Deconstructing Motivations of ICT Adoption and Use: A Theoretical Model and its Application to Social ICT

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ABSTRACT

This paper begins by presenting a case that models of behavioral intention do not provide insight into the core needs of human beings, and as such, cannot inform designers as to what types of ICT features and functions might help meet users' ICT adoption rationale. We review various motivational concepts across different disciplines. We then present a theoretical model of motivation that encapsulates the process from primitive basic human needs, to the formation and attainment of a specific end-state. We use a real life scenario to show the model's explanatory power. We end by discussing potential implementations of this model into the study of ICTs.

Keywords

Motivation, motive, intent, behavioral intention, goals, theory, social ICTs, IT adoption, IT use

1. INTRODUCTION

The labels Google Generation, e-Gen, Facebook Generation, Digital Generation, and Wired Generation represent the ubiquity, pervasiveness, and significance of information communication technology (ICT) use by youth and other populations in their daily lives [12]. Yet, very little is known about the motivations for adoption of ICTs, including social ICTs. Motivation is the energizing force behind behavior intention [1]; it is the conscious or unconscious stimulus for action toward a desired goal, especially as resulting from psychological or social factors [25]. Clear understanding of motivations for adoption is important not only for understanding the e-Gen phenomenon, but also to offer designers of social ICTs practical guidance as to how to construct ICTs that are desirable to use.

The most widely used theoretical models for human behaviors, including ICT adoption, are the theory of reasoned action (TRA) [2, 10] and the theory of planned behavior (TPB) [1], as well as adaptations and variations built from their foundation. As we will demonstrate next, these models fall short in providing the explanatory power behind behavior to offer designers practical advice to build ICTs that individuals are motivated to adopt and use.

TRA posits that behavioral intention is dependent on two factors: subjective norm and attitude toward the behavior [2, 10]. Subjective norm, Ajzen [1] notes, is "the likelihood that important referent individuals or groups approve or disapprove of performing a given behavior" (p. 195). Attitude is a behavioral belief held about a particular object that is linked to a particular outcome [10]. Ajzen [1] observes that a major limitation of TRA is its inability to predict "behaviors over which people have incomplete volitional control" (p. 181). As such, the theory of planned behavior (TPB) is conceived to address the judgments that one has as to how well he or she can engage in actions necessary for an enactment of a behavior. In other words, TPB adds control belief to the model of behavioral intention. Unlike subjective norm and attitude, perceived behavioral control, combined with behavioral intention, is a predictor of behavior itself.

While both TRA and TPB use beliefs to predict the degree of intention to perform a behavior (or what Ajzen [1] refers to as motivation), they fail to capture elements of volitional behavior which are not bound up in beliefs, such as needs and desires. As Gollwitzer [11] notes, "being motivated' implies a number of different phenomena" (p. 53) that begin with desires, and ends with evaluating the achieved action outcome. We will use the following scenario to illustrate the limitations of TRA and TPB.

Joe has recently moved from Italy to the United States to attend college, leaving behind his family, girlfriend and many close friends. It is rather expensive for him to call or send text messages to them regularly. Joe is considering joining the social networking web site Facebook, as many of those he would like to keep in touch with are members. They have often talked about how easy it is to join and use to connect with others. He has, however, had a negative experience with MySpace, another social networking site. He found the website interface clumsy and difficult to navigate, and as such, his interaction with his MySpace contacts was sporadic at best. As such, Joe is dubious about joining Facebook, but sees it as potentially the most viable approach to maintain desired relationships.

