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'To err is human, but to persist is diabolical': Loss of organizational memory and e-learning projects ☆

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ABSTRACT

Many countries around the world install millions of computers, printers, projectors, smartboards, and similar technologies in primary and secondary schools to equip new generations with the ability to effectively access and critically evaluate information and communication technologies. However, experiences from different countries show that technology does not deliver educational success itself. There are some "chronic" problems hindering the effective use of educational technology. This article aims to identify reasons behind the repetitive problems which occur in the context of Turkey's e-learning efforts in primary and secondary learning. The focus is to find out why an organization repeats the same mistakes and has to reinvent the wheel in similar consecutive projects. This study has a qualitative design – more specifically phenomenological design. The main data collection tools were semi-structured interviews with Turkey's Ministry of National Education (MoNE) authorities, academics, employees and consultants, as well as document analysis. Qualitative data were collected from these figures via face-to-face interviews so as to understand the experiences and perceptions of those involved in large projects and to gain their interpretative descriptions of their experiences. Findings showed that MoNE could not capture, organize, disseminate, or reuse the knowledge and experiences gained during the project life cycles – in short, it could not keep its organizational memory which will be useful to guide the managers of future projects.

1. Introduction

Many countries around the world have been spending enormous resources to integrate information and communication technologies in education in order to respond quickly to the changing needs of both economic and social life. Both developed and developing countries install millions of computers, printers, projectors, smartboards, and similar technologies in primary and secondary schools to equip new generations with the ability to effectively access and critically evaluate information and communication technologies (ICT) (Özdemir & Kiliç, 2007). However, experiences from different countries show that technology does not deliver educational success itself; it only becomes valuable in education if learners and teachers can do something useful with it (Somyürek, Atasoy, & Özdemir, 2009). For example, technology integration efforts did not result in the expected educational performance and quality improvements in certain OECD countries (OECD, 2001). Different countries' experiences show that effective ICT use in education requires a holistic integration process based on careful planning involving numerous critical components, such as hardware and software purchasing, in-service training, technical and pedagogical support, financial resources, and curriculum integration (Aduwa-Ogiegbaen & Iyamu, 2005; Baskin & Willams, 2006; Blanton, Schambach, & Trimmer, 1998; Niederhauser & Stoddart, 2001; Osin, 1998; Warschauer, 2003).

Compared to developed countries, developing countries have to be particularly careful on ICT integration projects funded largely by foreign sources. Lack of return of investments can cause tax payers and political decision makers on education budget to doubt the effectiveness of technology in the learning process. Therefore, research from different countries that focus on the obstacles to, and solutions for, the effective use of ICT in education is quite important to share their positive and negative experiences with other countries that aim to integrate ICT in educational settings successfully using limited financial resources.

☆ A Latin phrase meaning 'Errare humanum est, sed perseverare diabolicum'.

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The employment of ICT in education is a complex process comprising intricate components, much like the pieces of a puzzle. Each piece should fit the others well in order to form a complete picture. Data from different countries indicate that successful ICT integration requires interlocking components, such as purchasing hardware, in-service training for staff, curriculum integration, financial resources for maintenance, technical and pedagogical support, and an adequate amount and quality of digital learning material. Lack of one of the components may cause the failure of the whole integration process (Özdemir, 2009).

As a developing country with the 17th largest economy in the world, Turkey has been investing enormous financial resources in reforming its educational system in the last decade. The main goal of these investments was to increase the quality of education with the help of technology. The investments were realized through several projects, such as Basic Education Project I (BEP I) (1998–2003), Basic Education Project II (BEP II) (2004–2007), and the Education Frame Projects I and II (EFP I and EFP II) (2002 and 2007). The total budget of the projects was approximately $US 700,000,000, funded by the World Bank and European Bank for Reconstruction and Development. The investments of projects included hardware purchasing, building construction and restoration, and in-service training.

