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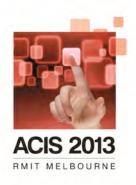*The University of New South Wales*, a.utesheva@unsw.edu.au

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Abstract

Extant literature has largely backgrounded the psychological processes of those being persuaded in online persuasion situations. If we do not examine these processes, we may not be able to fully understand or measure the impact of persuasive artefacts outside of their observable outcomes. In response to this issue, this paper conceptualizes the persuasion process as a state of psychological transition with respect to the individual being persuaded (cf. Kelly 1955; Stojnov 2003). We do this by drawing on the work of George Kelly and personal construct theory, and illustrate how this theory may be useful in better understanding both the process of persuasion and its outcomes. Finally, we discuss how online persuasion is further challenged by the multitude of ways in which the digital artefact can materialize.

Keywords

Online persuasion, Personal construct theory, Psychological transition, Digital artefact.

INTRODUCTION

As every website is trying to persuade its users of something (Horvath 2011), persuasion forms a central part of internet usage. The importance of persuasion is also evident from the plethora of persuasion techniques applied to internet communication technology (ICT) domains, such as online games (Bogost 2007), recommender systems (Gretzel and Fesenmaier 2006), and virtual communities (Park and Feinberg 2010). Furthermore, persuasion has become a core part of emerging online ecosystems, such as e-learning (Lucero et al. 2006) e-governance (Horvath 2011) and e-health (Chatterjee and Price 2009), which are heavily dependent on persuading users to change their behaviours as part of their business models (e.g., to enrol, vote, or exercise). However, despite the acknowledgement of the growing importance of technology enabled behaviour change (e.g. Oinas-Kukkonen 2010), there is little consensus on how to persuade effectively within the digital realm. In order to fill this gap in knowledge and better facilitate the development of effective persuasion techniques, this paper examines the dominant conceptualizations of persuasion in the literature and provides an alternate approach to understanding this process, particularly in online situations. As the digital artefact tends to target individuals in online persuasion situations, the proposed approach emphasises the importance of understanding both the internal process that the individual undergoes during the act of persuasion and the role of the artefact in this process.

While persuasion can refer to subtle changes in behaviour, in the context of this paper we use persuasion to refer to a major shift in attitudes, views, and eventually behaviours. Currently, the internal process of persuasion has largely been overlooked by IS research, with limited published studies attempting to explore why individuals are persuaded by ICT, or more importantly, why they may not be persuaded. For example, the persuasive systems

literature reports that an individual may be persuaded if they "like" the look and feel of a system (Lehto and Oinas-Kukkonen 2011); however, a critical examination of what makes a digital artefact likeable, or the possible causes behind likeability is missing from the literature.

Personal construct theory (PCT) offers useful insights into these differences, highlighting what change actually means to an individual, and illuminates what the process of shifting one's views from not-likable to likeable might actually entail. What is termed in persuasion literature as "likable", within PCT would refer to one of the poles on the likable – not-likable construct, therefore allowing us to track the shift from one extreme to another. Hence, the equivalent of what is likeable in PCT is whatever resides on an individual's "preferred pole" with respect to the topic at hand. This preferred pole is the opposite of the non-preferred pole on a chain of dichotomous constructs known as an individual's "ladder" (Fransella 2003; Kelly 1955a, 1955b). This ladder can go from the lowest level construct in question, to the most superordinate construct in an individual's personal construct system: meaning of life (Cummins 2003). All constructs in a person's personal construct system are associated with notions of 'right' or 'wrong', which correspond to the preferred and non-preferred pole, respectively. An individual is thus motivated to do what he or she perceives as aligning with the preferred pole. In other words, when attempting to persuade someone to do something they would not normally do, especially at the higher levels of a person's non-preferred pole, they are being asked to ultimately violate alignment with the preferred pole, and, in some ways, that which gives their lives meaning. The process of shifting from one pole to another at superordinate levels, and then re-construing, is known as "transition" in PCT (Kelly 1955a, 1955b). This logic potentially calls into question the assumption that constructs such as likeable necessarily lead to persuasion, instead highlighting the possibility that it may be a rationalization after having had their worldview (or personal construct system) validated, rather than actually having been persuaded. Consequently, instead of viewing the internal transition as a 'blackbox', PCT offers insights into the complexity of the attitude change process and why some individuals may fiercely resist being persuaded.

Furthermore, the process of persuasion online is heavily dependent upon digital artefacts. This adds further complexity to unravelling persuasion, as a digital artefact can materialize in a number of different ways, on any number of devices. Hence, a specific digital artefact may materialize visually in an unpredictable number of ways, and therefore cannot be viewed as a predetermined or given condition. Thus, when considering the aforementioned example of likeability, we must acknowledge that these issues are not static considerations, as they may change across different materialisations of artefacts. PCT is equally useful here, as the theory can contribute to understanding the impact of the multiplicity of digital artefacts on the process of persuasion. Indeed, PCT's basic postulate is "a person's processes are psychologically channelized by the ways in which he anticipates events", and "we are talking about that person as an event—the processes that express his personality" (Kelly 1955a, p. 7). In other words, PCT tells us that everything a person thinks and does is in order to predict events, and when a person does not correctly predict an event, this is known as invalidation, and can have effects as dire as post-traumatic stress disorder if the invalidated construct is superordinate (McFarlane and Bookless 2001; Sewell 2003). While this is an extreme example, it does highlight the importance of understanding the nature of the digital artefact, and why we must consider it in online persuasion scenarios.

