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Reconceptualising Motivation in Adoption and Acceptance Research: Back to Basics

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Abstract

In the adoption and acceptance of technology, the technology acceptance model (TAM) has been a dominant influence. TAM, however, simplifies and trivialises the concept of motivation, (a concept not well developed and used in the IS field) by failing to recognise the fundamental needs influencing behaviour. This, in turn, restricts its use to design and use interventions to enhance adoption and use within an ICT-enabled organisational change project. Given this, this paper will re-conceptualise the concept of motivation by exploring the inner or intrinsic motivation influencing behaviour and will indicate how this motivation underlies the TAM variables. Further, using the concept of participative management we will explore how various organisational interventions might be designed to enhance user motivation to adopt and use a new system. Finally, these interventions are applied to an ongoing action research study to improve the success of implementing a document management system within a non-profit organisation.

Keywords

Intrinsic Motivation, ICT Adoption, Participative Management, Non-Profit Organisation

INTRODUCTION

Despite extensive research and much being written on the topic (Briggs et al. 2008; Oakland and Tanner 2007; Wagner and Piccoli 2007) IT implementation project success rates remain low (Legris et al. 2003; Venkatesh and Bala 2008; Venkatesh and Goyal 2010). Many reasons have been given for IT implementation project failures including; cost blowouts, low adoption and use rates, unwillingness to use a new system, lack of top management involvement and resistance to change (Davis and Songer 2008; Simonsen 2007; Venkatesh and Bala 2008; Venkatesh and Goyal 2010). Further, as Markus (2004, p. 5) points out:

> *"...experts estimate that as many as 75% of organisational change efforts involving technology fail (even when the technology performs acceptably) because of people's negative reactions to changes in their work, organisational business process and the technology they use."*

Implementing any ICT into an organisation is a complex process that causes change which impacts on worker motivation and thus their behaviour. Understanding the motivation of workers to accept change and adopt and use technology (Davis et al. 1992; Lin 2007) and then developing and implementing effective interventions (Venkatesh and Bala 2008) is crucial for any IT implementation project.

The IS discipline's understanding of the motivation concept is derived from the dominant influence of the technology acceptance model (TAM) (Lee et al. 2003; Malhotra et al. 2008). It seems that Davis et al., (1992) were the first to report application of the motivation concept to technology adoption proposing the "motivational model". Davis et al.'s (1992, p. 1112) definitions of intrinsic and extrinsic motivation are as follows;

> *"intrinsic motivation refers to the performance of an activity for no apparent reinforcement other than the process of performing the activity per se....extrinsic motivation refers to the performance of an activity because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself..."*

The authors then go on to give examples of both; indicating that perceived usefulness is an 'example' of extrinsic motivation, and enjoyment is an 'example' of intrinsic motivation. These two examples of motivation have continued to be used widely in the technology acceptance and adoption literature (see for example; Venkatesh and Bala 2008; Venkatesh et al. 2003) thus in effect limiting the concept of motivation in this field (Malhotra, et al. 2008). If we look outside the IS field we begin to find alternative (and somewhat expanded) examples of motivation such as Deci and Ryan's (1985) 'example' of intrinsic motivation. Their example is

based on the basic psychological needs of competence and autonomy and they say the emotion of enjoyment is used to represent a reward for intrinsically motivated behaviour. This one alternative example demonstrates TAMs simplistic view of the role motivation plays in technology adoption. It also highlights that TAMs example of intrinsic motivation is more aligned with emotions rather than the actual underlying motivations themselves.

Computer playfulness has also been conceptualised as intrinsic motivation (Venkatesh 2000) within the acceptance and adoption literature. Yet according to Maslow (1970) playfulness is an example of unmotivated behaviour, whereby a person who exhibits playfulness will only do so after their need(s) have been satisfied – this satisfaction "permits the emergence of unmotivated behaviour...to learn incidentally rather than with purpose" (Maslow 1970, p. 71).

Therefore, basing our understanding of the intrinsic motivation concept demonstrated in TAM as 'enjoyment' and/or 'computer playfulness' does not adequately address the complexity of user motivations to adopt and use technology within an organisation. TAMs simplistic view of motivation restricts its use to design and use interventions to enhance adoption and use with respect to ICT enabled organisational change projects.

