Using ANT to Guide Technological Adoption: The Case of School Management Software

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ABSTRACT

In this article, the authors present the adoption and use of school management software in Victoria, Australia as an example of the use of actor-network theory to explain technological adoption. It examines three examples of school management software and identifies the actors and interactions relating to each of these. The use of three cases in the same environment provides an interesting insight possible by the comparison across the cases. The main goal of the article is to identify and analyse the factors that influence decisions to adopt this software and, once adopted, to determine how it might be used. Like other socio-technical research, in this case one has to consider the interactions between various human and non-human actors, and these are examined in the article. The article also looks at how an ANT analysis might be useful in guiding and facilitating such adoption in the future.

Keywords: Decisions to Adopt, School Management Software, Schools, Socio-Technical Research, Technological Adoption

INTRODUCTION

Technological inventions are of no value unless they are adopted. This is as much the case with computer-based school management systems as it is with tablet PCs and cable television. There is an old English proverb that says: ‘You can lead a horse to water but you cannot make it drink.’ A new technology will only be adopted if potential users make a decision to do so, and the adoption of any technological innovation, including a new Information System, occurs for a variety of very different reasons. These reasons can best be analysed by examining the adoption through the lens of innovation theory. In this article we will examine the adoption and use of school management software in schools in Victoria, Australia. This very much requires a socio-technical approach as there is a need to consider both the human actors, such as teachers, parents, and students and also various non-human actors including school computers, administrative software and the Internet. There are a number of models or approaches to the theorising of socio-technical innovation, but in this article we will make use of innovation translation (informed by actor-network theory).
SCHOOL MANAGEMENT SOFTWARE

For some time administrative computer systems in schools have been designed to meet the need to handle the large amount of data relating to individual students and student groups. This data is collected from many formal and informal sources including: student enrolments, observational surveys, early year interviews, running records, other formal testing and anecdotal notes (Tatnall & Tatnall, 2007). Other educational data relating to school and student performance is also important.

Australia is a federation of six states and two territories. The Commonwealth (Federal) Government is based in Canberra, but school education is the province of the State Governments. The Federal Government from time to time provides money for nationally significant education projects. As well as government schools in each state there is a significant private sector with private schools making up around 30% of the total.

In this article we will examine several computer systems for administrative use in schools in Victoria to investigate how they contribute to school community involvement (Davey & Tatnall, 2012, forthcoming). This analysis is facilitated by the fact that each of these systems is working in the same environment.

MySchool

A website recently designed by the Australian Commonwealth Government to inform parents and the community about all Australian schools (both government and non-government) is the MySchool website (Australian Curriculum Assessment and Reporting Authority, 2010). Early in 2010 the Australian Government launched this new e-government initiative (Gillard, 2010) that contains information about all of Australia’s ten thousand primary and secondary schools. (Although school education in Australia is a State responsibility, the Federal Government is also a significant actor in providing information and targeted grants to schools for specific projects.) The aim of the MySchool website is to allow parents to compare schools to which they may potentially want to send their children, or to see how their child’s school compares with other local schools. It includes information on the number of students and teachers at the school, the socio-economic background of the parents and an indication of how the school is performing in national literacy and numeracy testing (Davey & Tatnall, 2012, forthcoming). It provides information so that parents can compare their school (or potential school) with neighbouring schools and with sixty statistically similar schools (Gillard, 2010).

There has been a good deal of controversy about MySchool as some schools consider that they have been unfairly treated and that as a consequence they have lost potential students. Others have argued that the methodology for obtaining and showing the data is flawed (Figure 1).

CASES21

In the past, in a large centralised system such as the Victorian Education Department, keeping track of what schools were really doing was very difficult. In particular getting consistent financial data from schools when they each had their own accounting system was almost impossible (Birse, 1994). This is why CASES (Computerised Administrative Systems Environment in Schools) was introduced in the mid-1980s and mandated for use in all Victorian government schools. Whereas, previously each school was able to keep their own financial and student records in their own way, now they would have to use a common system provided by the Education Ministry. All Victorian Government schools now make use of the latest version, CASES21, for school management purposes including school administration and finance (Department of Education and Early Childhood Development, 2011; Tatnall, Michael, & Dakich, 2011) (Figure 2).

The Administration Module offers management facilities such as: storing student and family data, maintaining attendance records,
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