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A PSYCHOLOGY BASED FRAMEWORK FOR CULTIVATING AND RESPECTING USER ATTITUDES

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Abstract

In social and cognitive psychology, theories related to human attitude change are well established. In recent years, it has become increasingly common for those who seek to change attitudes towards computer based information systems to employ attitude change notions that originate from psychology. In this paper, the findings of those who have employed 'attitude change psychology' to understand or change user attitudes, are synthesised to create a prototype framework by which it is proposed that user attitudes could be cultivated as part of a system implementation. Operating as a summary of existing knowledge, this frame work also unveils significant areas of empirical deficit, providing a basis for future investigation.

Keywords: User Acceptance, Attitude Change

1.0   Introduction

In any user community a range of complex attitudes can be found (e.g. Rosenburg et al. 1969) some of which are more established than others (e.g. Petty et al. 2004). As human attitudes affect behaviour (Krosnick and Petty 1995; Petty, Haugtvedt, and Smith 1995), inevitably, the array of attitudes found in a user community will play a significant role in user acceptance, be that negative or positive (Donat et al. 2009; Angst and Agarwal 2004; Zhang and Sun 2009; Kim et al. 2009). Among the traits that make us human are emotions, experiences, a world view and human reasoning; all of which impact attitudes and subsequently user acceptance (Hee-Woong et al. 2007, Kim et al. 2009, Kelman 1958, Angst and Agarwal 2004, Bhattacherjee and Sanford 2006). The concept is simple, negative attitudes obstruct user acceptance and positive attitudes assist it.

It should be acknowledged, that some existing research rejects the role of attitude in user acceptance (e.g. Usoro 2000; Venkatesh and Davis 1996; Venkatesh and Davis 2000; Venkatesh et al. 2003). However, recent research has demonstrated that such rejections were erroneous and stem from a failure to adequately acknowledge attitude complexity (Zhang and Sun 2009; Kim et al. 2009).

In the proposed framework, the findings of those who have used the attitude change theory from psychology to assist in, or reflect on, user acceptance are synthesised to consider what now, could realistically be achieved in a real world scenario. The framework provides a basis, founded in psychology, by which attitudes can be respected and cultivated as part of a system implementation. Although this remains an embryonic subject area, it is apparent that progress is being made and that the contribution of attitude change psychology to this subject area is becoming significant.

Using a systematic approach in an attempt to uncover all published work, the literature review on which this frame work was based, is believed to be comprehensive. It should be clarified, that this is not a synthesis of all attitude change notions that *could* be applied to user acceptance, such a work would be highly voluminous, this is instead a synthesis of research where this has already been achieved.

The focus of this paper is the process by which users come to participate in a computer based information system (CBIS). In information systems (IS) research a range of terms are used to describe this process such as ICT acceptance, IT acceptance, IS success, technology adoption, user satisfaction and technology acceptance. For simplicity, this paper incorporates all such literature under the umbrella term 'user acceptance'. This paper is concerned with the 'user acceptance of a new CBIS in an organisational setting', in particular the cultivation of user attitudes during this process. For an overview of user acceptance terminology and its constituent approaches, the reader is referred to Dillon and Morris (1996).

This conference paper is in two distinct halfs, the first half is an introduction to the social and cognitive psychologist's notion of attitude change and the relevant affiliated theories, the second is the synthesis of existing findings, formed into a prototype framework by which it is proposed, user attitudes can be respected and cultivated during a CBIS implementation.

2.0 Attitude Change

Before considering literature related to attitude change, in this section the term 'attitude change' is defined and the key attitude change notions found in user acceptance literature are introduced, namely these are the Elaboration Likelihood model (ELM), Cognitive dissonance and Kelman's processes of attitude change.

2.1 Definitions of attitude, attitude change and persuasion

Attitudes are of course formed and altered by persuasion (e.g. Perloff 2003). However, being insufficiently specific, the word persuasion, is rarely used in attitude change literature. Attitude change, as defined by social and cognitive psychologists, effectively refers to what is a voluntary change in attitude. The word persuasion is avoided as it also covers coercion and thought reform – also known as brain washing (for example, Lifton 1961, Singer 1994, Ofshe 2009). Given that the focus of this paper is not coercion or brain washing, the correct term, is attitude change.