A deeper and more considered treatment of the motivation concept is needed within the IS field. As Venkatesh et al. (2007) state; it is time to "search for alternate theoretical mechanisms that drive the adoption and use of technology in organisations" and that "research focused on interventions, contingencies and alternative theoretical perspectives" is needed (Venkatesh et al. 2007, pp. 267-268). This paper will present a detailed treatment of motivation which suggests that TAM requires a fundamental modification.

By basing our understanding of the motivation concept on the underlying theoretical assumption that people are active organisms – that is to say, they are volitional and initiate their own behaviour, (as Malhotra et al. 2008 have done), we will re-conceptualise the concept of motivation within the IS field. Thus creating a fuller understanding of user motivations to accept and adopt information technology. This will be achieved by, exploring the fundamental motivational needs that all psychological healthy people have (to varying degrees). We will then argue that TAM neglects the importance of intrinsic motivation and we will show how these fundamental needs actually underlie TAMs variables. Then, using the concept of participative management, we will identify interventions to enhance user motivations by creating conditions to satisfy those needs, thus enhancing adoption and use. Finally we will demonstrate, through an empirical study, how these various interventions have been applied to an ICT-enabled organisation change project within a Non-Profit Organisation.

MOTIVATION – THE BASIC NEEDS

Motivation is driven by many needs and desires (Ambrose and Kulik 1999) that originate from within a person (intrinsically) and from external influences (extrinsic motivators). It has been studied widely (Ambrose and Kulik 1999; Benabou and Tirole 2003; Deci and Ryan 1985) and has been used in various applications, including education, psychotherapy, sports and organisations (Deci and Ryan 1985; Frey and Jengen 2001; Gagne and Deci 2005).

Various attempts have been made to understand the role motivation plays in adopting and accepting technology within the IS field (Malhotra, et al. 2008; Soliman and Lapointe 2009; Venkatesh, 1999; Venkatesh et al. 2002), beginning with the motivational model (Davis et al. 1992). Many of these attempts use the examples of intrinsic and extrinsic motivation given in TAM as their basis for exploring the role motivation plays (see Venkatesh et al. 2002 as an example). However, it has been noted that TAM's greatest asset and its greatest weakness lies in its simplicity and parsimony (Bagozzi 2007; Lee et. al. 2003; Venkatesh et al. 2007), which has since led to the limited understanding of motivation that now exists in this field (Malhotra et al. 2008).

In order to re-conceptualise the concept of motivation we need to go back to the basics of motivation. Thus in this section we will explore the concept of intrinsic motivation, as demonstrated through the "largely unconscious fundamental goals or needs" (Maslow 1970, p. 27).

The self-determination and intrinsic motivation concepts are necessary for an organismic theory, that is; where the organism is volitional and initiates their own behaviour (they have intrinsic needs and physiological drives) as opposed to a mechanistic theory that views organisms as passive and reactive (Deci and Ryan 1985). Based on this assumption – that people are active organisms - we can now investigate motivation more fully from a psychological point of view rather than investigating user reactions to characteristics (Deci and Ryan 1985) of the innovation itself and its perceived usefulness as TAM does.

To narrow the search for a basic motivational theory we have focused on motivation theories developed in the field of psychology that pertain to the organisational science and management fields which specifically address worker motivations. Two of the most relevant and useful theories (Miners 1984) were Maslow's Need Hierarchy

theory and Herzberg's (1966) Motivation-Hygiene theory. Another theory that is useful and has been discussed in relation to acceptance and adoption research is Deci & Ryan's Self Determination Theory (SDT).

Maslow (1970) argues that basing any classification of motivational life on the constant fundamental needs rather than trying to make a list of drives to explain behaviour should be incorporated into any motivational theory. This led to the development of his theory of human motivation – known as the 'Hierarchy of Needs', illustrated in Figure 1. These are the basic needs that all psychological healthy people have to varying degrees and at varying times throughout their life.

Figure 1: Hierarchy of Needs

A number of motivational theories based on similar aspects of Maslow's basic needs exist, including Herzberg's Motivation-Hygiene theory. Perhaps one of the most widely referenced theories is Deci and Ryan's Self Determination Theory (SDT) consisting of three sub-theories, outlined in Table 1. SDT was developed as a broader theory incorporating all three for ease of use in organisational settings (Gagne and Deci 2005).

