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VIRTUAL ENVIRONMENT BEHAVIOURS: A CASE FOR CULTURE INCLUSION IN EXISTING INFORMATION SYSTEMS THEORIES

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Abstract: In this paper we present a case for culture to be incorporated as a major construct in existing behaviour dependent IS research theories relevant for investigating virtual environment behaviours. We identify these theories and examine its previous use within IS researches. We argue that culture with regards to information systems should be seen as primary identifier, identifying behaviour unique to certain groups of people thus its importance in IS theories particularly those aimed at predicting virtual environment behaviours.

1. Introduction.

Information systems like any other research field is characterised by its own research theories covering a wide variety of issues. Many authors including (Tatnall and Gilding, 1999), (Achterberg et al., 1991, Hirschheim, 1992, Nissen et al., 1991) have argued for a shift in IS research towards a broader perspective with the acceptance of methodological pluralism; hence as result of these efforts qualitative research has gained considerable legitimacy and is now much used in investigating information systems. Past researches have successfully relied on existing behaviour dependent IS research theories (hence referred to as behaviour IS theories) as a basis for their work. These research scenarios are in the main cases related to non-virtual environment. To extend the existing behaviour IS theories to predict online behavioural intention we present a case for cultural dimension inclusion in existing theories to account for the varying behavioural manifestation in virtual environments. Research theories considered herein are those information system research theories that have behaviour as one of their major construct. They include Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), Technology Acceptance Model (TAM), Expectation Confirmation Theory (ECT) and Social Exchange Theory (SET).

2. Behaviour related IS Theories.

2.1 Theory of Reasoned Action (TRA).

Theory of Reasoned Action (TRA) was developed by (Fishbein and Ajzen, 1975), as a result of their concern towards understanding and prediction of behaviour (Hartwick and Barki, 1994). The theory argues that an individual behavioural intention (one's intention to perform or not to perform an action) is the immediate determinant of that behaviour (Fishbein and Ajzen, 1975, Hartwick and Barki, 1994, Liker and Sindi, 1997, Leonard et al., 2004).
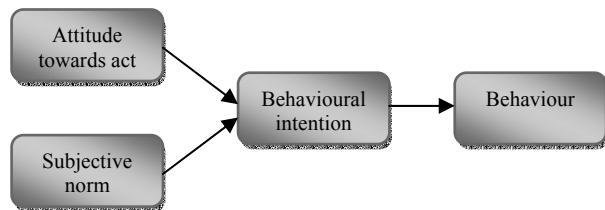
Figure 1: Schematic representation of Theory of Reasoned Action (TRA) Fishbein and Ajzen (1975).

According to Hartwick and Barki (1994), TRA model introduces two factors that affect behavioural intention: attitude toward the behaviour and subjective norms (Figure 1). Attitude towards the behaviour is defined as the evaluative effect of the individual towards performing the behaviour while the subjective norms bothers on the social pressure exerted on the individual to perform (or not to perform) the behaviour. Liker and Sindi (1997) noted that while the theory has undergone rigorous testing that has shown its robustness in predicting intentions and behaviour under volitional control, it is important to note that the theory's predicting power diminishes when extended beyond its boundaries. These boundaries includes; that behaviour should be under volitional act, intent does not change prior to the performance of the behaviour and intention measures should correspond to the behavioural criterion in terms of action, target, context, time, and specificity (Ajzen and Fishbein, 1980). Using the theoretical framework of Fishbein and Ajzen, (1975), Hartwick and Barki, (1994) sought to develop empirically tested theoretical framework explaining the relationship between user participation and system use base on TRA. Each construct they identified to affect system use (behaviour) was assessed twice, once with the predevelopment

questionnaire (concerning the new system to be developed), and a second time with the post implementation questionnaire (concerning the new system that has been developed). They concluded that while user participation and involvement represent two distinct constructs, the effect on user participation on intentions and system use is mediated by the psychological constructs of involvement, attitude and subjective norm.

