Strengthening Information Society Research Capacity Alliance (SIRCA)

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The purpose of the SIRCA III programme is to deepen our understanding as to whether, how, for whom, and in what circumstances the free, networked, public sharing of digital (information and communication) resources contribute towards (or not) a process of positive social transformation.

Paper No. 1

Open and/or Apolitical: A critical re-examination of Open Information Systems

Janaki Srinivasan & Bidisha Chaudhuri

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Abstract

This project proposes a theoretical framework to analyse the phenomenon of learning among users of open information systems (OIS) in which learning is taken to be indicative of positive social transformation. In order to understand how learning takes place in the context of OIS use through the interaction of structures and agency, we draw on practice-based situated theories of learning and critical information studies. Such theories prompt us to adopt a broader processual view of learning as an everyday practice that shapes individual identity which can be then leveraged to negotiate varied life situations beyond the immediate learning of how to use an OIS. Based on this understanding of learning, we develop a framework that will critically examine different levels of learning occurring within a matrix of communities of practice (CoPs) specifically in the context of OIS use. The broader objective of this framework is to unravel the different opportunities of learning (as development) that OIS provide which were hitherto unavailable to its users.

Introduction

Recent scholarship on open development has increasingly reflected upon its implications for development (Smith and Elder, 2010; Smith et al., 2011; Smith et al., 2014; Smith, 2014). Specifically, it argues that ICT-enabled "open social arrangements" are distinctive because their social networks are organized around "electronically processed information" and allow new ways of information sharing, collaboration and participation (Smith and Elder, 2010; Smith et al., 2011). Digitally-enabled 'openness' is thus heralded as a means to bring about positive transformation and development (Smith, 2014). In the context of this project, we define Open Development as the free (both in access and cost terms), networked, non-discriminatory sharing of digital (information and communication) resources towards a process of positive social transformation. To understand this process, we examine open information systems as our site, which make it possible to share such resources over digital platforms. While positive social transformations may have different indices, in our work we take learning as a manifestation of such transformation.

Development indices are typically built on correlations between inputs such as the demographic characteristics of a social group, its use or non-use of ICTs, and changes in the value of widely- accepted indicators of development outcomes for that group. What is missing in such an analysis is the process or mechanisms through which these outcomes are achieved or not achieved. Moreover, many of these analyses focus on either large-scale structural factors, or very specific contextual elements, as explanatory factors of success or failure.

Our analysis focuses instead on the mechanisms of change, and on the interplay of structure and agency in achieving it. The structures we examine encompass the social and the technological, whereas agency refers to individual users' dispositions. A user's class, caste or gender are examples of social structure, while design elements of the OIS platform such as layout, functionalities, or access control will constitute its technological structure. Meanwhile, agency lies in the different ways in which actors leverage these structural factors to achieve their ends. Finally, rather than examine the 'success' or 'failure' of OIS use in terms of standard development indicators, we argue that learning always takes place in the process of OIS use, albeit at various levels and with diverse implications. With this as our point of departure, the framework we propose in the paper helps study how learning takes place in the context of OIS use through the interaction of structures and agency.

This paper is organized as follows. We begin with a justification for considering learning as development. That is followed by a review of the literature in practice-based theories of learning and the advantages and challenges this literature presents for the study of learning in OIS use. Finally we outline our framework and suggest the range of empirical cases where this framework may be most productively applied.

Learning as Open Development?

The literature on open development points out that openness can shape positive social change or 'development' by providing meaningful access to information, the possibility of reaching a wider population and allowing collaborative practices (Smith and Elder, 2010) in a way that closed systems did not (Smith et al., 2008; Reilly and Smith, 2013). To understand how such positive social change takes place, we focus on "learning as development." Now the question arises, why should we choose to look at learning as development? What value does learning add to people's lives and what spaces for learning does OIS provide that were hitherto unavailable to them?

Learning is typically gauged in the context of formal educational institutions along specific input and output metrics. However, we take a broader, processual view of learning that focuses on learning as an everyday practice. This implies that learning need not be measured through the attainment of certain skills by individuals. Rather, the most significant transformative potential of learning lies in the way it shapes an individual's identity, which can then be leveraged to negotiate varied life situations. We apply this understanding of learning as development to the case of OIS use, wherein learning is not limited to an ability to navigate a particular OIS, but develops their capacity to navigate other spheres of a user's life. In order to formulate such a framework of learning in OIS use, we draw on practice-based, situated theories of leaning which we elaborate next.

Theories of Learning

As opposed to individual theories of learning-transfer which begin from the assumption that knowledge is a general-purpose tool that can be used in any context, and is transferred by the pedagogue to the learner, situated theories of learning discuss how learning is a social process; and further, how learning is situated within culturally organised settings (Lave, 1988; Talja, 2010). In critiquing learning-transfer theories, Lave (1988) draws from theories of practice (Bourdieu, 1972; Giddens, 1984). Practice is what "everyday activity is … [and is] a more powerful source of socialization than intentional pedagogy" (Lave, 1988, p. 14). Practice, in such theories is produced and reproduced by the interplay of structure and agency. Thus, learning must "be understood with respect to a practice as a whole, with its multiplicity of relations - both within the community and with the world at large" (Lave and Wenger, 1991).