Within the scope of TRA and TPB, knowing Joe's beliefs is necessary to predict behavioral intention and behavior in regard to joining Facebook. While his behavioral beliefs are mixed (weighing negative experience against probability of successful interaction with friends and family), his normative beliefs are positive and strong (as he knows many existing members), as are his control beliefs (as he's heard Facebook is easy to join and use). Hence, one could reasonably predict that Joe becomes a member. However, these beliefs do not capture innate needs and personal desires, which are at the core of volitional behavior. In other words, TRA and TBP do not explicitly address the core

needs that may compel specific human activity. As such, an understanding of motivation, as a process that encapsulates needs as they are awoken into desires, ultimately forming intention to reach a goal-driven end state, begs for additional investigation. Such an understanding could offer designers of social ICTs, like Facebook, guidance into implementing designs that motivate individuals to adopt and/or use them.

We now review the literature from a number of disciplines to unearth some fundamental concepts in motivation. Then we present a theoretical model of motivation that traces what we call primitive motives (those internal, fundamental biological and psychological human needs) from their root within individuals, ultimately to the attainment of a specific goal. We illustrate the practical value of the model in offering ICT developers insight as to how design elements might best meet human needs by directing their focus on the amplification of primitive motives to specific (or what we later refer to as objectified) motives, and how intention (in particular, goal intentions, which is also defined below) develops from such motives.

2. OVERVIEW OF MOTIVATION CONCEPTS ACROSS SCHOLARLY LITERATURE

In order to gain a holistic understanding of the various phenomena that have been investigated, captured, and reported when studying motivation, we reviewed the literature in a set of diverse disciplines where human behaviors are of great interest: law, psychology, information systems (IS), human-computer interaction (HCI), and a few other branches of social science. Although we found inconsistencies in terminology use and emphases of investigations within and between disciplines, there is consistency on the existence of some important concepts. These are identified and summarized below.

2.1 Motives

The discipline of law provides some valuable insight regarding the concept of motive. Although this is not without confusion and interchangeable use between the terms motive and intent [3, 17], established distinctions are made by some. Binder [3] notes that following the utilitarianism philosophy which held that motives were purely desiderative states, and that intent was a cognitive state, inconsistent (and thus somewhat interchangeable) usage of the terms began in the 20th century. Arguments were made that a purely cognitive conceptualization of intent was incongruent with ordinary usage and actual legal usage. Such arguments were founded on the idea that intended consequences had to be those that were desired, and thus motive was not distinguishable from intent. Binder [3] explains that motive, in this line of reasoning, was "a kind of intent, one that was more distant or ulterior relative to some more immediate intent" (p. 46).

Such an argument can be observed in the writings of Mercier [23]. He states that there are two parts to the definition of a crime, "the outward act, and the state of mind with accompanies it" (p. 3), and clearly observes that motive is the part of this state of mind, being a series of desires, from primitive instincts to the specific desire for the action. As such, Mercier [23] expresses that motives are more distant intentions, and intentions are motives that are more proximate. The rationale behind this is that desires are interwoven

with intent because the consequence of an intended act springs from one's desire to perform the act. This line of reasoning in law suggests that desiderative states can be both primitive (and thus unconscious) and cognitive (and thus conscious).

From a psychological perspective, Gollwitzer [11] positions motivation as a process that involves numerous phenomena, and describes these in a model of phases, known as the Rubicon model [13-15]: action as a temporal, horizontal path that begins with motives, and ends with evaluating the achieved action outcome. He distinguishes these from wishes, implying that motives are basic, fundamental needs, and that wishes are desires that individuals are aware of. Winter et al. [29] explain that psychoanalytic tradition considers motives to be biological, fundamental drives, even though they use other terms such as desires and wishes synonymously. While there may be some degree of inconsistency in terminology, this does illustrate that psychology recognizes raw, unconscious human needs as an element of motivation. For example, Maslow [21], in discussing his hierarchy of needs, explained that primitive, unconscious needs are often at the root of desires that human beings are consciously aware of.

