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Social cognitive theory in technological innovations

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Abstract :

Purpose – The aim of this paper is to understand the behavior that Australian youths have towards wireless application protocol (WAP) banking.

Design/methodology/approach – This paper is based on a quantitative study of the youth market in Australia. Social cognitive theory is utilized to support a conceptual model that is empirically tested.

Findings – The major finding from the research is that the conceptual model is partially supported which indicates the immaturity of WAP technology.

Originality/value – Social cognitive theory provides a useful explanation for youth's intentions to use WAP technology in the banking industry. The youth market is an early adopter of technology that presents a good indicator of future market potential.

Keyword(s): Electronic commerce; Innovation; Virtual banking; Young adults; Australia.
Journal:

Introduction and background to research

In the marketing and technology literature, previous research has highlighted the growth and emergence of the mobile commerce (m-commerce) industry (Shane and Ulrich, 2004; Xie and Johnston, 2004; Kodoma, 2005). M-commerce combines electronic commerce (e-commerce) with mobile phones so that businesses and consumers can conduct transactions through mobile phones. Most people in industrialized countries have mobile phones so there is an immense market opportunity for m-commerce. The m-commerce industry has been largely dependent on the internet, with the internet revolutionizing channel management and thereby enabling businesses and consumer's access to more products and services (Wymbs, 2000). The potential of m-commerce is immense and the retail industry is increasingly reliant on e-commerce. WAP enables individuals to utilize e-commerce applications such as the internet to pay a bill through a mobile device such as their mobile phone. This paper highlights the importance of m-commerce in the banking sector with specific references to the youth market.

The banking industry is an example of an industry that has been revolutionized by the emergence of the internet and e-commerce. Banks are increasingly using e-commerce and m-commerce as it allows them to have a generic low cost marketing strategy. Banks now compete on a global scale as more of their products and services are automated (Takac, 1997), and they have refocused their marketing strategies to align themselves with new technology developments (Hall *et al.*, 1999). Particularly important for the banking industry and for both consumers and businesses is the electronic payment system which has allowed

money to be automatically withdrawn or deposited into a bank account (National Office for the Information Economy, 2001a).

Seitz and Stickel (1998) propose that the internet can be utilized in banks for information presentation, information communication, interaction with the user and transaction banking information presentation is widely used by banks as an advice mechanism for those businesses and consumers who want information on certain products and services. Information communication in banks is often in the form of e-mails between the bank and both consumers and other businesses. Interaction with the user is combining customer data with banking facilities and needs, whilst transaction banking is enabling payments to occur via the internet. This paper proposes that WAP banking encompasses Seitz and Stickel's (1998) internet applications and is guided by three main trends that have been occurring in the banking industry with regards to e-commerce and m-commerce. Firstly, there is an increasing use of electronic delivery of bank services and products (Australian Bureau of Statistics, 2001). Secondly, there is an increasing acceptance by consumers of e-commerce and online business activities. Thirdly, there is the emergence of WAP technology together with the growth of mobile phone products. This paper examines these trends through an examination of the youth market which has a high usage of mobile phone technology.

The youth market which has access and knowledge of new technology is an early adopter of new technology. New technology such as WAP technology can be internalized into youth's lifestyle. Hence, the youth market is a good adopter of the technology changes that occur in the m-commerce industry. In this paper, the youth market is defined as being 18-29 years old (OECD, 2001). In the marketing literature, the youth market seems to be under researched in terms of their behavioral intentions to adopt technological innovations. Major studies in the marketing literature on behavioral intentions relate to alcohol and cigarette consumption (Garlington and Derrico, 1977). Current research highlights that the youth market are innovators (Yankee Research Group, 1999) and early adopters in the banking industry of electronic distribution mediums (National Office for the Information Economy, 2001c). The focus of this paper is on youth's attitudes and intentions to utilise WAP technology in the banking industry with the theoretical framework being social cognitive theory. Thus, the research question is:*RQ1*. What are the factors that influence youth's intention to use WAP banking services? The structure of this paper will be as follows. First, the different theories that can explain behavioral intention are discussed and social cognitive theory adopted as the theoretical framework. Next, the conceptual model is explained and justified through adapting a pre-existing model to suit the m-commerce and banking industry. The quantitative methodology is then discussed and the findings from the analysis conducted are examined. Finally, implications for practitioners and suggestions for future research are discussed.

Literature review

The literature on behavioral intention can be divided into two types of learning models: behavioral and cognitive. Behavioral learning models are based on the premise that observable behavior takes place as a response to specific external stimuli which signals that learning has taken place whilst cognitive learning models involve a degree of problem solving which occurs before the response to the external stimuli has occurred (Schiffman and Kanuk, 2000). Cognitive learning models are adopted in this paper as the theoretical foundation to explain behavioral intention in the technology context as they enable human beings to influence their consumer environment through acknowledging that learning

involves processing a large amount of information and is not always a direct response to external stimuli.

