Abstract

Transdisciplinarity and Information Systems: IT Governance in the digitalisation of healthcare†

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Abstract:

The term disciplinarity seems not to have a commonly accepted definition but it relates to a specific field of academic study. Disciplinary is an adjective related to the branch of learning or knowledge. When talking about a discipline, it is not merely a body of knowledge but also a set of practices by which the knowledge is acquired, confirmed, implemented, preserved, and reproduced. Post (2009) argues that questions of disciplinarity seek criteria for validating the "eccentric" angle of vision of a particular "intellectual" community in terms of its methodology, subject matter, curriculum or its shared purpose. The discussion in this essay focuses on transdisciplinarity and information systems

Keywords: Transdisciplinarity; IT governance; Disciplinarity

1. Introduction

This essay is sets out to give a perspective of transdisciplinarity and Information systems. The focus is on IT governance in digitalisation of healthcare organisations. Given that we are in the information age, digitalisation is now a big area of interest. IT in healthcare organisations has followed a predictable pattern that has occurred in industries like financial services and travel. One could state that due to the predictable pattern, there has been a move to digitalisation of the health sector. In this essay the focus is to highlight the need for transdisciplinarity in information systems and how to improve the IT governance.

2. An overview about Disciplinarity

The term disciplinarity seems not to have a commonly accepted definition but it relates to a specific field of academic study. The free dictionary defines disciplinarity as the state of being disciplinary. Disciplinary is an adjective related to the branch of learning or knowledge. When talking about a discipline, it is not merely a body of knowledge but also a set of practices by which the knowledge is acquired, confirmed, implemented, preserved, and reproduced.

Post [1] argues that questions of disciplinarity seek criteria for validating the "eccentric" angle of vision of a particular "intellectual" community in terms of its methodology, subject matter, curriculum or its shared purpose. Disciplinarity involves the education, certification, hiring, and promotion of university professors. Questions of disciplinarity express apprehension about the subordinate status of a "colonized discipline". Minati and Collen [2] using the systemic perspective describe disciplinarity as phases or forms of human activity to seek, develop, and produce knowledge. They state that disciplinarity is demonstrated in four forms; singular, multiple, inter-relational, and boundary breaking pursuits.

Universities possess incentives to engage in interdisciplinary approaches in circumstances where the problems resist a solution within the parameters of traditional disciplinary perspective. Many of the universities worldwide have research agendas that keep changing and to be able to meet this changing agenda calls for transformation of knowledge practices on top of complementary changes in the internal organisation of universities and in the composition of external disciplinary institutions.

Today, information systems are pervasive in almost all aspects of life. This calls for collaboration across disciplines. For instance information systems can be used to reduce the negative effect of the industry in almost all aspects of life. The way information systems are used to facilitate green information technology in other industries is the same way information systems can be used to facilitate transdisciplinary research in other disciplines. Madni [3] suggests an alternate view of a shared ontology that overcomes mismatches in terms and concepts as an example of transdisciplinary invention. The creation and use of frameworks is a more theoretical example of transdisciplinary work in information systems. Elliot [4] argues that the development of frameworks is one way of integrating perspectives from different disciplines centred around one complex problem. The main attributes of the four practices of disciplinarity are collaborative nature, goal or objective, disciplinary nature or knowledge, theoretical nature, reason for the research, methods, results, scope and properties. Much as only four practices are discussed, it does not rule out the fact that other possibilities may be existent. These practices are for conceptual convenience to comprehend relations, systemicity, and complexity.

It therefore necessitates the realisation that the complexification of the focus and the involved relationship among the disciplines, compels researchers toward transdisciplinarity. Stichweh [5], argues that disciplines shape scientific research by forming the primary institutional and cognitive units in academia, on which the internal differentiation of science into specialized curricula, professions and research is based. A common pattern of members communicating within their community, sharing basic assumptions and examples regarding meaningful problems, standards for reliable and valid methods, and also looking out for what is considered a good solution to a problem is noted. The basis for modern science's gains and preserves is disciplinary structures. Following through the main attributes of the practices of transdisciplinarity, we can say that boundaries between disciplines are evolving—by increasing specialization through internal differentiation within the disciplines, and by the integration of disciplines.

