

Chapter 19

User–Driven Innovation in E–Health Change Processes

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ABSTRACT

This chapter describes a user-driven innovation project in psychiatric services for children and adolescents in rural areas in Norway. The researcher applies a multilayer and dialectic perspective in the analysis of the user-driven innovation process that designed new ICT solution in compliance with a new decentralized treatment model with required treatment model. The researchers' findings suggest that contradiction appeared at material, cognitive, and organizational layers are crucial for path creation in such e-health projects. The contradiction in one layer leads to new contradictions in others, which together facilitate changes. Human actors, especially user groups in innovation processes, play an active role in leading the break from the existing path. Thus, this chapter contributes to the understanding of how user-driven innovation might help in deconstructing existing power structures across different layers in the change processes.

INTRODUCTION

Use of technology in Northern Norway is widely known for early adoption of ICT services to serve the population living in rural and remote areas in the Arctic (Antonsen, 1988). Today, use of ICT has become the solution in offering decentralized health services in sparsely populated area. However, it entails a number of challenges, not least in the field of psychiatric care. Since 1987, the organised work on telemedicine services in Norway, was initiated by visionary politicians and researchers, who saw the potential of using telecommunication, to improve the accessibility of health care specialists to the rural areas of Northern Norway (Hartvigsen & Pedersen, 2015). Northern Norway has a scattered population with less than 4 persons per km². In the northernmost county, Finnmark County, the population density is 1,5 persons per km², (Hartvigsen & Pedersen, 2015). Through the last 25-30 years, it has been continuously focus on the implementation of telemedicine services in specialist health care in Northern Norway, including building an ICT infrastructure for decentralized health. The broadband and

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mobile infrastructure in the north is unevenly distributed; some areas well covered by both broadband networks and telephone networks, while others are practically without any coverage at all. Health care is not primarily a matter of technology. Close collaboration with health care providers and between health professionals and patients is essential for achieving better health care (Andersen, 2013). The primary focus is that close collaboration with health care providers and between health professionals and patients is essential for achieving better health care (Ringard, Sagan, Sperre & Lindahl, 2013). This includes mobilizing the patients' own resources, as well as family and community resources. Such focus can contribute significantly to the patient's healing process (Brennan and Safran, 2003; Ball and Lillis, 2001). It is important to provide patients with adequate care and support in order to manage their health problems themselves as much as possible.

This paper is based on the work of Andersen and Jansen (2011), and their research "Innovation in ICT-based health care provision", published in *International Journal of Healthcare Information Systems and Informatics*. Their work presents an innovative eHealth program in Finnmark County¹ based on the Parent Management Training-Oregon (PMT-O) model. PMT-O model is a treatment and prevention program for families with children displaying antisocial behaviour.² Andersen and Jansen (2011) present in their research, the development and implementation of an appropriate technical solution based on mobile technology in psychiatric healthcare along with the organizational changes required to support the implementation of the PMT-O treatment model. Andersen and Jansen (2011), describe how the technical solution helps both the care providers and the patients in their communication and information handling routines supporting the psychiatric treatment. The project involved the users largely in this design work. The term "users" in the project means several different users; health care workers, team members and "CYP" specialists (clinics for Children- and Youth Psychiatry), as well as parents, adolescents and children. The focus in Andersen and Jansen's (2011) research is the innovation process that has taken place in the developmental work. By use of the concept of path creation (Garud & Karnøe 2003), combined with a multi-layered dialectics perspective (Henfridsson, Yoo and Svahn 2009), Andersen and Jansen (2011) explain the critical factors that gave rise to this innovation.

The researchers of this article improve and increase the original article of Andersen and Jansen (2011) and include the recent findings on the coverage of the topic. By improve the analysing of a multi-layered dialectics perspective; the researchers can explain more exactly the innovation outside the product development context in which it originally was applied. The researchers thus pose the same research question as Andersen and Jansen (2011), in the following manner: *How can a multi-layered dialectics perspective explain innovation processes in ICT-supported health care?*

In what follows, the authors first outline the theoretical framework; next, a short description of the research settings, followed by findings and discussions. Section 6 present conclusions and recommendations.

THEORETICAL FRAMEWORK

For decades, there have been an ongoing discussion related to research about extension of ICT innovation. Traditionally, research on such extension as sequential processes unfolding over specific periods of time (see e.g. Attewell 1992; Cooper & Zmud 1990), while other studies highlight that innovation often does not consist of sequential actions, but rather of an interplay of several concurrent processes (Van de Ven et al., 1999). ICT is the target of innovation; it is also the source and means in pulling and shaping innovation processes (Swanson, 1994). Some studies highlight the need to understand ICT innova-

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