The role of knowledge sharing self-efficacy in sharing Open Educational Resources

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ABSTRACT

In the current paper we report on a study regarding teachers' sharing behavior regarding their Open Educational Resources (OER) in the Netherlands. Little is known about how many teachers actually share their learning materials and, therefore, an attempt was made to estimate the number of Dutch teachers and the types of OER they share. Second, we tried to find out whether knowledge sharing self-efficacy facilitated, and evaluation apprehension and trust inhibited teachers to share OER in two different contexts of sharing behavior; sharing with colleagues at their school (interpersonal sharing) and sharing with the public through Internet (Internet sharing). A survey among 1568 teachers from primary to higher education was undertaken to test the relative importance of knowledge sharing self-efficacy, evaluation apprehension and trust in determining Dutch teachers' intention to share. The results showed that a large proportion of the Dutch teachers shared their OER, but that this sharing was limited to learning materials with low complexity (e.g., texts or images). Moreover, sharing occurred twice as much interpersonally than via websites. Our hypothesis that evaluation apprehension is significantly related to sharing behavior as well as the intention to share was not confirmed. Self-efficacy to share knowledge did, however, explain some of the differences in sharing behavior and in the intention to share of Dutch teachers, although the variables under study accounted only for a small amount of variance. Our findings should thus be replicated in further studies and other variables should be considered that could effectively predict OER sharing behavior of teachers.

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1. Introduction

The advent of the Internet has greatly influenced the way people communicate and share knowledge and information. Knowledge sharing amongst professionals used to be limited to individual exchanges or sharing through formal meetings such as conferences or during training sessions. Nowadays, the Internet hosts a plethora of community websites enabling online knowledge sharing among professionals, such as teachers and academics. Teachers may obviously make use of Internet-based knowledge repositories available to the general public (e.g., Wikiwpedia, Dictionary.com) as a source for a variety of topics to develop their learning materials. However, for the specific purpose of teaching, teachers might often be especially interested in materials that already incorporate content with a specific didactical or pedagogical approach. We refer to these materials as digital learning materials (DLMs). Generally, DLMs cannot be found on these before mentioned knowledge repositories, but rather on dedicated educational repositories provided by educational institutions (e.g., MIT in the USA, Delft University in the Netherlands, and the UK Open University) as well as by initiatives such as the Wikiwijs program. The Wikiwijs program was launched early 2009 by the Dutch ministry of Education, Culture and Science to encourage respectively using, creating, and sharing DLMs by teachers in every sector of education (Plasterk, 2009).

In so far that these DLMs are made available through educational repositories their use may be constrained. The degree to which DLMs use is constrained defines their openness (Peter & Deimann, 2013), that is, the degree to which they may be reused, revised, remixed, and redistributed (Wiley, 2009). DLMs that have some degree of openness are commonly referred to as Open

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Educational Resources (OER). In order to regulate the degree of openness of OER the Creative Common license model could be used as it offers variety of license options for OER and other kinds of digital resources. Depending on these options, the license may be anything between classical copyrights and the public domain.

Because OER have become a phenomenon, they got an own definition. According to an UNESCO OER online forum, OER can be defined as "…materials used to support education that may be freely accessed, reused, modified and shared by anyone" (Downes, 2012). OER may include full courses, course materials, modules, textbooks, videos, tests, software, and any other tools, materials or techniques used to support access to different kinds of knowledge. The complexity of the OER may vary from very simple (e.g., a single video clip or a single illustration) to rather complex (e.g., comprising a series of lessons).

Until now, little is known about the number of teachers that actually share their OER and the types of OER they share. Based on experiences with the Wikiwijs initiative, in which the authors of this paper are involved, it seemed that only a limited number of Dutch teachers actually share OER. In order to confirm this observation, we attempted to estimate the number of teachers that share OER in the Netherlands and the amount and types of OER they actually share. We, moreover, attempted to gain insights into why teachers refrain from sharing OER. In this respect, we considered two different contexts of sharing behavior: sharing with colleagues at their school (interpersonal sharing) and sharing with the public through Internet (Internet sharing).

In order for OER to become successful in education, we believe a sufficient amount of OER needs to be available and thus a sufficiently large community needs to be mobilized to share DLMs. OER should be available for different school types and on all possible subjects. Unfortunately, some scholars posit that practitioners have not deposited their OER in the quantity that would achieve critical mass for uptake (Davis et al., 2010). Sharing OER holds that no financial compensation is provided for the knowledge that is added to a repository. Stimulation of teachers to share their OER must thus be achieved by other means. Until now, little is known about what motivates teachers to share OER and thus further research into what stimulates or hinders teachers to share OER seems warranted.