Cognitive learning models include the theory of reasoned action (TRA), the theory of planned behavior (TPB), the technology acceptance model (TAM) and social cognitive theory. The TRA was first proposed by Fishbein and Ajzen (1975) and is a widely validated intention model that explains and predicts behavior (Chan and Lu, 2004). TRA proposes that an individual will be influenced by their own attitudes and other peoples attitudes of what they think they should do (Chan and Lu, 2004). However, TRA has been criticized as not adequately explaining when behavior is not under an individual's control (Chan and Lu, 2004). Thus, to deal with the criticism of TRA, TPB was proposed by Ajzen (1985) to include behavior that is not under volitional control. TPB is limited in its predictive ability as it assumes that behavior is pre-planned and not subject to change (Mathieson, 1991). The TAM was first proposed by Davis (1989) and is an adaptation of the TRA to explain the acceptance of information systems though modeling user acceptance (Chan and Lu, 2004). TAM includes two important beliefs of perceived usefulness and perceived ease of use (Venkatesh and Davis, 1996). A criticism of the TAM is that it does include antecedent factors that affect perceived usefulness and perceived ease of use (Chan and Lu, 2004). The TAM model has now been extended to include usage intention through social influence processes and cognitive instrumental processes (Venkatesh and Davis, 1996). However, TAM has been criticized for its simplicity which decreases the comprehensive understanding of behavior intention (Taylor and Todd, 1995). Social cognitive theory in contrast to TAM acknowledges the complex nature of behavior intention which is influenced by the reciprocal interaction between the environment in which an individual operates and their behavior (Bandura, 1986). Thus, in this paper social cognitive theory is adopted as it involves an encompassing analysis of behavioral intention as compared to the other cognitive learning models.

Social cognitive theory is built upon the foundations of individual and group psychological behavior, and is also referred to as social learning theory (Pincus, 2004). Social cognitive theory is a widely accepted model of individual behavior (Chan and Lu, 2004) as it examines the reasons why individuals adopt certain behaviors (Bandura, 1986). It proposes that behavior is evaluated through an individual's expectation of the outcome of their behavior, expectation of their direct experience and can be mediated through the observations of others (La Rose and Eastin, 2004). Thus, the major premise of social cognitive theory is that individuals can influence their actions (McCormick and Martinko, 2004).

Social cognitive theory has been utilized in a number of disciplines due to its dynamic nature as it considers human behavior to constantly change (Kock, 2004). It has been applied in business through the analysis of organizational management (Wood and Bandura, 1989), task complexity (Bolt *et al.*, 2001) and technological innovation adoption (Compeau *et al.*, 1999). The rapid changing technological environment has meant that social cognitive theory is a useful theoretical framework to understand human behavior. Social cognitive theory emphasizes that the adoption process of technology involves encouraging individuals to ensure that they will have the requisite skills and confidence to use a new or existing technology (Compeau *et al.*, 1999).

Conceptual model

The model in this study is based on a model proposed by Sheeshka *et al.*'s (1993) of social cognitive theory. Sheeshka *et al.*'s (1993) model examined nutritional eating behaviors of individuals by stating that media, modeling, outcome values, outcome expectations and self-efficacy are independent variables that influence intention. In this paper, it is proposed that these same variables can also explain intention to use WAP technology as these variables also explain the factors that explain why individuals utilize a new technology. For example, the media in the form of magazines and television will advertise the health benefits of certain foods and also the benefits of using a new technology. Also, in terms of modeling, individuals are more likely to eat more nutritionally if they see a celebrity eating nutritionally and also more likely to use a mobile phone if they see a celebrity using a mobile phone. Therefore, the variables utilized by Sheeshka *et al.* (1993) are supported by other researchers who have examined social cognitive theory (Bussey and Bandura, 1999; Langlois and Hallam, 1999; Van Vianen, 1999). This study adapts Sheeshka *et al.*'s (1993) model to suit the context of this study to examine behavioral intentions of individuals to use WAP banking.

The outcome of the model is the ability to explain the intention to adopt WAP banking in the Australian youth market. The model is consistent with the foundations of social cognitive theory in that individuals acquire new ideas and knowledge of new practices from their environment, through the media and by observing other people (Bandura, 1986). In addition to external stimulus, individuals also resort to internal stimuli (outcome values, outcome expectancy or self-efficacy) that influence cognition and behavioral intention (Bandura, 1986). Figure 1 shows the conceptual model adopted in this study, and the next section discusses each of the variables and the relationships between the variables in the model.