SDT postulates that satisfying the basic psychological needs for competence, autonomy and relatedness (which can be demonstrated as Maslow's esteem, self-actualisation, and belongingness and love needs respectively) is a universal necessity important of all people's psychological health (Gagne and Deci 2005). Maslow uses this same argument, demonstrating that all people have these basic needs to varying degrees. Whilst Deci & Ryan (1985) say that self-determination and self-actualisation are not the same concepts, the latter emphasizing the importance of choice, whereas self-determination is the freedom from control, it is clear that these two theories overlap as demonstrated in Table 1.

Table 1: Self-Determination Theory & Maslow's Basic Needs (adapted from Deci & Ryan 1985)

Self Determination Theory			
Sub-Theory	**Definition**	**Psychological Needs**	**Comparison to Maslow's Theory**
Cognitive Evaluation Theory	Effects of external events on intrinsic motivation	Competence Autonomy	Esteem Self-Actualisation
Organismic Integration Theory	Development of intrinsic & extrinsic motivation	Competence Self-Determination	Esteem Esteem/Self-Actualisation
Causality Orientations Theory	Individual differences in initiation & regulation of behaviour	Autonomous Controlled	Self-Actualisation Esteem/Self-Actualisation

Deci and Ryan's Organismic Integration Theory has been used to demonstrate how "users' intentions are determined by their innate psychological needs for self-development and self-growth" (Malhotra et al. 2008, p. 293) which is consistent with Maslow's esteem and self-actualisation needs. However, by choosing just one sub-theory from SDT, this limits our understanding of motivation to just these two needs.

To understand the role of intrinsic motivation in the adoption and acceptance research it is important to use the basic fundamental needs, which every person has, to help explain user behaviour, rather than using a list of drives or emotions as TAM has done. It is for this reason that Maslow's Hierarchy of Needs has been chosen as our underlying motivational theory.

Maslow's hierarchy of needs has been used in prior technology adoption research. For example Benson and Dundis (2003) integrated the hierarchy of needs with technology and training within the health care industry to understand and enhance employee motivation. Soliman and Lapointe (2009) incorporated the hierarchy of needs with perceived usefulness (PU) to demonstrate that an innovation will be perceived as useful if the innovation can be perceived to meet a users salient motivational needs, using a set of six propositions. Whilst this paper contributes to expanding what they say is a "rather narrow view typically used in IT research" (Soliman and Lapointe 2009) of PU, it doesn't necessarily mean that just because an innovation may be perceived as being useful it will lead a person to act (Bagozzi 2007), the underlying motivations to act need to be considered.

BASIC NEEDS & TAM VARIABLES

In this section we will demonstrate that intrinsic motivation is more than just computer playfulness as explained by the authors of TAM3 in Venkatesh and Bala (2008). We will then indicate that the basic needs are in fact underlying intrinsic motivations for most of TAM's variables, thus reconceptualising the concept of motivation within the adoption and acceptance literature. In order to do this we must first look at TAM's variables.

TAM is used to describe a person's acceptance of technology, adapted from the Theory of Reasoned Action (TRA) (Davis et al. 1992) using two main determinants; perceived usefulness (PU) and perceived ease of use (PEOU). TRA is a very general intention model from social psychology, used to explain behaviour (Davis et al. 1989). TAM has evolved over the years from the original TAM (Davis et al. 1989) to TAM2 (Venkatesh 2000), the Integrated Model of Technology Acceptance (IMTA) (Venkatesh, et al. 2002), the United Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al. 2003) and more recently TAM3 (Venkatesh and Bala 2008). For a history of TAM see Lee et al. (2003) and Venkatesh et al. (2003).

Despite its evolution, TAM and all its variations continue to have PU and PEOU as the two main determinants (each with a number of variables) of a user's behavioural intention to accept and use a technology. Both of which have been used as examples of extrinsic and intrinsic motivation respectively by various researchers (Davis et al. 1992; Hwang 2005). Venkatesh et al. (2002) did attempt to incorporate intrinsic motivation as another main determinate of TAM in their IMTA. However they based intrinsic motivation on Davis et al.'s (1992) motivational model, which equates intrinsic motivation as playfulness, thus demonstrating TAMs dominant influence leading to the misrepresentation of the motivation concept in this field. TAM3 has since reverted back to the two main determinants of PU and PEOU, indicating that the use of intrinsic motivation as a main determinant was not very successful.