Within the HCI framework of activity theory, Kaptelinin and Nardi [16] state that, "objects of activities are prospective outcomes that motivate and direct activities, around which activities are coordinated, and in which activities are crystallized in a final form when the activities are complete" (p. 66). They further explain that "objects can be physical (such as a bull's eye on a target) or ideal ('I want to become a brain surgeon')" (p. 67). Objects of activities can also be referred to as objectives, giving meaning to what people do. They refer to the work of Leontiev [19], who asserted that needs are biological and/or psychological. As such, an unobjectified need is one that is a primitive state that does not have direction or purpose, while an objectified need is one that has purpose and requires an activity to fulfill.

Clearly, across these three disciplines, there is evidence to suggest that desiderative phenomenon, such as those captured in terms like "needs", "desires", and "wishes" can be categorized into those which are innate and primitive, and therefore unconscious; and those which individuals are aware of, and are about something. In law, Mercier [23], observes that action is the result of both primitive instincts and specific desires. This is reminiscent of the distinction Kaptelinin and Nardi [16] make in HCI between unobjectified needs and objectified needs. Those biological and psychological needs without objects (or goals) are those without direction, leading us to the conclusion that those which are objectified lead to intention. Likewise, in psychology, Gollwitzer [11] makes the distinction between motives and wishes, the former being desires that one is not aware of, and the latter being those that one is aware of.

Considering this point of general consistency, we have chosen to conceptualize two different types of motives in our model to maintain this distinction. We define the term *primitive motive* in our model as those unconscious needs that are most fundamental to human existence, which may be either biological or psychological. O*bjectified motive*, we define then, as consciously recognized desires (stemming from primitive motives) toward achievement (or avoidance) of a particular end. We adapt this

term from activity theory [5] to refer to this need which has been given direction. As Nardi [24] recognized that objects, as goals, are fundamentally rooted in context, we similarly see that it is context that amplifies primitive motives into objectified motives.

Similar to how Gollwitzer's [11] describes wishes leading to goal intention, our model depicts an objectified motive leading to the same, consistent with the spirit of activity theory depicting an object giving direction toward a particular end [16]. As such, we now turn our attention to defining what intention is.

2.2 Intentions

In criminal law, Binder [3] provides a historical overview on how motive and intent came to be relevant to the judicial system. Motive first came to be distinguished from intent in the late 18th century because courts were urged to distinguish between character and behavior. Motive was originally associated with character, while "intentions" were associated with behavior, which could then be compared to written rules of conduct. The utilitarian school of thought in the mid 19th century perceived motives as desiderative states, or as Binder [3] explains, "a desire or fear that causes action" (p.31), while intentions were described as cognitive states, or "expectations that accompany action" (p.31). Chiu [4], who equates motives with desires, observes that an act without a motive is one which is unintentional. Hence, under these arguments made by these law scholars, we can see that there is a distinction between two concepts. Of note, as the scholarly literature in law reviewed here seems to use the terms intent and intention interchangeably, we favor the term intention as it is more consistent with usage in other disciplines.

The most widely-adopted and expanded model of usage in IS, the technology acceptance model (TAM) [7-9], is derived from TRA/TPB. As such, usage of these terms in both psychology and IS tends to be consistent. In writing about TPB, Ajzen [1] states that "intentions are assumed to capture the motivational factors that influence a behavior; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior," (p. 181). In Ajzen's conceptualization, there is only one type of intention, behavioral intention, as behavior is what intention is directed toward.

However, Gollwitzer [11] points out a different type of intention, that of goal intention. He explains that even with high desirability and feasibility, an individual needs to form determination in order to turn a wish (or what we call an objectified motive) into an intention. As he defines it, *goal intention* is the sense of obligation that an individual forms in order to reach the particular desired ends specified by the wish. Goal intention has similarly been called intent in law. For example, Mercier [23] and Kugler [18] spoke of intent as directed toward a particular goal. Behavioral intention, Gollwitzer [11] explains, proceeds goal intention, which he distinguishes as focusing on the behavior requisite for goal perusal. This is similar to the usage of intention that Ajzen [1] employs in that it is directed toward behavior. Thus, we find it prudent to define *behavioral intention* as commitment to a specific implementation course toward volitional goal achievement that includes how, when, and where to act, as well as limitations on duration and effort.