Constructs

Media

Media is defined as communication that is spoken or written that acts as an information source. The media can raise the awareness of products and services, and act as a trigger for a desired behavior (Rice and Bennet, 1998). Research has shown that high levels of media consumption affects the decision making process (Guernica, 1982; Kaufman, 1991). The youth market is heavily influenced by the media (O'Bannon, 2001) and is influenced by advertising communication (Jeffres and Atkin, 1996). Advertising can be communicated through the media in a variety of ways including the television, internet and newspapers. The more advertising on WAP banking that exists in the marketplace, the more likely it is that youths will see and learn about WAP banking. Hence, this leads to the first hypothesis which is:*H1.* The greater a youth's exposure to WAP banking in the media, the greater will be their stated intention to use WAP banking.

Modeling

Modeling is defined as copying or imitating another person's actions (McCormick and Martinko, 2004). Modeling facilitates the development of consumer and behavioral expectations about a product or service. This can be rationalized through an individual's pervasive desire to share their consumption habits indirectly with other people and the significant impact this information has on behavioral intentions (Herr *et al.*, 1991). Modeling illustrates the ability for product outcomes to be experienced vicariously by others and therefore has a significant impact on future consumption decisions (Celsi *et al.*, 1993). It is possible that seeing others use WAP technology may similarly influence youths toward

adopting such a service. Therefore, the second hypothesis is:*H2.* The more exposure a youth has to others engaging in WAP banking, the greater their intention to use WAP banking services.

Outcome expectancy

Outcome expectancy is defined as what outcomes an individual believes will happen from doing a certain action (Bandura, 1986). Henry and Stone (1999) found that outcome expectations do influence behavior by finding that a higher score on outcome expectancy equates to a higher level of use of information technology. This result is consistent with Bandura's (1986) findings that outcome expectations influence performance as well as choice. It is therefore hypothesized that:*H3.* There will be a significant positive relationship between youth's expectations of the outcomes of WAP banking and their intention to use WAP banking.

Self-efficacy

Self-efficacy is the ability that an individual has to do a certain action (Bandura, 1986). Eden (1992) indicated that increases in self-efficacy improve initiative and persistence, which lead to improved performance. Wexler (2001) also concluded that an important factor in user acceptance is the relevance of the system to an individuals self belief. Furthermore, Bolt *et al.* (2001) examined task complexity in computer training and included computer self-efficacy as an antecedent to task complexity. Bolt *et al.* (2001) found that computer self-efficacy has a greater positive effect on performance when task complexity is high than when task complexity is low. Therefore, it is hypothesized that:*H4.* Higher levels of self-efficacy will have a significant influence on intention to use WAP banking among youths.

Outcome values

Outcome values are defined as the value an individual places on the outcome of an action (Bandura, 1986). The role of outcome values has been examined predominantly in research into attribution theory. Attribution theory describes how people make causal inferences and what consequences arise because of this cognitive activity (Flokes, 1988). Developments in attribution theory further explain the valuation process in division making. Attribution theory has demonstrated that consumers often rely on memory for the generation of alternatives for behavioral consideration and intensity, and as a result place values on certain outcomes (Alba and Chattopadhyay, 1985; Nedungadi, 1990). Outcome values as a predictor of behavior have become an important variable to consider (Weiner, 1985). Furthermore, outcome values help predict the consumer's attitudes and purchase intentions (Folkes, 1984). Earlier research by Howard and Sheth (1969) also supports Bandura (2001) as they believe an outcome valuation orientation leads to a consumer forming some criteria or framework to guide them in adopting a product or service. Therefore, the next hypothesis is:*H5.* The greater the outcome value, the greater the intention of youths to use WAP banking.

Methodology

In measuring intention to use WAP banking, this study is based on a cross-sectional time frame. The ability to conduct a longitudinal analysis of intent to use internet banking imposed restrictions on the researcher in the effective delivery of the study. Furthermore, the underlying research problem and purpose of the study seeks to identify the roles of the

variables involved in intention to use WAP banking and the behavioral intention of Australian youths toward WAP banking. As a result, the time dimension deemed most beneficial was that of a cross-sectional study. In order to measure intent and the role of the variables, the topical scope of the study was of a statistical nature. As opposed to the case study approaches and other associated qualitative methods, such as focus groups and in-depth interviews, the statistical and quantitative approach allowed a greater section of the population to be covered. This increased the representation of the population and, as indicated by the hypotheses and research problem, the purpose of the study was to identify roles of the variables discussed in the model. The variables are consistent with emerging academic and managerial questions relating to e-commerce and its emerging sub-paradigm m-commerce and are embedded in applied psychological behavioral models. This is evident in consumer behavior studies, relating to e-commerce by various governmental bodies (e.g. The National Office for the Information Economy, Australian Consumer Competition Commission and the Organization for Economic Cooperation and Development) and marketing bodies (e.g. the American Marketing Association) that have conducted scientific studies on consumer behavior across a range of marketing aspects.