A useful definition of 'attitude' is provided by Crano and Prislin (2006): "An attitude represents an evaluative integration of cognitions and affects experienced in relation to an object. Attitudes are the evaluative judgements that integrate and summarize these cognitive/affective reactions". Human attitudes have many components (e.g. Rosenburg et al. 1969) and people hold a range of attitudes towards various subjects that differ in strength (e.g. Petty et al. 2004). Perloff (2003, p39) boldly states that "People are not born with attitudes" suggesting that all attitudes have been formed through some type of influential message or experience. Likewise Fishbein and Ajzen (1975, p6) refer to attitude as "a *learned* predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object" (italics added). Such propositions, implying that *everything* is learned, assume there to be no fundamental instinct or natural law dictating basic morals regardless of environment;

an assumption that contrasts with many religions and philosophies. Putting dogmas aside, these propositions remain significant, to soften Perloff's proposition, making it acceptable to apologists, it could be said that "*a highly significant proportion* of attitudes are learned" and that some are more established than others. It is also clear that attitudes towards technology, like other attitudes, change over time (Bhattacherjee and Premkumar 2004). In user acceptance, the objective is to guide such attitudes as they form and evolve.

2.2   Aristotle

Over two millennia ago, Aristotle identified three modes of persuasion used in rhetoric, namely ἔθος, πάθος and λόγος. ἔθος (pronounced ethos) refers to 'where the person is', literally it translates as habitat, it is something about the origin or position of the speaker or the advocated position that provides credibility. Using ἔθος a speaker might claim authority by proclaiming their experience, quoting their sources or expressing an investment in the outcome. The other modes identified by Aristotle are πάθος (pathos) and λόγος (logos). πάθος is an appeal to a subject's emotions where as λόγος is logical appeal. Λόγος has always been understood to be the most potent form of persuasion (e.g. Cooper 1932; Murphy et al. 2003).

2.3   The Elaboration Likelihood Model (ELM)

The attitude change notion most encountered in user acceptance literature is ELM (Petty and Cacioppo 1986). Underpinning ELM is a 'dual mode processing' assertion that the human reasoning process is determined by a persons motivation and/or ability to process available information. If someone is not motivated or able to process information, they will ignore the detail and make a judgement based on easily available information. Given the number of decisions that most people make in a day, it is neither possible nor necessary for each one to be properly thought through, so people constantly make decisions using heuristics (rules of thumb, intuition, common sense, educated guesses and so forth) If a person is not motivated or able to understand an advocated position, ordinarily a decision will be made using heuristics.

ELM proposes that attitudes form across an "elaboration continuum" ranging from low to high and identifies two affiliated routes to persuasion, namely central and

peripheral. The central persuasion route predominates in high elaboration situations and occurs when a subject is motivated and able to process information. It is highly conscious employing logic, reflection and analysis. Attitudes will then form based on the most favourable thoughts produced. In high elaboration, subjects are aware they have been persuaded. Argument quality is known the most significant factor in central route persuasion. In contrast, peripheral route persuasion is less obstructive and leads to low elaboration, attitudes are formed using heuristics such as source credibility or the attractiveness of the presentation. Attitudes produced under low elaboration are weaker and less enduring.

2.4   Cognitive dissonance

Cognitive consistency, could be described as a comfortable mental state in which the self-concept is satisfied, if some one is in a state of cognitive consistency their self image is not violated and the standards they set for themselves are all met. The alternative is an uncomfortable state referred to as cognitive dissonance. This forms the bases of a number of attitude change theories (e.g. Read et al. 1997). If inconsistent cognitions invoke cognitive dissonance, attitude and behaviour may change so that cognitive consistency will be restored. For example, consider a parent informed that a given behaviour is harming their child, because harming their child is opposed to their self-standards; they enter a state of cognitive dissonance which could result in a change of attitude towards the behaviour. By altering their behaviour, cognitive consistency is restored. In theories of attitude change related to cognitive dissonance, attitude change is achieved by either addressing or causing cognitive dissonance.

2.5   Kelman's processes

In a group scenario, although the overt behaviours of group members may be comparable, the internal processes that cause the behaviour can be different (Kelman 1958). In particular, Kelman described three processes of attitude change towards an activity that have differing degrees of penetration, namely, compliance, identification and internalisation. *Compliance* implies that someone adopts a given behaviour only to avoid punishment or gain a reward (praise from a superior, to avoid an argument and so forth). Their participation is purely pragmatic. *Identification* implies that participation is motivated by a belief that the behaviour contributes towards group

cohesion or identity, the subject has no inherent belief in the activity. *Internalisation* is the final level in which a subject participates for the intrinsic rewards of the activity, internalised belief in the activity will be durable and retained outside of the group setting.