TAM3 (Venkatesh and Bala 2008) is based on a theoretical framework consisting of four categories which the authors say is a synthesis of all previous TAM research. Each of the four categories: individual differences; system characteristics; social influence; and facilitating conditions are made up of their own variables based on the two main determinants of PU and PEOU as demonstrated in Table 2.

Table 2: Categories and Variables of TAM3 (adapted from Venkatesh and Bala 2008)

Categories	**Individual Differences** (including, personality/ demographics)	**System Characteristics** (salient features of system)	**Social Influence** (social processes & mechanisms)	**Facilitating Conditions** (organisational support)
Variables	Computer Self-Efficacy (PEOU)	Job Relevance (PU)	Subjective Norm (PU)	Perception of External Control (PEOU)
	Computer Anxiety (PEOU)	Output Quality (PU)	Image (PU)	
	Computer Playfulness (PEOU)	Result Demonstrability (PU)		
		Perceived Enjoyment (PEOU)		
		Objective Usability (PEOU)		

The authors also argue that "perceived usefulness is an instrumental belief that is similar to extrinsic motivation and is a cognition (as opposed to emotion) regarding the benefits of using a system." (Venkatesh and Bala 2008, p. 281). However, as demonstrated in Table 3 these two main determinants (PU and PEOU) have a number of intrinsic motivational variables and it is misleading to say, for example, that PU is an 'example' of extrinsic motivation. This is one example of how TAM fails to treat motivation properly, which has led to the limited understanding of motivation within the IS field as demonstrated in TAM3.

TAM3 (as per previous versions) is based on the understanding that "the determinants of perceived ease of use represent several traits and emotions, such as computer self-efficacy, computer playfulness, and computer anxiety" (Venkatesh and Bala 2008, p. 280). In keeping with expanding the motivational concept we will base most of the TAM variables, represented as traits, emotions, and cognitions (basically a list of drives) on the basic needs, as a simplified way to explain user behaviour.

Lee et al (2003) lists a summary of all the variables used in TAM and their definitions. From this we have chosen three variables each from PU and PEOU as represented in TAM3 to demonstrate (in Table 3) the underlying motivations of these variables. This will enable us to base our understanding of user motivations on these basic needs rather than on what seems like an increasingly growing list of variables (drives and emotions).

Table 3: TAM Variables as Basic Needs (adapted from Lee et al. 2003)

TAM Variable	TAM Definitions	Basic Needs
Self Efficacy (PEOU)	The belief that one has the capability to perform a particular behaviour	Esteem (competency)
Computer Anxiety (PEOU)	An individual's apprehension, or even fear when he/she is faced with the possibility of using computers	Safety (freedom from anxiety, fear)
Perceived Enjoyment (PEOU)	The extent to which the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences, resulting from system use.	This is an emotion resulting from experiences of competence (Esteem) & autonomy (Self-Actualisation)
Result Demonstrability (PU)	The degree to which the results of adopting/using the IS innovation are observable and communicable to others	Belongingness & Love (belong) Esteem (status, recognition)
Subject Norm (PU)	Person's perception that most people who are important to him/her think he/she should or should not perform the behaviour in question	Belongingness & Love (belong) Esteem (status, respect)
Image (PU)	The degree to which use of an innovation is perceived to enhance one's image or status in their social system	Esteem (status, respect)

As indicated in the table above most of the variables (drives and emotions) of TAM are influenced by intrinsically motivated behaviour based on the top four basic needs; those being:

- Safety – categorised as security; stability; dependency; protection; freedom from fear, from anxiety and chaos; need for structure, order, law, limits and so on (Maslow, 1970);
- Belongingness and Love – a tendency to want to join, to belong, overcoming feelings of aloneness, alienation, and strangeness; both giving and receiving these needs (Maslow, 1970);
- Esteem – the need for self-esteem and the esteem for and from others; classified into two subsets (1) strength, achievement, adequacy, mastery, competence, independence and freedom and (2) reputation or prestige, respect (from others), status, fame, dominance, recognition, appreciation (Maslow, 1970);
- Self-Actualisation – self-fulfilment, autonomy (Maslow, 1970).