In order for replication, representation and validity to hold, the decision was made to incorporate a sample population from youths in the Brisbane metropolitan area of Australia. This involved a field setting as opposed to a laboratory scenario, allowing for a larger sample to be used. A laboratory setting was deemed to be unnecessary given the nature of the hypotheses and the data required (Malhotra *et al.*, 1996). A 5 page questionnaire was administered which included pre-existing scales which are included in Table I with their reliability scores. The behavioral intention scale is adapted from Fishbein and Ajzen (1975) and Ajzen and Fishbein (1980). The behavioral intention scale has been used by Shimp and Sharma (1987) who reported a Cronbach α score of 0.84 and Homer (1995) who reported a Cronbach α score of 0.97. The behavioral intention scale is a seven point semantic differential scale. The media scale is adapted from Sheeshka *et al.* (1993) who reported a Cronbach α score of 0.76. The media scale is a five-point Likert scale from strongly disagree to strongly agree. The modeling scale is adapted from Sheeshka *et al.* (1993) who reported a Cronbach α score of 0.90. The modelling scale is a five-point Likert scale ranging from never to always. The outcome expectancy scale is adapted from Malaviya *et al.* (1996) who reported a Cronbach α score of 0.84. The outcome expectancy scale is a nine-point semantic differential scale. The self-efficacy scale was adapted from Jones (1986) who reported a Cronbach α score of 0.71. The self-efficacy scale is a five-point Likert scale from strongly disagree to strongly agree. The outcome value scale is adapted from McQuarrie and Munson (1992) who reported a Cronbach α score of 0.95. The outcome value scale is a five-point semantic differential scale.

The sample comprised 203 Australian youths between the ages of 18 and 29 years old attending one of Brisbane's major metropolitan universities in Australia. This approach was chosen for three reasons. First, the respondents from the university making up the sample were deemed to be representation of the population of Australian youths. Second, this process allowed a simple and straightforward ability to reach sample members of the population. Other sampling procedures such as mail or telephone techniques were considered, however, they were rejected based on the timeliness and cost of such methods. Furthermore, a personal approach to conducting a survey has been shown to elicit a higher response rate (Yu and Cooper, 1983).

Out of the 203 respondents, 105 were from males and 98 were from females. The weighting of this sample equates to an almost equal distribution between males and females. This indicates that there will be a minimal effect from gender bias. The sample had approximately 75 per cent of the respondents being under the age of 23. This was expected for a student sample and fulfils the representation requirement for the youth population. Approximately, three quarters of the respondents in the sample earned AUD $20,700 or less per annum.

The data were analyzed through statistical techniques including factor analysis and ANOVA analysis. A three-way ANOVA with two mediating variables was used to test the model. The two levels identified for the three independent and two mediating variables were high and low scores compared to the statistical mean. ANOVA was chosen in favor of other statistical methods as it has the advantage of examining the effects of several independent variables manipulated simultaneously whilst offering a greater level of sensitivity (Keppel, 1991). The ANOVA technique allowed the study to make one overall comparison and therefore reduce the problem of an increased type one error that would result from a regression analysis (Pagano, 1994; May *et al.*, 1991). Furthermore, any interactions between independent variables will become evident through the use of ANOVA. As a result, the study was able to increase its comparative statistical power.

The reliability of the scales used was measured by Cronbach's α and these scores are reported in Table I (Nunnally, 1978). Outcome expectancy was the only variable below the recommended level of 0.6 which prompted the use of factorial analysis to analyze whether more than one dimension was used and to increase the Cronbach α score. The factor analysis which can be seen in Table II found two statistically dominant factor groups which were confirmed with reliability scores for each group. However, outcome expectancy scale question 2 (O.Expect 2) was removed from the first dominant group as espoused by Spector's (1992) item-total correlation which then resulted in a higher reliability score.

Results

The results of the analysis are illustrated below in Table III. Only a portion of the model was supported at the 0.05 statistical probability level. As depicted in the conceptual model, the variables: media exposure, modeling of others, outcome expectancy, self-efficacy and outcomes values were proposed to influence the behavioral intention of Australian youths to use WAP banking. *H2*, *H3* and *H4* were rejected. However, *H1* and *H5* were not rejected. The results therefore indicated support for the effect that media has on behavioral intention toward WAP banking and a mediating effect by outcome values. The findings demonstrate that Australian youths are influenced by media exposure and outcome values. The other variables depicted in the model (modeling of others, outcome expectancy and self-efficacy) were found to be statistically insignificant. Possible explanations for the statistical insignificance of the other variables include that outcome values may indeed incorporate modeling of others and outcome expectancy. The next section will discuss the results of each construct.