3.0   The prototype framework.

It is proposed here that user acceptance can be improved, if user attitudes are appropriately respected and cultivated. Given the complexity of human attitudes and their influence on human behaviour (e.g. Rosenburg et al. 1969, Petty et al. 2004; Krosnick and Petty 1995; Petty, Haugtvedt, and Smith 1995) it is inevitable that they will significantly impact a user's acceptance of a CBIS (Angst and Agarwal 2004; Zhang and Sun 2009; Kim et al. 2009). In this section, the findings of research where attitude change psychology has been applied to user acceptance is synthesised to establish a prototype frame work for this purpose. This frame work has not been created to compensate for bad practice, to coerce or manipulate users, or to deceptively encourage participation in a poor CBIS. The intention is to provide a basis from which it can be assured that attitudes are respected and addressed, enabling users to benefit from participation in worthwhile systems. At all stages, it should be remembered that users will start to understand the techniques used to encourage their participation and should a user dislike a persuasion attempt, they may deflect it (Friestad and Wright 1994).

3.1   Attitude and influence before a users first encounter

People can be stubborn, once attitudes are properly established they become difficult, if not impossible to change. Accordingly, attitudes need to be managed as they form. For this reason, user influences need to be controlled from the earliest possible opportunity.

When users first encounter a CBIS, ordinarily, they are indifferent towards it (Kim et al. 2009). If a user has experienced a similar CBIS in the past they may have an attitude towards it, but it will be weak (Zhang and Sun 2009). In either case, at the outset, user attitudes are weak to negligible. Initial attitudes towards the CBIS as an object will affect later attitudes towards its usage and will ultimately affect user

behaviour (Zhang and Sun 2009). Attitudes *will* progressively form, impact each other and strengthen. Most significantly, from the outset, user attitudes will be set on either a positive or negative projection that will continue (Zhang and Sun 2009) and strong attitudes may form particularly quickly, among the more experienced users (Kim et al. 2009). At the outset therefore, before first encounter, while user attitudes are at their most malleable, a focus on changing negative attitudes should be encouraged to ensure a positive initial projection. To take full advantage of weak initial attitudes, influence should be managed from the first moment that users hear there will be a new CBIS. Perhaps even before that, users could for example be made aware that there is a need for a new CBIS.

As well as addressing CBIS usage, attitudes towards the CBIS as an object should also be considered, it has been demonstrated that attitude toward the object, affect attitudes towards usage which ultimately affect behavioural intention (Zhang and Sun 2009). A positive initial view will encourage long term participation (Angst and Agarwal 2004). Once attitudes are set on the correct projection, continued influence should then encourage attitudes along the correct path, ensuring any negative redirection is addressed. Continued and persistent influence is particularly relevant for attitudes formed through heuristics, as attitudes will decay quickly once the original peripheral influence, negative or positive is removed (Bajaj and Nidumoli 1998; Petty and Cacioppo 1986).

3.2 Attitude and influence during a first encounter

At the outset, user attitudes are weak (Zhang and Sun 2009) and are therefore unlikely to invoke initial participation. Even if users can be convinced that a CBIS is useful they may not participate (Bajaj and Nidumoli 1998). Initial participation therefore, should be encouraged through other routes such as subjective norms (Schepers and Wetzels 2007) or by managers taking the lead (Angst and Agarwal 2004). Exemplary management behaviour is all important, managers must be seen to actively participate, the positive affect of this is more poignant than management beliefs or the beliefs of the group (Angst and Agarwal 2004). Two other peripheral routes of influence are known to come into play at this point, the first encounter being a peripheral route in its own right as is the observation that peers are participating (Bandura 1977; Angst

and Agarwal 2004). Participation also influences 'ease of use' contributing further to continued use (Bajaj and Nidumoli 1998).

If users are forced to use the system, this will lead to negative attitudes (Reinders et al. 2008) so should be avoided. There should be no need to force users to participate in a CBIS, if it is genuinely beneficial.

3.3   Continued influence and attitude change

At this point, some users will have 'internalised' the concept (Angst and Agarwal 2004) and will hold strong positive attitudes while others will participate through 'identification' or 'compliance' (Angst and Agarwal 2004). It is the identification and compliance users, who should now be the focus of further influence. Internalisation users are basically convinced of the merits of participation, they will participate the most and will continue as they are (Angst and Agarwal 2004). At this stage the identification and compliance users will be participating less but their participation will increase and should eventually lead to full participation (Angst and Agarwal 2004). In absolute terms, the identification users will eventually participate as much as internalised users (Angst and Agarwal 2004). Although the participation of compliance users will increase, in absolute terms they will participate less than other users (Angst and Agarwal 2004). Accordingly there is merit in encouraging compliance users to understand the identification merits of the CBIS, and if possible, to encourage all users to internalise its benefits.