Thus, practice-based, situated theories of learning allow us to address how learning takes place in a variety of social situations outside of formal, structured environments of learning (Lave 1988; Lave and Wenger 1991; Lave 2011; Wenger 1999). Learning here is not seen as "a separate activity, it is not something we do when we do nothing else or stop doing when we do something else" (Wenger, 1999, p5). It is not the same as being taught (Lave and Wenger, 1991). Also, learning doesn't take place in an individual, but, in a cultural-historical setting of a community of practice. We leverage two concepts that we find particularly pertinent from this literature on learning: 'communities of practice' (CoP) and 'legitimate peripheral participation' (LPP) (Duguid, 2008; Lave and Wenger 1991; Wenger, 1999).

CoPs are 'formed by people who engage in a process of collective learning in a shared domain of human endeavor" (Wenger-Trayner, 2015). They are characterized by a mutual engagement of their participants in a joint enterprise, where participants learn through interaction and engagement by using a shared repertoire of resources, and have shared histories of learning.

Examples of CoPs would include a group of engineers working on similar problems, a tribe learning to survive (Wenger-Trayner, 2015), non-drinking alcoholics in the Alcoholics Anonymous, and supermarket meat cutters in the US (Lave and Wenger, 1991). CoPs have a non-rigid structure (Wenger, 1999; Talja, 2010), and are not always harmonious spaces for reasons detailed below. (Østerlund and Carlile, 2005).

Newcomers to a CoP learn by being "legitimate peripheral participants." Over time, they move centripetally towards more-intensive participation, and to the centre of the community to become old-timers. This change in location and perspective in moving from peripheral to full participation is part of actors' learning trajectories, the development of their identity, and forms of membership (Lave and Wenger, 1991). Legitimate peripherality is, therefore, a complex notion that is "implicated in social structures involving relations of power" (Lave and Wenger, 1991, p. 36). Power relations in a CoP are "in terms of access and

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transparency of the activities, processes, and artifacts of the community allowed by old-timers in the community" (Østerlund and Carlile, 2005). Such unequal relations of power could either aid in the process of learning, or result in participation in CoP becoming illegitimate.

Advantages and challenges of deploying practice-based, situated theories of learning to OIS

The reasons we draw on practice-based situated theories of learning to study OIS use are fourfold. First, they show how learning takes place in spaces where there is no formal teaching. Second, they focus on situations where learning is not even the primary goal. Third, they allow us to examine how learning takes place through the interplay of structure (class, caste, gender; design elements of the OIS) and individual agency (social position, and how different actors leverage their position and structural factors to achieve their ends). This allows us to make the question of power central to our analysis. Fourth, the fast changing digital platforms of OIS, which implies a never-ending need for learning among users also shapes the identity of users and how they lead their everyday lives. A lens such as the one we are using allows us to get at these deeper and cross-domain impacts of learning.

The first and second reasons are productive for our purpose because the 'openness' of an OIS (which we have defined as an IS that is, in theory, available to anybody to use) means that such a system is open to a diverse, sometimes undefined, population of users. Many of those who use the OIS might likely never have formally learned how to use an information system, let alone the specific OIS they encounter. Moreover, achieving a short-term, instrumental purpose rather than 'learning' is likely to be the goal of most OIS users. Given this nature of the processes of learning that we are interested in, an ability to analyze how learning takes place in spaces where there is no formal teaching, and where learning is not even the primary goal, is valuable for us.

Third, the focus on CoPs and LPP allow us to bring in relations of power and the potential for conflict, through a focus on the interaction between advanced members and newcomers of a CoP. This is how such an analysis of learning manages to make central the interplay of structure and agency. Finally, the digital platforms and systems which constitute the OIS are fast changing, which implies a never-ending need for learning among users. This process of learning also shapes the identity of users and how they lead their everyday lives. A lens such as the one we are using allows us to get at these deeper and cross-domain impacts of learning.

Alongside these advantages, however, defining a CoP in the context of OIS offers certain challenges. The first and foremost is how to differentiate between a community of OIS users and a community of practice of OIS users where learning can take place. Wenger-Trayner (2015) suggests that not every community can be treated as a CoP. Communities may be about shared interest, but CoPs have to be about shared engagement in practice and a

shared history. This distinction gets further complicated in the case of OIS users where we cannot presuppose the physical co-presence of users. Nevertheless, users do learn how to use OIS for their purposes. What sorts of resources or communities of practice do they form and draw on for this learning? Examining the practices of learning, rather than its output metrics, also poses additional challenges in the context of OIS users for the same reason of difficulty in identifying CoPs where they may exist.

In building a theoretical framework of learning as development that focuses specifically on OIS, we keep in mind these challenges and leverage the advantages outlined above.