Modeling of behaviors related to product or services usage has long been discussed in the marketing literature and is closely related to the concept of observability (Rogers, 1995). The major premise of modeling is that people learn their behaviors by watching other people (Bandura, 1986). This has been supported in a number of marketing studies (Mizerski, 1982) and is an important source of information according to social cognitive theory. Australian youths were found not to be influenced by other people, in the form of modeling or

observability, when making a decision regarding usage of WAP banking. This result is inconsistent with the behavioral intention literature and may imply that Australian youths are more introspective when making usage decisions about WAP services. However, a more persuasive justification may be that WAP technology and its services are not presently utilized by partners, relatives, friends or social contacts. This would be due to the immaturity of WAP banking in the Australian financial services market.

Outcome expectancy measured the consequences individuals perceive will occur as the outcome of an intended or unintended behavior. Bandura (2001) argued that outcome expectancy linked with media and modeling as information sources affect the decision process. In this respect, Australian youths would formulate outcome expectations based on information received from others. Some researchers (Henry and Stone, 1999) support the notion that behavior is influenced by outcome expectancy. However, Godding and Glasgow (1985) argued that behavior was not predicted well by outcome expectancy. This study was of the view that behavioral intention to use WAP banking would be dependent on Australian youth's outcome expectancy. However, both dimensions of outcome expectancy were rejected in the statistical analysis as having an effect on behavioral intention. This result is not completely contradictory of the marketing literature that supported outcome expectancy as a predictor of behavioral intention. Bandura and Adams (1977) also found outcome expectancy not to be an antecedent to behavioral intention in some instances. In the instance of this study, Australian youths may not have developed outcome expectations regarding WAP banking. This may be so given that youths are still obtaining information about WAP banking. Therefore, it would appear possible to presume that based on the low exposure to WAP banking, that youth's are yet to develop expectations relating to the use of WAP banking and are therefore not influenced by outcome expectancy at this stage of the development of WAP banking.

Self-efficacy's role in this study was through the use of WAP banking. Self-referent thought has long played an important role in other models of individual behavior. Miniard and Cohen (1983) and Fishbein and Ajzen (1975) are both advocates of the role of self-efficacy in influencing behavior and as a result have incorporated this construct into their models of behavior. It was hypothesized in this study that higher levels of self-efficacy would lead to an increased intention to use WAP banking among youths. Contrary to marketing literature and social cognitive theory the role of self-efficacy in influencing behavioral intention was rejected at the 0.05 probability level. A possible resolution to this statistical effect may lie in the rapid diffusion of technology into the lifestyles of Australian youths. In this regard a plausible reason may be that assimilation of technology into youth's lifestyles is seen to be a common occurrence and not a large obstacle. This is demonstrated through Bolt *et al.*'s (2001) study of task complexity. Bolt *et al.* (2001) examined task complexity in computer training and found that computer self-efficacy has a greater positive effect on behavior when task complexity is high than when task complexity is low. Australian youths have both a high level of experience with the Internet and mobile phones (Australian Bureau of Statistics, 2001). High use of the internet and mobile phone usage may infer that using WAP banking has a low level of task complexity for Australian youths, and therefore intention to use WAP banking is not dependent on self-efficacy.

The role of outcome values appears to have a strong influence on the decision to use WAP banking. Outcome values were also seen to possibly encompass and account for a broad spectrum of behavioral decisions inclusive of other independent (outcome expectancy) and mediating variables (self-efficacy). Hypothesis five stated that the greater the outcome value,

the greater the intention of youths to use WAP banking. The ANOVA results showed a probability level of 0.00. Therefore, outcome values was supported and not rejected at the 0.05 statistical inference level. In the case of WAP banking, respondents may foresee benefits or advantages associated with WAP banking and evaluate these. This may be done at an aggregate level (i.e. Will WAP banking benefit me?) or a singular level (i.e. WAP banking offers me lower transaction costs). The ANOVA also revealed interaction between outcome values and media. The data indicated a significant relationship between media and the perceived outcome values (aggregate or singular), as influencing the intention to use WAP banking. It would be possible to infer from this that media exposure that links a perceived value of the WAP banking service would entice Australian youths to use WAP banking. This reinforces the position that media acts as an information source for Australian youths.

Further logical developments may be inferred about the role of outcome values. Even though outcome expectancy and self-efficacy were found to be statistically insignificant it may be possible to intuitively infer their presence in outcome values. Outcome expectancy and self-efficacy were both statistically rejected in the data analysis. This was so even though they both appeared to be sound variables supported by:

- marketing literature; and
- social cognitive theory literature.

It may be the case that Australian youths engaging in WAP banking intuitively predict outcome expectations. Self-efficacy as well, may be viewed similarly as Australian youths also intuitively assign an outcome value to a behavior according to whether they believe that they can possess that behavior.