3. A brief about transdisciplinarity and Information systems

The search for innovation in fundamental scientific problems, is one motive for transgressing disciplinary boundaries and integrating different disciplinary perspectives repeatedly linked with innovation in investigative methods. The other motive is the demands of the knowledge society. They desire a better understanding of and solutions to concrete issues in the life-world as well as functioning as an external driver for transgressing disciplinary boundaries and integrating different disciplinary perspectives. Transdisciplinarity is primarily a form of research for addressing and reflecting on issues in the life world [6]. He calls for the transgression of disciplinary boundaries for identifying, structuring and analyzing problems in research. G.Hirsch Hadorn et al [7] in the Handbook for Transdisciplinary research prefer to use the term transdisciplinarity as suggested by Jantsch [8]. He describes transdisciplinarity as the coordination of all disciplines and interdisciplines in the education/innovation system on the basis of a generalized axiomatics and an emerging epistemological pattern. The collaboration of researchers and actors in the life world is clearly represented in the many definitions of transdisciplinarity. Klein et al. [9] capture the preceding idea in there description of transdisciplinarity and they argue that the core idea of transdisciplinarity is different academic disciplines working jointly with practitioners to solve real world problems.

Pohl and Hirsch Hadorn [10] argue that transdisciplinary research manages problem fields so as to grasp the complexity of problems, take into account the diversity of life world and scientific perceptions of problems, link abstract and case specific knowledge and constitute knowledge and practices that promote what is perceived to be for the common good. On the other hand, Kates [11] argues that the objective which is to constitute knowledge and practices that promote what is

perceived to be for the common good, is rarely explicitly stated in a definition much as it is implied for instance by the term sustainability science.

There are three types of knowledge that are related to transdisciplinary research; namely systems knowledge, target knowledge and transformation knowledge. ProClim [12] defines systems knowledge as knowledge of the current status, target knowledge as knowledge about a target status and transformation knowledge as knowledge about how to make the transition from the current to the target status.

The degradation of ecosystems, over exploitation of natural resources, climate change, wealth inequalities, and human conflicts are some of the multiple challenges facing the social-ecological systems. Attaining the goal of sustainability seemed a distant goal but it is now with us and very much an urgent goal. Being able to achieve sustainability requires understanding and management of unprecedented and interconnected challenges. Kates and Parris [13] and Rockstrom et al. [14] argue that these interconnected challenges are threatening the sustainable development of society. This calls for efforts to meet demands of the current generation without compromising the ability of future generations to meet their needs which is the essence of sustainable development. Sustainability science is a relatively new science that seeks to integrate various sustainability disciplines that have emerged in various natural and social sciences over the years. It recognises that sustainability challenges are complex real life world problems which normally have no solution available [9, 11]. On the other hand, when handling sustainability challenges, collaborative efforts by many actors with different perspectives and knowledge sets are required. The growing awareness about the variety of ways in which advances in science and technology can affect the public interest has increased the numbers of groups who wish to influence the outcome of the research process. Sustainability science operates in two modes as advanced by Wiek et al. [15] and these are a problem focused mode of understanding the human environment condition through advanced analytical descriptive tools and a solution oriented mode with a transformational agenda including the willingness to work on practical solutions.

Transdisciplinary research is an approach that has been related to finding solutions to real world problems and is seen as a structured and intensive exchange of academic and societal actors as a further constitutive element [15, 16, 17]. Transdisciplinarity then calls for participatory procedures involving scientists, stakeholders, advocates, active citizens, and users of knowledge. Transdisciplinary research can be described as focusing on societally relevant problems, enabling mutual learning processes among researchers from different disciplines as well as actors from outside academia; and aiming at creating knowledge that is solution oriented, socially robust and transferable to both scientific and societal practice.

Relating transdisciplinarity with my research in IT Governance and the digitalisation in healthcare, I find that healthcare has not moved at the same pace as many other sectors in terms of technological advancement. It would be interesting to find out why. Some of the concerns may be about the privacy of the health records and how the sharing of the patient records is to be done. In my case the focus is on IT Governance which "represents a framework for decision rights and accountabilities to encourage desirable behaviour in the use of IT" [18] (p.8). Given that description of IT Governance, it indicates that the scope is much bigger than only the privacy issues and so it calls for involvement of the various stakeholders in the healthcare sector. Organisations with good IT Governance configuration have been seen to be more successful than the organisation with poorer IT Governance [18]. The fast paced development in technology has led to the digitalisation of society. In healthcare, many of the practitioners are not IT savvy and so it is important that at the beginning of any research project all the stakeholders are brought on board. This will help in the co-production of knowledge of all the stakeholders in the research. Where there are many stakeholders involved to find solutions to real world problems, the transdisciplinary approach would be a good approach to use as it will take into consideration the values and

Transdisciplinary research by nature requires that there are more than one disciplines or partners working together towards solving a societal problem. It is therefore important that transdisciplinary research focuses on the objects of integration and implementation. An integrative

methodology is necessary and it should consist of a series of different types of methods which are mixed and coupled. The integrative methodology aims at creating an environment for common thinking which leads to mutual learning and joint action between networks from diverse disciplines and societal fields in order to create knowledge, understanding and induce transformation.

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