By identifying the basic needs underlying TAMs variables we can now use existing participative techniques, (that have been developed based on these needs) to create facilitating conditions to meet those needs and thus enhance adoption and use of information systems and technology.

INTERVENTIONS TO ENHANCE USER MOTIVATIONS

As outlined above we are basing our underlying theoretical assumptions on the fact that people are active organisms who initiate their own behaviour through intrinsic needs. We have used Maslow's hierarchy of needs (figure 1) to say what those intrinsic needs are. We can now go on and apply various participative interventions to demonstrate how we can enhance user motivations to adopt and use technology. Before we apply those interventions it is important to review what 'participative' means in light of these underlying assumptions.

Participative Management

Participative management theories, such as McGregor's Theory Y and Likert's Theory of System 4 have used various motivation theories, including Maslow's theory of motivation, as a basis for understanding worker motivation (Deci and Ryan 1985; Gagne and Deci 2005; Maslow 1970; McGregor, 1960). This demonstrates the usefulness and applicability of using motivation theories to design interventions which will influence worker motivation and their resulting behaviour. Based on these theories interventions can be used to enhance user motivations to accept and adopt technology.

McGregor (1960 p. 115) says "the mechanics of the participation are relatively unimportant; the underlying assumptions about human beings which are reflected are crucial". Just as is in understanding motivation, participative management and its techniques should be based on the underlying theoretical assumption that people are active organisms. This then allows appropriate techniques to be successfully employed.

Theory Y's assumptions about human motivation were developed by McGregor using Maslow's theory of motivation to structure his observations in an organisational situation. Some of these assumptions are:

- people generally do want to work (depending on controlling conditions);
- work may be a source of satisfaction;
- people will use self-direction and self-control to reach committed objectives;
- commitment to objectives is a function of the rewards associated with achievement eg: the satisfaction of self-actualisation; and
- People learn to accept and some seek responsibility. (McGregor, 1960).

Theory Y implies that a participative management approach will be effective in positively motivating employees thus unleashing energy, creativity and innovation (Deci and Ryan 1985; McGregor 1960). Despite its long history, Theory Y, is still not employed correctly or at all in organisations, in fact traditional approaches to management (such as Theory X) are still being used (Helms-Mills et al. 2009; Solanti et al. 2007). The main reason being is that management assumptions (the basic mindsets) (Solanti et al. 2007; Whitely and Whitely 2007) about human motivation and behaviour have changed very little over the decades. These assumptions are consistent with Theory X, those being:

- that people will avoid work if they can;
- they dislike work and must be controlled and coerced;
- people generally want security and direction; and
- people will avoid responsibility (McGregor, 1960).

These assumptions can still be seen in policies and procedures in most organisations today reflecting the attitude that an individual's needs are not considered above organisational requirements (McGregor 1960). One example is the use of performance appraisal systems that direct workers to meet organisational goals and reward or punish them judged on how well they have done. Another example is electronic monitoring of employee performance through enterprise resource planning (ERP) systems, where automated data (such as time on task) is collected and reported back to managers (Morris and Venkatesh 2010). These examples imply that people need to be controlled and directed.

As explained above, this theory and other participative and motivational theories and strategies have been around for years but it is important to reiterate that unless the assumptions about human motivation are consistent with Theory Y any new strategy that is developed will still be based on the old assumptions (ie: Theory X), (McGregor 1960) and will not be effective. For example, Whitely and Whitely (2007) argue that organisations do recognise that employees have needs which are taken into account, however the basic mindsets of management are still consistent with traditional management approaches such as Theory X.

This indicates that organisations are using participative techniques to motivate employees, but are applying those techniques based on the assumptions of Theory X, which, as McGregor (1960) says will not be effective. For example, rather than using authority as the primary control mechanism in an organisation Theory Y suggests using other social influences; such as persuasion, consultation and discussion, and a form of influence known as professional 'help' to provide support to workers for them to "achieve their own goals best by directing their efforts toward the success of the enterprise." (McGregor 1960, Pg. 49).

Using these social influences based on the assumptions of Theory Y, incorporating the hierarchy of needs, organisations can create the conditions necessary for users to satisfy their needs, which could lead to higher motivation to accept and use technology within the workplace.