2.2 Theory of Planned Behaviour (TPB).

To compensate for TRA's inability to deal with behaviours over which individuals have incomplete volitional control (George, 2004), (Ajzen, 1989, Ajzen, 1991), extended the TRA by adding perceived behavioural control (Figure 2) as another factor influencing behavioural intention and this gave rise to the Theory of Planned Behaviour (TPB) (Liker and Sindi, 1997). Perceived behavioural control bothers around the ease/difficult of carrying out the behaviour.
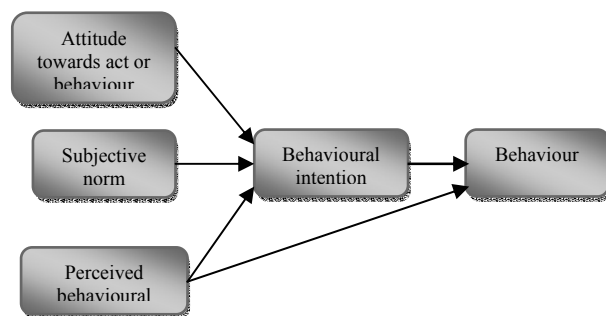

Figure 2: Schematic representation of Theory of Planned Behaviour (TPB) Ajzen (1991).

Like the TRA, many researches have relied on TPB across many IT related subjects. Using the Theory of Planned Behaviour as its basis, George (2004)

investigated the relationships among beliefs about internet privacy and trustworthiness, along with beliefs about perceived behavioural control and the expectations of important others, and online purchasing behaviour.

He used data collected from 193 college students. George (2004) reported that the result of the analysis indicated beliefs about trustworthiness positively affect attitudes toward buying online, which in turn positively affect purchasing behaviour.

Leonard et al., (2004) integrated both TRA and TPB to propose an IT ethical behavioural model that includes; attitude, perceived importance, subjective norms, situational factors, and individual characteristics. Using questionnaire instrument to measure variables and capture each respondent's intention to behave ethically/unethically for five different computing scenarios, they found out that some factors are consistently significant in affecting attitude and behavioural intention while others are significant in certain scenarios. Hansen et al., (2004), compared the TRA and TPB on predicting online grocery buying intention. Data was collected from two web-based surveys of Danish (n = 1222) and Swedish (n = 1038) consumers using self-administered questionnaires.

The result showed that the TPB with the inclusion of a path from subjective norm to attitude provides the significantly best fit to the data and provides the best prediction of online grocery.

They also showed that consumers' attitude towards online grocery shopping was the most important predictor of online grocery buying intentions in both theories.

2.3   Technology Acceptance Model (TAM).

Technology Acceptance Model (Figure 3) is based upon Theory of Reasoned Action (TRA) (Ajzen, 1989, Ajzen and Fishbein, 1980, Fishbein and Ajzen, 1975). TAM posits that perceived usefulness and perceived ease of use determine an individual's intention to use a system with intention to use serving as a mediator of actual system use (York University, 2006). Perceived usefulness is defined as the prospective user's subjective probability that using a specific application system will increase his or her task performance (Brosnan, 1999). Perceived ease of use refers to the degree to which the prospective user expects the target system to be free of effort (Davis et al., 1989) cited from (Brosnan, 1999). Brosnan, (1999) relied on TAM with measures from other computer theory to model technophobia relating to word processing. He reported that a combination of the variables formulated by TAM and self efficacy theory (Bandura, 1986) accounted for 45% of the variance in self-reported computing behaviour over a 13-week period.
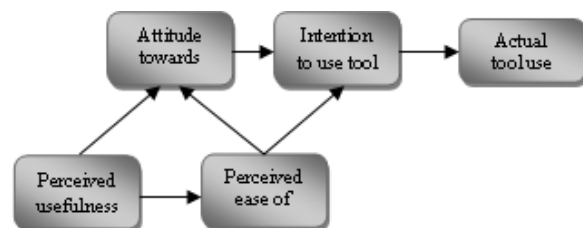

Figure 3: Schematic representation of Technology Acceptance Model (TAM) Davis et al. (1989).

Lederer et al., (2000) investigated TAM and its applicability for work-related tasks

with the World Wide Web as an application. With the use of email web survey about a website people access often in heir jobs, they demonstrated that ease of understanding and ease of finding predict ease of use. They also found out that information quality predicts usefulness for revisited sites. (Lu et al., 2003) developed a Technology Acceptance Model for wireless internet via mobile devices (WIMD) using the concepts of TAM. They developed explaining factors influencing user acceptance of WIMD based on a revision of TAM to represent some unique features of the wireless system. They concluded that constructs such as individual differences, technology complexity, facilitating conditions, social influences, and wireless trust environment determine user-perceived short and long-term usefulness and ease of using WIMD. Wang et al., (2003) introduced a "perceived credibility" as a new factor that reflects the user's security and privacy concerns in acceptance and usage of internet banking. They named it the "extended TAM". From a sample of 123 users, their result demonstrated the effect of computer self-efficacy on behavioural intention through perceived ease of use, perceived usefulness, and perceived credibility.

