Chapter 7

Modelling the Adoption and Use of Internet Technologies in Higher Education in Thailand

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ABSTRACT

With a penetration rate of only about 13%, Internet usage in Thailand is lower than the world average, and is much less than the US and Australia where Internet penetration is over 70%. There are a number of approaches to modelling technology adoption, and this chapter describes a research project that modelled adoption of Internet technology by academics in Business Schools in Public Universities in Thailand. In the Internet adoption research outlined in this chapter, formulation of the research model was based mainly on TAM and its derivatives, survey methodology was used to collect primary data from academics in Thailand and analysis was performed using Structural Equation Modelling (SEM). The result was the generation of a research model: ‘The Internet Acceptance Model’ which demonstrates that only perceived usefulness, perceived ease of use and self-efficacy significantly influenced actual usage behaviour in this case.

SOME MODELS FOR TECHNOLOGY ACCEPTANCE

An important area of research in information systems is that of technology acceptance – the adoption and use of specific technologies. The research described in this article (Kripanont, 2007) involved coming up with a modified model to best describe the adoption of Internet technologies by academics in Business Schools in Thai Public Universities. Several models could have been used to investigate and explain technology acceptance, and the first step was to consider the theoretical perspectives of these in order to formulate the theoretical framework for this study. These technology acceptance theories are as follows.

1. Innovation-Diffusion comprises five functions or stages (Rogers, 1983, 1995): knowledge, persuasion, decision, implementation...
and confirmation. In the persuasion stage, five attributes that persuade an individual to adopt the innovation are: relative advantage, compatibility, complexity, trialability, and observability.

2. **Social Cognitive Theory**, by Bandura (1986), views: (a) personal factors in the form of cognition, affect, and biological events, (b) behaviour, and (c) environmental influences that create interactions that result in a triadic reciprocity.

3. The **Theory of Reasoned Action** (TRA) (Ajzen and Fishbein, 1980) postulates that beliefs influence attitude and social norms which in turn shape a behavioural intention guiding or even dictating an individual’s behaviour. Intention is the cognitive representation of a person’s readiness to perform a given behaviour, and is considered to be the immediate antecedent of behaviour.

4. The **Theory of Planned Behaviour** (TPB) was evolved by Ajzen (1985) from the Theory of Reasoned Action, with a third independent determinant of intention: perceived behaviour control (PBC).

5. The **Decomposed Theory of Planned Behaviour** (DTPB) (Taylor and Todd, 1995b) suggests that behavioural intention is the primary direct determinant of behaviour. Nevertheless the original three core constructs still exist and include attitude toward behaviour (ATB), subjective norm (SN), and perceived behaviour control (PBC) as first introduced in TPB.

6. The **Technology Acceptance Model** (TAM) was developed from TRA by Davis (1989). This model used TRA as a theoretical basis for specifying the causal linkages between two key concepts: perceived usefulness and perceived ease of use, to users’ attitudes, intentions and actual computer usage behaviour. Behavioural intention is jointly determined by attitude and perceived usefulness, while attitude is determined by perceived usefulness (PU) and perceived ease of use (PEOU), replacing those from TRA. The goal of TAM is to provide an explanation of the determinants of computer acceptance that is in general capable of explaining user behaviour across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified. But because it incorporates findings accumulated from almost two decades of IS research, it may be especially well-suited to modelling computer acceptance (Davis, Bagozzi, and Warshaw, 1989).

7. In 1995 Taylor and Todd developed the model called **Augmented TAM** or **Combined TAM and TPB** by adding two factors: subjective norm and perceived behavioural control to TAM to provide a more complete test of the important determinants of IT usage, because of their predictive utility in IT usage research and their wide use in social psychology (Taylor and Todd, 1995b).

8. Venkatesh and Davis (2000) later developed **TAM2**. Their goal was a theoretical extension of TAM to: (1) include additional key determinants that explain perceived usefulnes and usage intentions in terms of social influence and cognitive instrumental processes and (2) to understand how the effects of these determinants change with increasing user experience over time with the target system.

9. The **Unified Theory of Acceptance and Use of Technology** (UTAUT) (Venkatesh, Morris, Davis, and Davis, 2003) introduced four core determinants (performance expectancy, effort expectancy, social influence and facilitating conditions) of intention and usage, and up to four moderators (age, gender, experience and voluntariness of use) of key relationships.
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