Creating Conditions to Satisfy Needs

In table 3 we have indicated how most of the TAM variables which make up the known determinants of PU or PEOU have the basic needs as their underlying motivations. From this we will now suggest (in Table 4) what interventions can be used to create conditions to help users satisfy their basic needs using participative techniques. This in turn will enhance their motivation to accept and use technology, however as McGregor (1960, p. 41) argues it is important to remember that;

> *"Management cannot provide man with self-respect, or with the respect of his fellows, or with the satisfaction of needs for self-fulfilment. We can create conditions such that he is encouraged and enabled to seek such satisfactions for himself, or we can thwart him by failing to create those conditions."*

Table 4: Interventions to Create Conditions for Need Satisfaction

TAM Variable	Basic Need	Creating Conditions to Satisfy Needs
• Computer Anxiety	Safety	• Education neutralises apparent danger through knowledge (Maslow, 1960) • Provide professional 'help' – place knowledge and skill at client's disposal. (McGregor, 1960)
• Subjective Norms • Result Demonstrability	Belongingness & Love	• Create ways to overcome loneliness, alienation, strangeness by becoming part of a group, identify with group goals & triumphs (Maslow, 1960) • Encourage organisational citizenship. (Gagne & Deci, 2005) • Serve on committees, organise work group events (Gagne & Deci, 2005)
	Esteem	• Create genuine challenges in work (McGregor, 1960) • Let workers develop their own solutions (McGregor, 1960) • Provide opportunities for workers to contribute to organisational effectiveness (McGregor, 1960) • Provide positive verbal feedback (Deci & Ryan, 1985)
• Image • Self Efficacy	Esteem	
• Perceived Enjoyment	Esteem	
	Self-Actualisation	• Let action be experienced as autonomous (Deci & Ryan, 1985) • Support autonomy by setting limits informationally (Deci & Ryan, 1985) • Acknowledge perspectives, minimize controls (Gagne & Deci, 2005)

Given that management cannot directly meet these basic needs it is important to recognise that extrinsic motivators such as rewards (in whatever form) will not enhance or drive these intrinsic motivations as Venkatesh and Balah (2008) claim. In fact there exists a great deal of research demonstrating that external influences, if they are perceived to be controlling, will tend to 'crowd-out' intrinsic motivation (Deci and Ryan 1985; Frey and Jengen 2001). Readers may refer to Frey and Jengen's (2001) *Motivation Crowding Theory,* and Howard and Swatman (2009a) for more detail on this effect.

Since intrinsic motivation is driven by the basic needs, (as demonstrated in this paper) then it can be argued that the motivation to adopt and use technology lies in being able to indirectly satisfy these basic underlying needs by creating conditions to enhance need satisfaction. However, Venkatesh and Bala (2008 p. 275) argue that,

> *"...interventions, based on the determinants of perceived usefulness and perceived ease of use, hold the key to helping managers make effective decisions about applying specific interventions to influence known determinants of IT adoption, and consequently, the success of new ITs"*

We argue, however, that enhancing adoption and use through applying participative interventions, based on the basic needs rather than on the determinates of PU and PEOU themselves would be more beneficial. For example, using the computer anxiety variable from TAM: if a person demonstrates computer anxiety, (the fear of the possibility of using technology) they are demonstrating a threat to their safety needs. In order to satisfy the safety need the person wants freedom from anxiety and fear. One way to satisfy this need is to avoid using the technology. Another way to satisfy this need is through education – this then neutralises the apparent danger through knowledge (Maslow 1970), we can also provide professional help – by placing knowledge and skill at the person's disposal (McGregor 1960). This particular intervention has been used in an ongoing study previously reported in (Howard and Swatman, 2009a) and is explained below.

Interventions as Applied to an Ongoing Study

The researchers are conducting an ongoing study which commenced in 2008, with a non-profit organisation (NPO) who is implementing an organisation wide document management system using a controlled structure to store data, as initially reported in Howard and Swatman, (2009a).

One of the underlying principles stipulated by the NPO in implementing this system was that the nature of their workforce was a core concern. They made it clear that they seek to retain an empowered workforce – where solutions must NOT be seen to be imposed on, but rather embraced by the workforce. In keeping with this directive the research team used the underlying theoretical assumption that people are active organisms, initiating their own behaviour (through intrinsic needs). Therefore the forms of social influence based on the assumptions of Theory Y were employed to create conditions in which personal needs could be met for the benefit of the organisation.