2.3 Goals

As goal intention promotes the formation of a goal, and produces behavioral intention, it is important to address what a goal is. Much as the law literature inconsistently and interchangeably uses the terms motive and intent, the term goal is not well specified. Binder [3] often refers to intentions as goals, while Mercier [23] refers to goals as the termination of a purposeful action. Kugler [18], meanwhile, refers to goals as the ultimate aim of motive. In the two latter cases, a goal is conceived of as some type of end state, either as the termination of an action, or as an ultimate aim. This fits in closely with the usage of goals in psychology and HCI.

Within psychology, Maslow [21] writes that goals are inseparable from motives, observing that goals are the ends toward which motives drive intention. From an HCI perspective, Nardi [24] notes that, "the word goal in everyday English usage is generally something like what activity theorists call an object in that it connotes a higher-level motive" (p. 48). As Christiansen [5] coined the term "objectified motive" as a way of denoting purpose, an object (as in objective) in this reasoning represents the goal, while an objectified motive is the driver of action toward this goal. This is similar to the psychology perspective of Locke and Latham [20] who define goal as the "object or aim of an action" (p. 175), serving to direct and energize actions and enforce persistence. In both disciplines, goals are essentially perceived as end states. As motive (specifically objectified motives) direct one's attention toward goal intention, the goals that individuals strive to attain are therefore desired. As such, we define a *goal* as a desired end state.

2.4 Behavior

While goal intentions form goals, as noted above, they also form behavioral intentions. Unlike other terms reviewed in this paper, the conceptualization and usage of behavior is essentially consistent throughout the disciplines reviewed in this paper.

Writing from a psychological perspective, Coon [6] broadly defines behavior as anything that humans do, from sleeping, talking, sneezing, or thinking. He describes them as both activities and actions. In law, behavior is, in fact, the entire foundation of the discipline, as the purpose of law is to regulate (or guide) everyday behavior [22, 27]. As acts and actions are referred to as the outward, observable factors in law that determine culpability [3, 23], they are the core of behavior. Activity theory, which approaches behavior from an HCI perspective, sees behavior as the performance of activities through actions [24]. What these latter two perspectives capture, which the first does not, is behavior which is under an individual's own control. However, Wehmeyer [28], who has a psychological perspective on behavior, does use the term volitional for those behaviors which are purposeful "acts that enable the actor to cause things to happen in his or her life" (p. 115).

As those behaviors which are meant for inclusion in our model are premeditated through behavioral intention, we assume that they are volitional and thus under the control of individuals. We also assume that as a goal intention has already been formed, that they are directed toward, and performed in expectation of, attainment of a particular goal. As such, we choose define *behavior* within our model as volitional actions directed toward goal attainment.

2.5 Summary of Literature Reviewed

Our review of the literature across law, psychology, and IS/HCI has led us to the distinction and definition of two types of motives and two types of intentions, as well as a clear conceptualization of behaviors and goals. As the concepts we identified are influenced from motives, through intentions, to the performance of behavior, and ultimately goal attainment, a process emerges. Thus, we adopt the term *motivation*, to signify this process that encapsulates motives, intentions, behaviors, and goals.

3. THE MOTIVATION MODEL

Consistent with the scholarly literature above, we consider motivation to be a process. Our model is designed to depict the internal process mechanisms that lead to observable, motivated behaviors. By deconstructing motivation into such a detailed process, we hope to identify elements that can lead to informed ICT design decisions. Figure 1 illustrates our model, while an explanation of the model follows.
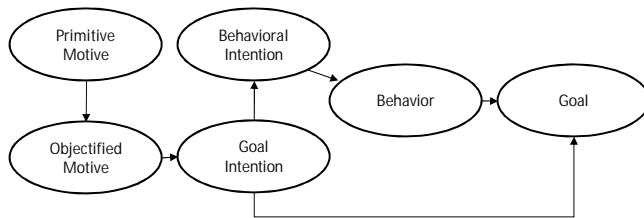

Figure 1. A Motivation Model of ICT Adoption and Use

Our model begins with *primitive motives*, conceived of as biological or psychological needs that are fundamental to existence. These are context-free desires, common and inherently preprogrammed into the human organism. *Objectified motives* are consciously recognized specific desires which direct attention toward a particular goal.

