stronger regulation and standardisation of the system and actors' behaviour.

Methodology

In this paper the results of quantitative survey carried out among the teachers in VET and higher professional educational schools in Estonia in 2010 are presented. The survey was internet-based. The sample consisted of teachers from 41 schools teaching in the three fields: creative industries, services and technology. The return rate was 45%. The questionnaire consisted of 30 questions divided into 4 parts: (1) general information about the teacher; (2) educational changes in the school; (3) partners and co-operation; (4) networks related to educational changes. In data-analysis, at first general statistics were calculated followed by the factor and cluster analysis using SPSS Statistics.

Results

Altogether, 5 type of VET teachers' networks related to educational changes can be identified: (1) intra-school network (networking within the school - schoolboard, management, different departments); (2) sector network - encompassing the field-specific networks with professional associations, enterprises and their unions, educational and teacher organizations; (3) reform-related networks - comprising of networks, established and developed in the frame of state-initiated reform, including working groups of social partners in development of vocational standards, curricula etc. (4) inter-sectoral network - including different kind of co-operation, with universities, R&D institutions, public sector etc. (5) international networks - encompassing international educational or teaching associations and networks of international projects and programmes.

Teachers' participation in the 5 networks becomes divided as follows (see Fig. 1).

![Figure 1: Teachers' participation in different innovation-related networks: the general division and by three sectors (%)](image)

The typology of networks enables to claim that teachers' networking pattern is rather diverse - teachers are involved in different kind of networks and networking takes place on many different levels, including international. Figure 1 shows that almost half (48.6%) of respondent teachers attach importance to sector-based networks which indicates that the sector has the strongest influence in the process of educational changes. Still, it is important to highlight that relevant differences between the 3 fields: teachers in the field of services participate mostly in reform-related networks and in sector networks; teachers in the field of technology brought out mostly inter-sectoral networks and also sector and international networks; and teachers in the field of creative industries are primarily involved in intra-sectoral networks, but also in inter-school and international networks.

When analysing the 5 types of networks based on the characteristics of networks the study results reveal that several characteristics inherent to innovation networks in other fields apply also to the education innovations. Specifically speaking, all 5 types of networks bring together different parties, whereby the importance of universities and R&D institutions in the networks is relatively modest. All these 5 type of networks base on shared values and understandings and strong ties exist between the partners in the network. This refers to close interaction, supporting transfer of complex and tacit knowledge. Although these networks provide socio-emotional support to the participants, strong ties between network parties refer also to certain kind of closeness of the networks. Predominance of strong ties do not always provide new, beyond boundaries' information (Ryynänen et al. 2008) which is critical for innovation.

The sector-centered networking of teachers can illuminate this suggestion. To analyze the relationship between reform-related innovations and the 5 types of networks we first explored which innovations taken place in schools were considered most important. The factor analyses brought out seven groups of changes which were then compared with 5 types of networks (Fig. 2). The results enable to argue that from one side, the networks differentiate the multiple reform-related innovations; from other side, co-evolution of various networks, teachers are involved in, supports the interaction and mutual learning and therefore the processes of social change, which in turn can make the "real" changes more probable. Some networks have particularly related changes in teaching methods and restructuring of schools organisations and in partnership. As intra-school network are related to the changes in involvement and development of teachers, we can assume, that networking has increased the school democracy.

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Figure 2: Relationship between educational changes and 5 types of networks

In the teachers’ networking pattern, the specific, reform-related network has emerged. This indicates that the networks, generated as part of reform strategy, have become the part of teachers’ networking pattern, facilitating interaction and bringing about new type of network structure, which doesn’t follow the traditional regulation levels and involves diverse set of actors from educational institutions, public and business sector, professional associations, etc.

References