The forms of social influence from Theory Y as outlined above play a significant role in NPOs where the nature and level of dependence on a supervisor, or organisation is likely to be a lot less compared to other organisations. As reported in Howard and Swatman (2009b) NPOs have a typically intrinsically motivated workforce, (including volunteers) which means their level of dependence on the organisation (eg: fear of losing their job) is less. In the case of the adoption and utilisation of information systems the nature and degree of dependence of users is important when trying to use social influences to increase technology adoption rates within all organisations. This is because if a person perceives that their ability to satisfy their needs cannot be affected by their supervisor or organisation then their behaviour cannot be influenced (McGregor, 1960).

In this study workers were given the opportunity to participate and influence decisions which affect them, through consultation during the preliminary analysis stage and through further discussion during interviews, information sessions and training to help develop and apply the document management system that was being implemented. This allowed them to discover the satisfaction of contributing to solving an organisational problem (as reported in Howard and Swatman 2009a). This is one way of creating conditions to allow workers to satisfy their needs of belongingness and love (by being included) and their esteem needs (by having some control, and being recognised for contributing to organisational effectiveness) (McGregor, 1960).

When implementing the document management system staff were given personal responsibility for applying it to their work with no deadlines given as to when the implementation had to be completed. By giving staff this responsibility we have created the condition for them to meet their esteem and self actualisation needs. This has been achieved by minimizing control over the implementation, providing the opportunity for them to contribute to organisational effectiveness and for some, created a challenge in their work by requiring them to think differently about how they would apply the document management system. By assigning personal responsibility to the outcomes of tasks workers are more likely to self-administer their own positive verbal feedback, which has been demonstrated to enhance intrinsic motivation (Deci & Ryan 1985).

Some staff demonstrated computer anxiety because they had little to no experience using computers. Education was given to these staff members during specified participative training sessions. During these sessions staff were trained in how to use the new system and were then encouraged to apply this new system to their work during the training session. Professional help was made available by the consultant and project officer through further individualised training sessions, and at any time they felt they needed support, whether that be over the phone, through e-mail or face-to-face contact. It was found that most of the staff who demonstrated computer anxiety preferred face-to-face contact to help them reduce their anxiety.

The examples given from this ongoing study demonstrate how it is possible to enhance user motivations to accept and use a new information management system by creating conditions to satisfy their basic needs. We have taken the known determinants of IT adoption as demonstrated in TAM and converted them back to the basic needs that all individuals have (in varying degrees). We have then applied participative interventions to create conditions to satisfy those needs by directing their efforts towards the success of the organisation, in this case the NPO.

CONCLUSION

The dominant influence of TAM with its simplistic examples of intrinsic and extrinsic motivation continually being used within the acceptance and adoption literature has led to a limited understanding of the motivation concept within the IS field. The main determinants of TAM; PU and PEOU, and their variables fail to recognise the fundamental needs influencing behaviour. This in turn, restricts TAMs use to design and use interventions to enhance adoption and use within ICT enabled organisational change projects suggesting that TAM requires a fundamental modification.

By getting back to the basics of motivation, as demonstrated using Maslow's hierarchy of needs, we have shown that perceived usefulness is not an example of extrinsic motivation, but rather is made up of a number of variables whose underlying motivations are intrinsic in nature. We have also shown that enjoyment is not an example of intrinsic motivation, it is in fact an emotion representing a reward for intrinsic motivation, and computer playfulness is more an example of unmotivated behaviour rather than an example of intrinsic motivation.

We have used the basic needs to expand our understanding of the motivation of workers to accept change and adopt and use technology. Using the concept of participative management we have been able to develop effective interventions by creating conditions to help satisfy these needs thus enhancing motivation which is crucial for any IT implementation project. Based on this reconceptualisation of motivation we have applied interventions to an ongoing action research study to improve the success of implementing a document management system within an NPO.

The reconceptualisation of the motivation concept away from the heavily dominated examples introduced by TAM, is just one basic step towards redefining IS adoption and acceptance research. We now set the course for further research based on an expanded understanding of the motivation concept. It is hopeful that the IS community will begin to embrace motivation theories as a way to improve IT implementation project success rates.

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