Primitive motives are transformed into objectified motives through the influence of contextual factors that make an individual aware of a need. As desires that are consciously recognized, if an objective motive has high enough desirability and feasibility, a *goal intention* is formed. This is the sense of obligation an individual creates for him or herself toward reaching that desire specified by the objectified motive. A goal intention specifies a *goal*, an end state which represents the fulfillment of the specific desire, and leads to *behavioral intention*. This is defined as commitment to a specific implementation course toward the desired goal, consisting of when, where, and how to act, including limitations on effort and duration. The behavioral intention directs the *behavior* that the individual engages in, which is conceived of as those volitional actions which are performed toward attainment of the specified goal.

4. APPLYING THE MOTIVATION MODEL

To illustrate how our model may have implications for ICT design and use, we turn to the scenario introduced earlier in order to identify the various constructs and their relationships.

Per our scenario, Joe has the objectified motive of wishing to keep in touch with those he left behind in Italy. Yet, unlike existing models that predict or explain behavior, such as TRA and TBP [1, 2, 10], our model allows us to look back one step further. In other words, what primitive motives give form to this objectified motive? One which is evident is that of relatedness [26, 30], a common, basic need to maintain social connections. With the context of Joe being away from his family and friends in Italy, his primitive motive of relatedness becomes amplified into his objectified motive, a conscious wish to keep in touch with them. Of note, we do recognize that this could be looked at as multiple (albeit similar) objectified motives, such as Joe wishing to keep in touch with family, Joe wishing to maintain a relationship with his girlfriend, and Joe wishing to continue to interact with friends on some level. For the sake of parsimony, and as all three of these objectified motives can fit into the attainment of a single goal, we choose to refer to it as a single motive.

An objectified motive can be turned into a goal intention if desirability is strong enough, and if it is feasible enough. In Joe's case, despite having reservations about joining another social ICT website, if his desirability to keep in touch with family and friends is strong enough, a goal intention will form. This goal intention will be a sense of obligation for Joe to join Facebook, while also making him aware that joining Facebook is a goal he must work toward. It is this sense of recognition, of having an unattained goal, which spawns Joe's behavioral intention to join, consisting of a particular course of action that involves the what, where, and how, as well as the effort he will put into it. For example, his behavioral intention to join Facebook may consist of logging into his computer at home tomorrow evening after class, and filling out the requisite online forms. Of note, behavioral intention does not necessarily mean that the behavior will occur. Joe may accidentally fall down stairs on his way home and break his leg, delaying his behavior. He may get a call from his girlfriend breaking-up with him, which may cause him to abandon his plan. Or there may be a power outage in the dorm that causes Joe to adapt his strategy and join from another computer at another time. In this way, behavioral intention is a plan that may not necessarily comes to fruition, but does serve to further direct attention toward a goal.

The behavior Joe performs may or may not match up exactly with that expected within his behavioral intention, based on unexpected influences noted above. However, going forward in the process of motivation, Joe engages in behavior that allows him to reach his goal. The enactment of behavior that is geared toward the goal is a result of behavioral intention, even if outside forces have intervened. As our example above stated, if Joe has intention to join Facebook from his door room at a specified time, but his power goes out then, the behavior he performs by logging into his iPhone and joining Facebook from there, is still a product of his original behavioral intention, even though the actual behavior is slightly different. The process of motivation still continues unbroken in our model. However, if Joe's girlfriend breaks up with him, and causes him to abandon his intention, we would say that the process of motivation has ended. If the goal is attained, we would say that the process of motivation, in regard to this particular objective, has allowed Joe to reach his desired end state. Looking backward we can see that this end state originated from

Joe's primitive motives, and was the energizing force that carried him through to the attainment of his goal.