2.4 Expectation Confirmation Theory (ECT).

Expectations confirmation theory also called Expectation Disconfirmation Theory (EDT) posits that expectations, coupled with perceived performance, lead to post-purchase satisfaction. This effect is mediated through positive or negative disconfirmation between expectations and performance (York University, 2006). According to (Oliver, 1980) and (Spreng

et al., 1996) cited in (York University, 2006), if product falls short of expectations (negative disconfirmation) the consumer is likely to be dissatisfied. The four main constructs in the model are: expectations, performance, disconfirmation, and satisfaction (York University, 2006). Figure 4 shows the key constructs that make up the theory.
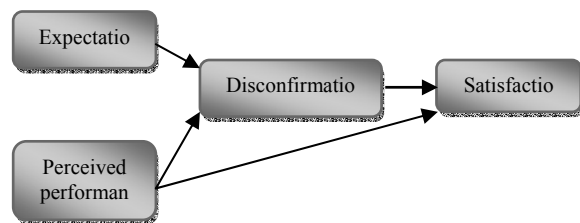

Figure 4: Schematic representation of Expectation Confirmation Theory (ECT) (York University, 2006)

According to Hsu et al., (2004) expectations could be positively disconfirmed (perceived performance exceeds expectations), confirmed (perceived performance equals expectations), or negatively disconfirmed (perceived performance falls short of expectations); a moderate satisfaction level will be maintained by confirmation, enhanced by the delight of positive disconfirmation, and decreased by the disappointment of negative disconfirmation. The expectation confirmation/disconfirmation theory has gained widespread acceptance within the research community. Staples et al., (2002) used ECT as a theoretical basis to examine the effects of implementing a new system on its users and Au et al., (2002) put forward a new research framework around end-user information system satisfaction (EUISS) based on the expectation confirmation theory.

2.5 Social Exchange Theory (SET).

Social Exchange Theory was initiated by Homans, (1958) was aimed at understand the social behaviour of humans in economic undertakings. A social exchange is a relationship in which, on repeated occasions, the participant exhibit behaviour in each other's presence, created products for each other, or communicated with each other (Gefen and Keil, 1998). Using the concept of SET, Gefen and Keil (1998), proposed that IS managers can influence both the perceived usefulness and perceived ease of use (both constructs of TAM) of an IS through a constructive social exchange with the user. They called it an extension of TAM based on SET.

Table 1 summarises the behaviour IS theories and the major constructs associated with each theory.

Theory	Originator	Constructs
Theory of Reasoned Action (TRA)	Fishbein (1967), Ajzen and Fishbein (1973) Fishbein and Ajzen (1975).	Attitude Toward Behaviour, Subjective Norm, Behavioural Intention, Behaviour
Theory of Planned Behaviour	Ajzen (1985, 1991);	Attitude Toward Behaviour, Subjective Norm, Perceived Behavioural Control, Behavioural Intention, Behaviour
Technology Acceptance Model (TAM)	Davis (1986, 1989)	Perceived Usefulness, Perceived Ease of Use, Behavioural Intention to Use, System Usage
Expectation Confirmation Theory (ECT)	Oliver (1977, 1980)	Expectations, Perceived Performance, Disconfirmation, Satisfaction
Social Exchange theory (SET)	George Homans (1958)	Exchange relation, dependency, and power while Value and Utility: (profit, rewards, approval, status, reputation, flexibility, and trust)

Table 1: Showing major components of behaviour dependent IS research theories

3. Cultural Dimensions and IS Theories.

Many definitions of culture has been proposed, but we adopt Johanson's definition which is "culture is usually defined as the underlying value framework that guides an individual's behaviour; its reflected in an individual's perception of observed events, in personal interactions, and in the selection of appropriate responses in social situations" (Johanson, 2003). He summarised the implications of culture in the following five points: -

    i.   Culture is not only a fundamental dimension of any society but a very visible force affecting market

ii. Culture tends to affect strategy implementation and execution, "how" things are done, more than strategy formulation.

iii. Our respective culture has given us certain useful behavioural skills. In new situations, those skills may be of little use and even be counterproductive.

iv. In negotiations, attempting to adapt completely to a new culture may be counterproductive since behaviour is unexpected and might erode trust.

v. Cultural differences are examples of market entry barriers and can be overcome with sensitivity, hard work, and a superior product of service.