1.1. Research on knowledge sharing

Research on knowledge sharing has some different traditions and is initiated from different disciplines, which led to the fact that researchers did not reach agreement on a definition of knowledge sharing (Wang & Noe, 2010), as well as to the use of very different models and theories. As a consequence similar constructs are often operationalized in very different ways such that the results from research are often hard to compare. From a social psychology perspective, for instance, much research has been carried out on the effects of dispositional variables such as motivation, attitude or self-efficacy and their direct and indirect relation with knowledge sharing behavior of the individual (see for instance Chen, 2011; Hew & Hara, 2007; Liao, To, & Hsu, 2013), with the purpose to explain and get more insights in human behavior. This line of research assumes that human behavior is a composition of many factors that interact with each other, the social context and the behavior itself.

Apart from the psychological perspective, knowledge sharing has also be researched from the perspective of game theory (Axelrod, 1984). Game theory "can be defined as the study of mathematical models of conflict and cooperation between intelligent, rational decision-makers" (Ho, Hsu, & Lin, 2011, p. 54). Game theory has been used for predicting knowledge sharing behavior within organizations as well as predicting Internet knowledge

sharing behavior, assuming that knowledge sharing can be seen as a play with gains and losses at both sides and that the outcome of the game can be predicted by mathematical laws. This article however builds the social psychological tradition in search of interacting variables underlying human behavior.

Research on knowledge sharing in general has identified several factors that determine an individual's motivation to share knowledge in absence of any financial reward (e.g., reputation and altruism) (Ho et al., 2011). Moreover, studies on crowd sourced encyclopedia such as Wikipedia, also provide useful empirical evidence with respect to the determinants of knowledge sharing behavior. Sharing knowledge (either or not in the form of OER) may, however, also come at some cost. Based on a review of the literature on individual knowledge sharing, we focused on a specific cost related to knowledge sharing: evaluation apprehension. Evaluation apprehension, or the fear of being critiqued by others, has thus far received little attention in knowledge sharing literature (Bordia, Irmer, & Abusah, 2006; Wang & Noe, 2010) and has to our knowledge never been studied in the context of OER. The current study attempts to find out to what extent OER are being shared interpersonally in schools and via the Internet in the Netherlands and whether evaluation apprehension hinders teachers from sharing OER online.

1.2. Who shares knowledge online?

To get a clear view of the extent to which people share knowledge on the Internet in general, several contribution systems (i.e., websites or communities that enable knowledge sharing) are discussed briefly. A first type of contribution system is the open source movement. Open source software is usually shared by several individuals who collectively develop and assemble several pieces of source code. The development of open source software can thus be considered as a form of online knowledge sharing. According to Lerner and Tirole (2002), about 2.1 million US citizens had a job in computer science at the end of past millennium. The same authors note that of the potential 2.1 million contributors to the open source community, about 13,000 people (or 0.62%) actually contributed some code to a specific project. Moreover, only 4% of the 13,000 programmers made more than five contributions. This is in line with the findings on the success of open source software such as Unix and Linux (Weber, 2004). Weber stated that an important factor of success is the possibility that an individual or small group can have the lead voluntarily and generate something useful. Furthermore, open source processes seem to be more effective when the people involved can judge the viability of the evolving product with relative ease. As such they may have the feeling that contributions will actually generate a joint good, which might lead to intrinsically motivated contributors, which are learning personally valuable knowledge by doing and having a positive ethical attitude towards the process (Weber, 2004).

Although participation in the joint development of open source software is a good example of online knowledge sharing, contributing to an online knowledge database, such as an encyclopedia (e.g., Wikipedia) probably better resembles the topic of this study, because teachers who share OER generally do not develop programs together. Wikipedia itself mentions that it keeps good track of all its users and contributors on their own website. At the moment, Wikipedia states that it has more than sixteen million named accounts (Wikipedia, 2013a). Their statistics differentiate between active and passive users. Active users are defined as "users who have performed an action in the last 30 days" (Wikipedia, 2013b), actions being adding or editing information. About 0.87% of the registered Wikipedians are considered active users. According to a recent study among 176,192 Wikipedia users, 30.67% contributed to the encyclopedia, but only 7.42% did this