Our motivational model is, in this way, stronger than that of TRA and TPB in that designers of ICTs recognize that goal attainment (for example adoption or use) is a product of fixed, and common primitive needs. TRA and TPB fail to consider such human biological and psychological needs as drivers toward behavior. As primitive motives are amplified into objectified motives within a particular context or by particular activity (as Nardi [24] sees context and objects as mutually influencing one another), designers of social ICTs might look at how to design contexts that invoke this amplification. For example, if Facebook was to include a romantic, match-making feature that the designers wanted users to adopt, they might subtly put single users in a context that makes them aware of their needs. Designers may tweak the interface to bold users' relationship statuses of "single", or even write a script that embeds pictures of singles that are using the app onto the side of other singles' windows. Similarly, to promote a higher degree of usage, designers may want to add new communication features such as video chat or the ability to exchange files, as these might cause users to feel more socially connected. In other words, by creating contexts that makes one aware of wishes to fulfill psychological or biological needs, adoption and use might be increased.

5. CONCLUSION

As Hardey [12] noted that adoption of social ICTs is a popular enough phenomenon to garner a number of different generational labels for its constituents, understanding the motivational factors involved is necessary to not only explain why, but also to give practical guidance to designers who wish to maximize adoption and use for a given social purpose. In this paper, we reviewed literature that spans disciplines such as law, information systems, psychology, and human-computer interaction to formulate a holistic understanding of what motivation entails. We then developed a model that depicts various, distinct stages of the motivation process. Such deconstruction of motivation allows designers to emphasize certain elements of the model to inform design of desirable ICTs. We used a social ICT (Facebook) to illustrate the main concepts and relationships bound within our model. However, we want to emphasize that it can be applied to other types of ICTs.

There are many potential future research directions. Our model is the first step toward filling the gap in existing theoretical work to explain human behaviors in the ICT context. Certainly, there is a need for further refinement and empirical validation. The formation of objectified motives, goal intention, and behavioral intentions within given contexts are worth further investigation in order for the model to be of value to designers. Additionally, identifying how specific features and affordances of social ICTs allow adopters to meet their goals, and thus human needs, is potentially another very influential direction for research that may ultimately influence ICT design.

6. REFERENCES

[1] Ajzen, I. 1991. The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50. 179-211.

[2] Ajzen, I. and Fishbein, M. 1980. *Understanding Attitudes and Predicting Social Behavior*. Prentice-Hall, Englewood Cliffs, NJ.

[3] Binder, G. 2003. The Rhetoric of Motive and Intent. *Buffalo Criminal Law Review*, 6 (1). 1-96.

[4] Chiu, E.M. 2005. The Challenge of Motive in the Criminal Law. *Legal Studies Research Paper Series* (February 2005).

[5] Christiansen, E. 1996. Tamed By a Rose: Computers in Human Activity. in Nardi, B. ed. *Context and Consciousness: Activity Theory and Human Computer Interaction*, The MIT Press, Cambridge, MA.

[6] Coon, D. 1994. *Essentials of Psychology: Exploration and Application*. West Publishing Company, St. Paul, MN.

[7] Davis, F.D. 1986. A Technology Acceptance Model for Empirically Testing New End-User Information Systems: Theory and Results. *Sloan School of Management*, Massachusetts Institute of Technology.

[8] Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. 1989. User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science*, 35 (8). 982-1003.

[9] Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. 1992. Extrinsic and Intrinsic Motivation to Use Computers in the Workplace. *Journal of Applied Social Psychology*, 22 (14). 1111-1132.

[10] Fishbein, M. and Ajzen, I. 1975. *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Addison-Wesley, Reading, MA.