In this paper we review the basics of persuasion and analyse how it has been applied within digital contexts. We then discuss how it might be viewed differently when conceptualized as a state of transition using PCT as our lens. We examine some of the implications of this view, how persuasion can be seen as a change in "superordinate constructs" (cf. Kelly 1955a), and how research in this area stands to inform online persuasion theory. We finish by discussing the challenges that come with the digital artefact and its materialization, and use this as context for showing why PCT may be useful in solving issues faced by IS researchers examining persuasion online.

BACKGROUND

Persuasion is a vast area of research, which dates back to the ancient Greeks (Golden 1989). Hence, it is beyond the scope of this paper to give anything other than a concise review. While we focus primarily on online persuasion, to ground our understanding of the context we start by broadly introducing the concept of persuasion. We then discuss the principles of persuasion as representative examples of persuasion techniques. We finish by outlining research on the principles of persuasion in online contexts as part of outlining the impacts of context on persuasion.

Principles of Persuasion

Broadly, persuasion "involves one or more persons who are engaged in the activity of creating, reinforcing, modifying, or extinguishing beliefs, attitudes, intentions, motivations, and/or behaviours within the constraints of a given communication context" (Gass and Seiter 2011, p. 33). Examples of this in IS are a shopping website persuading people to buy shoes, or an ATM convincing customers to cover the pin pad while entering their pin. In general, persuasion research examines the who, what, where, and why (Scholten 1996) of the persuasion process

and the factors which impact on it. A significant part of this research has been dedicated to researching persuasion techniques and their effectiveness. Over one hundred and sixty persuasion techniques have been identified (Rhoads 2007); however, due to the scope of this paper we will focus only on the principles of persuasion, as they can be viewed as a well-known set of innate human behaviours that are leveraged by multiple persuasive techniques (Cialdini 2009). Each of the principles of persuasion has a large body of empirical evidence to support it (ibid), and each of the six principles and their core manifestations, as described in Cialdini (2009), are summarised over the following paragraphs.

The principle of scarcity states that scarce resources are generally valued more highly than plentiful ones. Thus, if a person is made aware of the scarcity of an opportunity they may be more motivated to take action, thereby being persuaded. For example, restricting a book to those over 21 made those under 21 want to read it more (Zellinger et al. 1975). Scarcity can exist in several ways, all of which emphasise the brevity of an opportunity. Common means of doing this are by creating an artificial window of opportunity: limited supplies, limited purchases allowed, or limited time for access (Cialdini 2009).

The principle of reciprocity states that people tend to feel obliged to repay others for generosity. The most common way that reciprocation is leveraged is by doing something for someone before making a request, thus motivating them to comply. One of the earliest tests of reciprocity was performed by Regan (1971), who reports that an experimental stooge was able to sell many more lottery tickets when he gave participants a can of soda prior to attempting to sell the tickets. Cialdini et al. (1975) discuss a second manifestation of reciprocity, reciprocal concession, which is also known as "rejection then retreat". This is where one party makes a concession (for example lowering a demand) in the hope of receiving a similar concession from another party.

The principle of social proof states that people often allow the actions of others to affect their own behaviour, therefore if others behave in a certain manner, it will motivate an individual to behave similarly. An early experimental example of social proof in action was Asch (1951), who influenced his participants appraisal of the length of lines through inaccurate social proof given by his stooges. Similarly, Milgram et al. (1969) report that a crowd of individuals looking upwards influenced others walking past to stop and do the same and that the larger the crowd was the more individuals would stop. Social proof is usually leveraged with claims such as "Used by more people", "most popular" and; "top selling" (Cialdini 2009). Another use of social proof is through injunctive norms which focus on describing how people would like others to behave, rather than how they actually do behave (ibid).

The principle of liking states that someone who is liked by an individual they are trying to persuade has a higher probability of successfully persuading them. This was demonstrated by several studies (e.g. Regan 1971). Liking is often leveraged by the 'recommended by a friend' strategy which allows the salesman to benefit from the relationship which is maintained with a friend (Cialdini 2009). Cialdini (2009) list five other ways in which liking can manifest: similarity, contact and cooperation, compliments, physical attractiveness, and conditioning and association.

The principle of authority states that authority figures can persuade people to do things they would not do otherwise, simply because they are viewed as important. The most famous test of authority was (Milgram 1963) who found that the encouragement of an authority figure could persuade participants to give painful shocks to a victim. Further repetitions of the experiment, using different types of authorities, supported this finding (Milgram 1974). Institutions and titles are often used within appeals to authority. For example, a website with the Harvard crest and a testimonial from a doctor within the medical school will make a strong authority appeal. On a personal level, the appearance of authority can be demonstrated through titles, clothes and possessions, and is often based on what people attribute to the source rather than the reality (Cialdini 2009).