Hofstede, (1980) carried out a systematic assessment of cultures across countries by carrying out a questionnaire survey of IBM's employees around the world. According to Hofstede's survey countries can be classified along four cultural dimensions namely; individualism versus collectivism, high versus low power distance, masculine versus feminine and weak versus strong. Johanson (2003) relying on Hofstede's results argued on the applicability of Hofstede's cultural dimensions in today's world. On the research front, as observed by (Ford et al., 2003), the dimensions of national culture outlined by Hofstede or any other framework have not been frequently used to develop and to build IS research theories. From table 1, the IS theory considered here have culture dependent construct but none of these research theories explicitly acknowledges culture as a major construct. For instance, both TRA and TPB see subjective norms - beliefs about how people they care about will view the behavior in question as their major construct. Arguably subjective norms via beliefs are rooted in cultural traditions thus vary across culture. Also regarding SET, Gefen and Keil (1998) assertion that "IS managers can influence both the perceived usefulness and perceived ease of use of an IS through a constructive social exchange with the user" would to a large extend depend on if there is no cultural difference between the IS manager and the user.

3.1 Culture as unique behaviour identifier.

In Clark's review of national character, he described culture "as a distinctive enduring pattern of behaviour and /or personality characteristics" (Clark, 1990) cited in (Doney et al., 1998). Hofstede, (1984) described culture as the collective programming of the mind which distinguishes the members of one group from another. From an information system (IS), we see culture as a primary key identifying behaviour. Primary key in the sense that culture is stable and does not change through time and it is absolutely unique to each group of individuals with no duplicates. Members of each cultural group exhibit similar behaviours. Johanson (2003) describing culture and managerial skills asserts that culture defines a set of acceptable and unacceptable behaviours; individuals learn to act out these behaviours and overtime become skilled at displaying acceptable behaviours.

3.2 Contribution/weaknesses in Prior Research.

A prior research based on existing behaviour IS theories have not implicitly considered behaviour as a function of culture. The salient assumption in these researches seems to be that the individuals investigated are either from the same

cultural background or that culture plays no part in their behavioural intentions. Although culture has been studied as a construct in information systems research, culture has not been studied simultaneously with exiting behaviour dependent IS theories.

3.4 Proposed model.

As shown in Table 1, TRA, TPB, TAM, ECT, and SET all rely on constructs that are related to behavioural patterns. As already described culture identifies behaviour so we propose a new framework that incorporates culture as major construct in the existing behaviour dependent IS research theories (Figure 5).
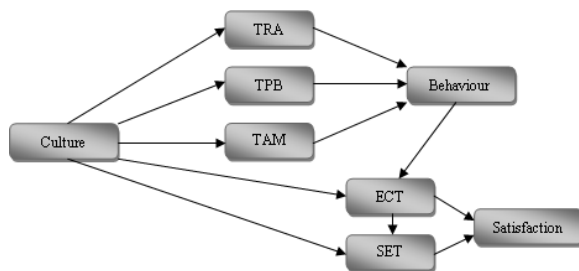

Figure 5: Schematic representation of our proposed framework

While identified existing behaviour IS theories have been successfully used to predict behavioural intentions and satisfactions across multi-country setting, we argue that emphasis should be placed on decomposing the cultural composition of the research population in question. In this way we opined that predictions regarding behavioural patterns would be more correct and situation specific. To demonstrate the viability of this framework we aim to apply this concept in predicting online behavioural intentions. According to (Chau et al., 2002), unlike traditional stores, many firms on the web are addressing different cultural audiences simultaneously hence

using existing behaviour IS theories to predict online consumer behaviour and satisfaction would not reflect the true scenarios giving the multi-cultural dimensions involved. Using this framework (Figure 5) we propose a Culturally Influenced Virtual Education Trust (CIVET) model that aims to model student's behavioural intentions towards virtual education activities across cultures.

3.5 Expected Contribution.

This study is expected to validate our claim that cultural dimensions should be fully incorporated in existing behaviour dependent IS research theories. By carefully decomposing the different cultural constructs within virtual environment, a more informative and situation specific predictive model could be developed. The study would also provide both the theoretical and empirical explanations on the key issues considered by students before participating in virtual education activities.

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