[11] Gollwitzer, P.M. 1990. Action Phases and Mind Sets. in Higgins, E.T. and Sorrentino, R.M. eds. *Handbook of Motivation and Cognition: Foundationd of Social Behavior*, Guilford Press, New York.

[12] Hardey, M. 2009. ICTs and Generations - Constantly Connected Social Lives. in *COST: The Good, the Bad and the Challenging*, (Copenhagen, Denmark, 2009).

[13] Heckhausen, H. 1987. Wishing-Weighing-Willing. in Heckhausen, H., Gollwitzer, P.M. and Weinert, F.E. eds. Jenseits *des Rubikon: Der Wille in den Hunzantaissenschaften*. Springer-Verlag., Heidelberg, 3-9.

[14] Heckhausen, H. and Gollwitzer, P.M. 1986. Information Processing Before and After the Formation of an Intent. in Klix, F. and Hagendorf, H. eds *In memoriam Hermann Ebbinghaus: Symposium on the structure and function of human memory*, Elsevier/North-Holland, Amsterdam, 1071-1082.

[15] Heckhausen, H. and Gollwitzer, P.M. 1987. Thought Contents and Cognitive Functioning in Motivation versus volitional States of Mind. *Motivation and Emotion* (11). 101-120.

[16] Kaptelinin, V. and Nardi, B.A. 2006. *Acting with Technology: Activity Theory and Interaction Design*. The MIT Press, Cambridge.

[17] Kaufman, W.R.P. 2003. Motive, Intention, and Morality in the Criminal Law. *Criminal Justice Review*, 28 (2). 317-335.

[18] Kugler, I. 2002. *Direct and Oblique Intention in the Criminal Law*. Ashgate Publishing Company, Burlington, VT.

[19] Leontiev, A. 1978. *Activity, Consciousness, and Personality*. Prentice-Hall, Englewood Cliffs, NJ.

[20] Locke, E.A. and Latham, G.P. 2002. Building a Practically Useful Theory of Goal Setting and Task Motivation. *American Psychologist*, 57 (9). 705-717.

[21] Maslow, A.H. 1943. Preface to Motivation Theory. Psychosomatic *Medicine*, 5. 85-92.

[22] Melton, G.B. 1992. The Law is a Good Thing (Psychology Is, Too): Human Rights in Psychological Jurisprudence. *Law and Human Behavior*, 16 (4). 381-398.

[23] Mercier, C. 1926. *Criminal Responsibility*. Physicians and Surgeons Book Co., New York.

[24] Nardi, B.A. 1992. Studying context: a comparison of activity theory, situation action models, and distributed cognition *East-West HCI Conference*, ICSTI, Moscow.

[25] Oxford English Dictionary (2009), Motivation. Retrieved November 10, 2009 from http://dictionary.oed.com/cgi/entry/00316490?single=1&query_type=word&queryword=motivation&first=1&max_to_show=10

[26] Reeve, J. 2001. *Understanding Motivation and Emotion*. John Wiley & Sons, Inc., University of Iowa.

[27] Teubner, G. 1983. Substantive and Reflexive Elements in Modern Law. *Law & Society Review*, 17 (2). 239-285.

[28] Wehmeyer, M.L. 2005. Self-Determination and Individuals with Severe Disabilities: Re-examining Meanings and Misinterpretations. *Research & Practice for Persons with Severe Disabilities*, 30 (3). 113-120.

[29] Winter, D.G., Stewart, A.J., John, O.P., Klohnen, E.C. and Duncan, L.E. 1998. Traits and Motives: Toward an Integration of Two Traditions in Personality Research. *Psychological Review*, 105 (2). 230-250.

[30] Zhang, P. 2008. Toward a Positive Design Theory: Principles for Designing Motivating Information and Communication Technology. in Avital, M., Bolland, R. and Cooperrider, D. eds. *Designing Information and Organizations with a Positive Lens, a volume of the Advances in Appreciative Inquiry series*, Elsevier.