In user acceptance literature that relates to ELM, users tend to be categorised as 'expert or not' or 'experienced or not', in other words, capable of high elaboration or not. The reality is of course a continuum between these extremes, but a focus on either end of the spectrum ensures that everyone is covered. Peripheral and central routes of influence will impact user attitudes (Bhattacherjee and Sanford 2006) and participation (Angst and Agarwal 2004; Zhang and Sun 2009; Kim et al. 2009). The potential range of peripheral influence routes that might be found in an organisation are of course numerous and several have already been proven to affect user acceptance, namely source credibility (Mak et al. 1997, Bhattacherjee and Sanford 2006), peer participation (Angst and Agarwal 2004) and a user's emotions (Hee-Woong et al. 2007). Other peripheral route examples are the 'quantity of messages',

'range of sources, 'likeability of the source', 'number of experienced users' (Shumarova and Swatman 2006; Bhattacherjee and Sanford 2006) and 'legacy influences from prior experience' (Zhang and Sun 2009). Given that those routes which are known to affect user acceptance are highly diverse, it may be hypothesised that perhaps all peripheral influences are significant. Invoking low elaboration, such peripheral influences, prevail among users unable or unmotivated to elaborate and although they do lead to attitude change, the attitudes formed are weaker than those formed under high elaboration (Bajaj and Nidumoli 1998; Petty and Cacioppo 1986).

Significant work has not been done to discover what might motivate high elaboration in user acceptance. In one example, the relevance of a CBIS to a user's role was used to measure motivation (Bhattacherjee and Sanford 2006) but no justification was provided for this selection. Only a few of the factors that motivate high elaboration in user acceptance have ever been identified. High elaboration should of course, be encouraged as it causes arguments to be properly considered. If a CBIS is genuinely beneficial, this can only be a good thing. Furthermore, high elaboration creates strong and durable attitudes. It is, for example, known that user involvement in system design encourages participation and Mak et al. (1997) propose that this is due to the user's enhanced motivation and ability to elaborate. How many similar motivational factors could be identified? might it be possible to develop a formula that would ensure a sufficient number of high elaboration motivations are included in each new CBIS implementation project ?

Although high elaboration, is preferable, it should be remembered that many users are simply not capable of high elaboration (Bhattacherjee and Sanford 2006) and will form attitudes under low elaboration based on heuristics and peripheral route influence. How effectively could peripheral route influences be managed? It is probably unrealistic to remove all negative influences, but in an organisational setting surely a significant number could be blocked. Alternatively, could a barrage of positive influences be manufactured to ensure that positive influences always outnumber the negative? New research to define the possible range of peripheral influences in an organisational setting, could prove to be pivotal in cultivating user attitudes. Could user heuristics also be controlled? Perhaps Orwellian slogans like 'if our selection procedure agreed it, it must be good' could help to create new

heuristics? Likewise, could existing negative heuristics somehow be dismantled? This of course, raises a further debate about the level of information control that is ethical and/or acceptable to users. These are all questions that invite research.

The most significant peripheral influence is source credibility (Mak et al. 1997, Bhattacherjee and Sanford 2006); the ἔθος of the originator (Rieh and Danielson 2007). This perceived credibility of those who champion a CBIS is all important in attitude formation among users restricted to low elaboration; accordingly, much thought should be given to how CBIS champions are presented to potential users. For high elaboration users, argument quality (λόγος), is the most significant factor (Sussman and Siegal 2003; Bhattacherjee and Sanford 2006) so a focus on the development and delivery of logical rhetoric should be maintained throughout the implementation process. As λόγος relates to central route persuasion, the attitudes formed by such rhetoric are strong and durable. Such arguments, could penetrate deeper still if they are designed to cause cognitive dissonance (Bajaj and Nidumoli 1998), perhaps by contrasting with existing perceptions (Coklin 2006) or focusing on self-perceptions important to the users (Bajaj and Nidumoli 1998; Coklin 2006).

4.0 Conclusions

This document has extracted findings from user acceptance literature, that incorporates attitude change concepts from psychology, to establish a framework by which attitudes can be respected and managed during a CBIS implementation. To date, all such research has been erratic and dispersed with few researchers referencing each other. This subject does not really exist as a discipline in its own right, despite its obvious value. Although, as summarised in this review, significant contributions to knowledge have been made, this interdisciplinary subject area remains embryonic with substantial opportunity for future work.

Elements of social and cognitive psychology are routinely used to encourage attitude change in arena as varied as crime reduction, advertising, therapy, and rehabilitation. Such techniques are waiting to be adapted or simply ported into user acceptance.

Finally, it should also be noted that the framework presented here is simply a prototype formed from existing findings, ventures to implement, test, critique and improve this prototype, are warmly invited.

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