Building a Theoretical Framework for Learning as Development

We propose two overlapping matrices in order to understand how learning takes places in the CoPs among OIS users. The first matrix addresses the concept of CoPs within which learning takes place and the second deals with the different levels of learning that ensue.

CoP Matrix

We suggest that LPP in the case of OIS use will be shaped by where and how the OIS is accessed,[1] as well as by the domain that an OIS is embedded in.[2] In the context of OIS users, thus, the concepts of LPP and CoP are useful ways to investigate better and worse ways in which learning takes place. If learning is an active social process and a legitimate manifestation of development in and of itself, and if LPP makes learning possible (or enhances it), we must examine the barriers to LPP in diverse conditions and within CoPs of OIS use.

We conceive of four kinds of CoPs in the context of OIS use. These categories result from an analysis of diversity in CoPs based on the possible spatial and temporal relations among OIS users. On the space axis, we classify OIS CoPs as digital and face-to-face. The former refers to instances where OIS users interact solely via a digital platform. OISs that provide an opportunity for face-to-face interactions among users beyond the digital space lie at the other end of this axis. Temporally too, OIS use can be of two kinds: synchronous and asynchronous. Where interactions among OIS users are possible concurrently, we see synchronous use. Interactions that are separated in time, on the other hand, we label asynchronous.

We argue learning takes place across all these four categories of CoPs. However, the kind of learning that happens within these different kinds of CoPs will differ. But, in order to understand this learning, we first need to map the different possible kinds of learning, which we attempt next.

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1 For example, much research in ICTD suggests that what people do with ICTs is shaped heavily by whether it is accessed by individuals, or by groups; in public

community centres or at individual homes; and the devices on which information systems are accessed.

2 Whether the information system in question is in the domain of health, education, governance significantly shapes its technological structures, as well as the social groups who access it.

Types of Learning

We envisage two dimensions to learning in the process of OIS use: instrumental and substantive. By instrumental learning, we refer to the learning of techniques and skills that a user can then deploy to navigate an OIS towards a specific purpose in the short-term. Substantive learning, on the other hand, refers to learning that shapes aspects of the user's identity and ability to navigate socially over the long-term. Following the theories of learning we draw on, we see learning as a layered process whose instrumental and substantive aspects are equally important and hard to prise apart. The substantive aspects of learning that we hope to examine are also closely tied to the question of identity that practice theorists of learning emphasize.

While instrumental learning should not be dismissed, we find it critical to go beyond it to understand substantive learning in the context of OIS for three reasons. First, OIS are dynamic and evolve constantly. Therefore, learning the skill to navigate a specific OIS at a particular point in time, while important, is likely to offer value that is timebound. Substantive learning, on the other hand, can help the user to figure out how to navigate a constantly evolving system, or ecology of systems. Second, familiarity with one OIS may lead to improved use of another. Thus, substantive learning also addresses cross-domain implications of OIS use. Third, substantive learning – since it works at the level of a user's identity – need not be applicable only to their use of OIS. It can, instead, influence a user's actions and abilities in a range of domains. Consequently, it also allows for the possibility that substantive learning will shape further development outcomes that may not even be directly associated with digital platforms and systems.

We propose that the CoP matrix and the two dimensions of learning we have illustrated above can together be used to examine learning as development among OIS users, with questions such as the following to guide this enquiry:

- What are the kinds of CoPs that shape different levels of learning most effectively?
- How does learning occur and what does the process of LPP look like within these different kinds of CoPs?
- How do CoPs represent the structure-agency interplay in determining the level of learning taking place through the use of an OIS?
- What different implications do different levels of learning hold for development?

With these and other such questions, our theoretical framework will help us understand learning as open development.

Conclusion and Way Forward

As our theoretical framework talks about learning as a continuous process with both instrumental and substantive dimensions, ethnographic studies that probe into the nuances of OIS use by diverse social groups within different communities of practice will be essential. We expect empirical researchers to further detail out these dimensions of learning and the type of CoPs within which such learning takes place, as suitable to their specific contexts. Given our framework is rooted in an understanding of learning that sees it as situated in a specific history, geography and constellations of social relations, it will be difficult to identity these aspects in any more detail as though these detailed specifications will prove universally significant. We distinguish here between theoretical generalization and scaling across social ontexts: our goal here is the former. We anticipate, therefore, that empirical research will take our framework as a point of departure, and then be able to draw out those details of indicators required to analyse OIS use, and its learning dimensions, that are best suited to the domains and contexts a specific empirical study chooses to examine.

While its potential is widely accepted, open development necessarily challenges existing power structures and the status quo (Reilly and Smith, 2013; Smith et al., 2011). Not only may this lead to "disruptive transformation," but it also implies that open development constitutes spaces of constant struggles (Smith et al., 2011). With our framework, this shifting space and its implications for development are precisely what we hope to map with studies of how learning is negotiated by diverse users of OIS in varied social circumstances.

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