Innovators have a higher exposure to media than non-innovators (Sheth *et al.*, 1999; Naples, 1979; Ephron, 1995). It was hypothesized in this study that media exposure influences behavioral intent (Kaufman, 1991). The results supported the hypothesis that the use of the media would lead to an intention to use WAP banking by Australian youths. In considering the influence on behavioral intention, the study specified that media applied to the concept of exposure to WAP banking. This would mean that any form of exposure in the media to WAP banking and WAP technology would act to influence behavior.

Implications and suggestions for future research

Australian youths were found not to be influenced by other people in the form of modeling when making a decision about WAP banking. This finding has strong implications for the banking industry in terms of how they market their products. It may be better for banks to promote WAP banking through media outlets such as the newspaper and television rather than relying on word of mouth. The result of the youth market being not influenced by others may mean that Australian youths are more introspective when choosing and making decisions about WAP services. An important implication from this study could be that WAP technology is still very much in its infancy. This means that WAP technology is not being used at the present time by many other people and it will take time for consumers to adapt to the technology.

In this study, the findings demonstrate that Australian youths probably have not developed outcome expectations about WAP banking. This means that the banking industry has much influence on the exposure of WAP banking to the youth market. The youth market is still

obtaining information about the usages and benefits of WAP banking as there was support from the data showing that the media does influence behavioral intentions. New technology such as WAP banking is emerging and being utilized by the youth market. Australian youths have a high level of experience with mobile phones and the internet (Australian Bureau of Statistics, 2001). Hence, m-commerce will significantly impact the youth market and the banking industry.

The research conducted in this study is primarily exploratory in nature as it tries to examine whether there is a relationship between social cognitive theory and WAP banking intention. The sample was based on a convenience sample hence generalizability of the results may be limited to an extent. Also, the variables included in the conceptual model are not exhaustive and there may be others such as experience that affects behavioral intention. This study examined social cognitive theory and some other theories such as the TAM model may be better predictors of behavioral intentions of the youth market to use WAP technology in the banking industry.

This research contributes to the body of marketing knowledge in two dominant areas. The first contribution is to the development of a social cognitive framework and its application to marketing. Prior behavioral studies in marketing have tended not to use a social cognitive framework but instead use other models of behavioral intention. The main difference as espoused by the literature review was that social cognitive theory attempts to model actual behavior outcomes as against intended behavior. The use of social cognitive theory may prove to be a valuable tool for future marketing scholars as a means of explaining behavioral intentions.

The study further contributes to extending the development of understanding of youths in particular the Australian youth market. Marketing studies have provided support for the innovativeness of a younger demographic age group and identify the group as early adopters or innovators (Curry, 2001). The development of this research contributes to the existing literature through its attempt to identify the roles of different variables that may support a youth's decision to adopt products or services. In this regard, the study supported the role and implications of media exposure and advertising campaigns in the ability to deliver information and influence adoption. Furthermore, the intention to use WAP banking was influenced by the youths inert value system placed on the perceive outcome of a new product or service.

Emerging communication mediums would appear to be fundamental to the development of the information economy (Khan and Ghani, 2004). Marketers operating in this spectrum are faced with rapidly developed products and services and a shorter product lifecycle (Markham *et al.*, 2005). The research conducted seeks to develop the understanding of behavioral intentions and adoption decisions in this environment. However, the sample frame and topic of the study limit the managerial implications to an Australian youth market with reference to WAP banking. It is possible to draw implications that extend to WAP technology however such implications may be done so only at a tentative level.

Banks and mobile phone companies would benefit most from this study through the knowledge that Australian youths are strongly influenced by their exposure to WAP products and services and their applied products and services in the media. This would mean that promotion of WAP banking and WAP technology would be justified as enticing Australian youths to use WAP banking or WAP technology. Furthermore, the development of an

advertising campaign to induce media exposure would also be more persuasive if it were able to draw a link with the perceived outcomes of a new product or service.

This study also found that Australian youths were influenced by outcome values they placed on a new product or service. Banks and mobile phone companies' knowledge of the role of outcome values would aid the design of the product or service. For example, Australian youths may value time saving functions when considering adopting WAP banking or WAP mobiles. As a bank or mobile phone company the ability to incorporate this attribute would as indicated by the statistical analysis influence Australian youths to adopt WAP banking.

The timing of this study with relation to the introduction of WAP technology and WAP banking services would appear to direct the focus of future research. Aspects of the questionnaire asked for responses that may not have occurred. This means that in order to gain a more complete understanding of the application of social cognitive theory in predicting behavioral intention the study would be better positioned after the adoption of WAP banking or technology. In conducting a post-hoc study utilizing the same framework, outcome values may also need to be reassessed. An understanding of outcome values was only done at an aggregate level for Australian youths. In this regard future research may be directed at understanding the value system that exists in Australian youths and differentiating the roles that outcome expectancy and self-efficacy may have in the analysis of outcome values.