In the context of these projects, thousands of schools were equipped with computers, printers, projectors, educational materials and internet access. As of today, Turkish primary and secondary schools have a substantial amount of ICT hardware compared to their resources in 1998. By 2008, 98% of secondary school students and 93% of the primary school students are provided with Internet connections in their schools via ADSL. According to the ICT Integration Baseline Study (MoNE, 2007b) prepared for MoNE by academicians from three universities in Turkey, primary school/computer ratio is almost 30 (N = 302). On the other hand, researches done by Turkish academicians (Akbaba-Altun, 2006; Akkoyunlu, 1992, 1995; Çağiltay, Çakiroğlu, Çağiltay, & Çakiroğlu, 2001; Kiliç & Özdemir, 2006; Özdemir & Kiliç, 2007; Somyürek et al., 2009; Toprakçi, 2006; Usluel & Aşkar, 2002; Usluel, Mumcu, & Demiraslan, 2007; Yildirim, 2007) and reports prepared for Turkey's Ministry of National Education (MoNE) (MoNE, 2004b) reveal that there are some "chronic" problems hindering the effective use of educational technology. The reason to use the word "chronic" is to highlight the repetitive problems "reminding one of déjà vu" (Özdemir, 2009). Turkish academicians point out the lack of adequate educational software, the low quality of in-service training for staff (i.e., teachers, administrators and inspectors), the lack of ICT integration in curriculum, and lack of financial, technical and pedagogical support to schools. The projects' budgets were not allocated in such a way that considered all the needs that make ICT use in educational contexts most meaningful. Instead, financial resources were spent primarily for hardware purchasing. During the data collection period in this study, one of the interviewees who was an academician and charged by MoNE as a manager for different projects stated that the purchasing and construction percentage in project budgets is 92% and just 8% is spent for other needs such as in-service training, curriculum development, and technical and pedagogical support in education projects.

Before large ICT integration projects were initiated, several scholars raised concerns about the lack of a plan that could address all the components needed for a successful integration process (Akkoyunlu, 1992, 1995; Özar, 1996). In Özar's research, fifteen policy makers of MoNE expressed that plans for ICT integration did not address curriculum integration, educational software, and teachers' qualifications for ICT use. According to Özar, the reason behind the lack of a successful integration plan was that policy makers did not understand ICT's importance for educational settings. Research studies conducted at different times showed that, due to poor planning, Turkish teachers had almost the same complaints and problems in successive years (Akbaba-Altun, 2006; Akkoyunlu, 1995; Kiliç & Özdemir, 2006; Usluel et al., 2007; Yildirim, 2007; Özdemir & Kiliç, 2007). All of the large projects allocated insufficient funding for staff training. Some of the teachers, principals, vice principals and inspectors were able to take computer literacy training, but no in-service training were supplied to them about the adequate methods or leadership/supervision for ICT use in educational contexts. Somyürek et al. (2009) suggest that training for educational staff should be ongoing and that integration plans should also consider long-term training sessions so that staff can apply newly-introduced skills.

Why does an organization repeat the same mistakes and have to reinvent the wheel in similar consecutive projects? A careful observation of ICT integration projects in Turkey and a review of relevant literature raise two questions:

- Is loss of organizational memory a factor causing the repeated mistakes in MoNE's large ICT integration projects?
- What kind of mechanisms does MoNE use to retain gained knowledge and experience in these projects?

This study aims to find out whether loss of organizational memory is a problem behind the repetitive problems such as lack of adequate educational software, the low quality of in-service training for staff, lack of ICT integration in curriculum, and lack of financial, technical and pedagogical support to schools in the scope of four large ICT integration projects (BEP I, BEP II, EFP I and EFP II) with regard to the aforementioned questions.

2. Organizational memory and its loss

Knowledge is a key asset for organizations. However, some organizations tend to forget and lose what they have done in the past and why they have done it – in short, they lose their knowledge and memory. This asset can be extended by capturing, organizing, disseminating, and reusing the knowledge created by its employees (Conklin, 1996). Kransdorff (1998, p. 35) defines the concept of organizational memory (OM) – sometimes called corporate memory – in his book "Corporate Amnesia" as the "learned product of group experience and the sum total of shared beliefs and knowledge":

> "Organizational memory is knowledge accrued from experience. It is the non-technical 'how' of doing things... Embedded in the personally held skills of individuals, it is the essence of being practical, ownership of which enables, for example, a good theoretician to also become a good practitioner. In terms of management, it would be described as corporate enterprise, the craft of entrepreneurship or the technique of being a good businessman. Its awareness provides the type of expertise that is simultaneously an organization's adhesive and lubricant that both keeps it together and allows it to operate smoothly and efficiently."

According to Walsh and Ungson (1991), OM is the accumulated information taken from an organization's history that can be used to make decisions in the future. Organizations are not able to make decisions efficiently without its previous knowledge. Being aware of how existing institutional knowledge was created guides an organization in creating more accurate new knowledge which is crucial for