There are many directions that future research can take in relation to the findings from this research. Most importantly for the banking industry is how to market WAP banking to the youth market. More research is needed to examine in-depth the behavioral intentions of the youth market. As suggested in this research, perhaps there are a number of variables that can influence the behavioral intentions of the youth market. Hence, semi-structured interviews and focus groups could provide some further insight into these behavioral intentions. The m-commerce and e-commerce industries are quite new which means that new and existing theories need to be applied in these industries to see whether they are applicable. This study also having been conducted on Australian youths needs to be generalized to other international settings to see whether culture has an impact on behavioral intentions of the youth market.

This paper has examined the field of e-commerce and m-commerce. The rationale for conducting the study was examined in the context of the youth market and m-commerce. Social cognitive theory was examined which led to the development of a conceptual model that examined the behavioral intentions of Australian youths to adopt WAP technology in the banking industry. Findings of the study were discussed and then examined in the context of implications for new and existing theory. Future research directions were highlighted which show that there are many exciting new directions stemming from this research that need to be undertaken both by academics and managerial practitioners.

Conceptual Model
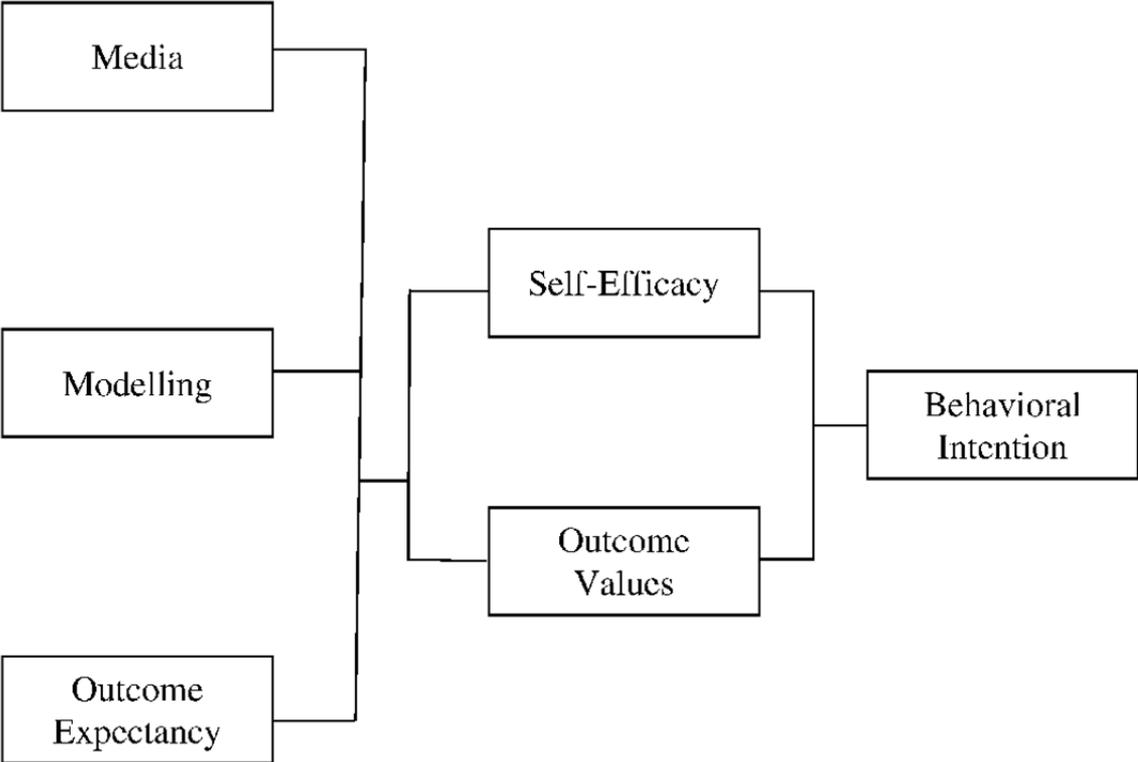
Source: Adapted model from Sheeshka, Woolcott and MacKinnon (1993)

*Figure 1*Conceptual model

Construct	Items
Media $\alpha = 0.80$	Magazine articles and ads suggest that people should use WAP technology TV ads for WAP technology persuade me to try this service I usually ignore advertisements for WAP technology The advertisements I see for WAP technology make it appealing to me Newspaper and magazine stories about WAP technology catch my attention Magazines I read suggest that WAP technology is an important part of today's lifestyle I don't pay attention to newspaper and magazine stories about WAP technology Magazine and TV ads showing WAP technology make such a service appealing to me I usually ignore TV advertisements for WAP technology Ads in magazines and on TV about WAP technology have some influence on the mobile phone I select The advertisements for WAP technology make me interested in trying this service
Outcome expectancy $\alpha = 0.88$	What are your expectations about WAP banking? Bad-good Dislike-like Not convenient-convenient Not superior-superior Few unique features-many unique features Difficult to use-easy to use Poor service quality-good service quality Will not product good benefits-will produce good benefits Low performance product- high performance product Lacks important benefits-offers important benefits
Outcome values α Oexpect 1 $= 0.80$ α Oexpect 2 $= 0.75$	To me, using WAP banking is: Important-unimportant Of no concern- of concern to me Means a lot to me- means nothing to me Matters to me – does not matter to me Boring-interesting Unexciting-exciting Appealing-unappealing Fun-not fun Says nothing about me- says something about me Tells me about a person-shows nothing about a person
Self-efficacy $\alpha = 0.84$	WAP banking is well within the scope of my abilities I did not experience any problems in adjusting to mobile phone technology I feel that I am capable of using WAP banking I have all the technical knowledge I need to deal with WAP banking; all I need now is practical experience I feel confident that my skills and abilities equal or exceed those of my colleagues My past experiences and accomplishments increase my confidence that I will be able to perform successfully in using WAP banking I could handle a more challenging technological innovation than WAP banking My technical skills satisfy my expectations of myself
Modeling $\alpha = 0.91$	How often do you see the following people use WAP technology? Partner/boyfriend/girlfriend Friends Colleagues Family members/relatives People in the media
Behavioral intention $\alpha = 0.95$	Rate the probability that you would use WAP banking: Unlikely-likely Nonexistent-existent Improbable-probable Impossible-possible Uncertain-certain Definitely would not use-definitely would use

Table I Scale items

	1	2	3
O.Expec1	8.4881×10^{-1}	-6.8939×10^{-2}	7.5984×10^{-2}
O.Expec2	4.3209×10^{-1}	-2.4470×10^{-2}	-2.0320×10^{-1}
O.Expec3	8.5501×10^{-1}	-8.1852×10^{-2}	-1.0230×10^{-1}
O.Expec4	8.9137×10^{-1}	3.2180×10^{-2}	-8.6497×10^{-2}
O.Expec5	7.5511×10^{-1}	-9.8515×10^{-2}	-1.1685×10^{-1}
O.Expec6	2.5444×10^{-1}	-8.5424×10^{-2}	6.4090×10^{-1}
O.Expec7	2.5977×10^{-1}	5.4431×10^{-1}	-8.0042×10^{-2}
O.Expec8	7.1732×10^{-3}	8.3518×10^{-1}	8.2961×10^{-2}
O.Expec9	5.7861×10^{-2}	9.9462×10^{-1}	6.2798×10^{-3}
O.Expec10	1.8794×10^{-1}	8.4117×10^{-3}	7.0697×10^{-1}

Table II.
Factor analysis: outcome expectancy rotated component matrix component

Note: $N = 203$

Table II Factor analysis: outcome expectancy rotated component matrix component

Source	Type 3 SS	df	Mean square	F	Sig
Corrected model	131.87	15	8.791	5.121	0
Intercept	62.024	1	62.024	36.13	0
SESUM	3.12	1	3.12	1.817	0.179
OVALSUM	25.017	1	25.017	14.573	0
MEDIAHL	37.401	1	37.401	21.787	0
MODHL	0.138	1	0.138	0.08	0.777
OESG1HL	5.09	1	5.09	2.965	0.087
OESG2HL	2.608	1	2.608	1.519	0.219
MEDIAHL*MODHL	16.433	1	16.433	9.572	0.002
MEDIAHL*OESG1HL	5.41	1	5.41	3.152	0.077
MODHL*OESG1HL	0.537	1	0.537	0.313	0.577
MEDIAHL*MODHL*OESG1HL	5.573	1	5.573	3.247	0.073
MEDIAHL*OESG2HL	2.325	1	2.325	1.354	0.246
MODHL*OESG2HL	2.43×10^{-2}	1	2.43×10^{-2}	0.014	9.05×10^{-1}
MEDIAHL*MODHL*OESG2HL	2.58	1	2.58	1503	0.222
OESG1HL*OESG2H	1.553	1	1.553	0.905	0.343
MEDIAHL*OESG1HL*OESG2HL	0	0	0	0	0
MODHL*OESG1HL*OESG2HL	1.541	1	1.541	0.898	0.345
MEDIAHL*MODHL*OESG1HL*OESG2HL	0	0	0	0	0
Error	317.59	185	1.717		
Total	4343.167	201			
Corrected total	449.46	200			

Notes: $R^2 = 0.293$, adjusted $R^2 = 0.236$

Table III.
ANOVA analysis
dependent variable: BISUM

Table III ANOVA analysis dependent variable: BISUM

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