The principle of commitment and consistency states that people generally feel obliged to remain consistent with their past commitments, thus the motivation for action is to not lose existing social ties. Inconsistency can be viewed as a negative characteristic by individuals and society (Festinger 1962). Socially, most people expect others to be consistent with what they have said in the past, and, individually most people attempt to be consistent with their own self-image, which is moulded by the commitments each person makes. One commitment strategy, known as the foot in the door approach, depends on having the target make a small commitment which is later used to gain compliance with a larger request (Freedman and Fraser 1966). Lowballing is another commitment and consistency strategy where an unfeasibly generous offer is tabled and accepted, before being withdrawn and substituted for slightly less generous one (Cialdini et al. 1978).

These principles of persuasion are widely used offline and have many different variants, but have not been widely tested online (Guadagno and Cialdini 2005). In this paper we focus in particular on liking and use this construct to illustrate the potential for an alternate view of persuasion in ICT. Next we discuss the challenges caused by online persuasion by examining the extent to which persuasion has been studied across different communication modalities as well as the impact of modality on persuasion.

Persuasion in ICT

Different forms of communication impose constraints on persuasion that are important to consider (Gass and Seiter 2011). Indeed, each time the medium changes (e.g. from text to computer, or computer to information system, etc.) that which constitutes effective persuasion also changes (Chaiken and Eagly 1983). Despite this, the study of persuasion within ICT has been limited as attitudinal theories are usually applied for the purpose of predicting user intentions and user behaviour rather than prescribing design methods for behaviour change (cf. Oinas-Kukkonen and Harjumaa 2009). Similarity, with respect to the principles of persuasion, these techniques have rarely been tested in order to determine if they are as effective in online contexts as offline, or to understand how specific techniques can effectively be recreated online. Instead, it has been largely assumed that persuasive techniques retain their effectiveness regardless of the nature of the individual or the artefact involved in the persuasion process. Indeed, the most recent review of the use of the principles of persuasion online concluded that "owing to the dearth of research on influence in cyberspace available to review, much remains to be learned about the nature of online influence" (Guadagno and Cialdini 2005, p. 25)

While persuasion online is understudied, persuasive communication is growing exponentially with technological and commercial improvements (e.g. Perloff 2003). Online advertising revenue grew tenfold over 1998 – 2008 and the internet is now the fastest growing advertising medium (Ha 2008). As a result, many information systems are loaded with persuasive content (cf. Guadagno and Cialdini 2005). It is possible that the high frequency of embedded persuasion techniques (e.g. pop up ads) creates familiarity (cf. Campbell and Keller 2003), which erodes effectiveness and immunises people against them. As a result, rather than creating a sense of scarcity, pop-up advertisements stating "you have 10 seconds to buy" may in fact be counterproductive.

Furthermore, empirical evidence (Guadagno and Cialdini 2005) suggests that social cues may be less salient in computer mediated contexts than in offline contexts and, as may be expected given the highly social basis of the principles of persuasion, certain persuasion techniques which rely on social cues (Chaiken and Eagly 1983) have been shown to be less effective in online domains.

Finally, the nature of the digital artefact, in particular its multiplicity and malleability, stands to further affect the persuasion process. For example, while we can easily get people to sign petitions online (cf. McCafferty 2011), is a digital 'signature' likely to induce the same desire for consistency as a written or verbal commitment? Similarly, are we really able to induce scarcity by limiting access to infinitely replicable resources like ebooks, or induce effortful reciprocal acts by offering that seemingly infinitely replicable resource to a website visitor?

Consequently, as online persuasion is complex, understudied, yet growing rapidly, we are presented with a chain of challenges. As we shift persuasion online, traditional principles may differ in effectiveness due to the new affordances, as well as limitations, of this context. The lack of social cues uncovers a fundamental challenge, as this is precisely what many persuasive principles were built upon. If that were not enough, the variability of the digital artefact (i.e. the agent that is employed to do the persuading online) leads to further uncertainty. At first glance the challenges may appear overwhelming, as the complexity of this particular area appears to be increasing with no clear way forward; however, a re-examination of the process of persuasion, and re-conceptualisation of constructs such as likeable, may be helpful in aiding researchers and practitioners to navigate this increasing complexity.

PERSUASION AS PSYCHOLOGICAL TRANSITION

The previous section uncovered various aspects of persuasion; however, extant literature that applies persuasion techniques often fails to address psychological processes that may be taking place during the persuasion process with respect to the targeted individual. Indeed, much of the confusion in the previous section may be a direct result of the failure to consider these processes. For example, general persuasion literature suggests that in order to persuade we must change an individual's attitudes. But why do certain individuals have certain attitudes, and why might these attitudes be resistant to change? If left unexamined under a critical light then we may never fully understand why a digital artefact may or may not be "likeable". In this section, we view the persuasion process through a personal construct theory (PCT) lens, specifically one of psychological transition, and demonstrate how this theory may be useful for online persuasion researchers attempting to answer these questions by understanding the serious nature of transition.

Personal Construct Theory Basics

PCT was created by psychologist George Kelly (Kelly 1955a, 1955b) as a response to the prevailing behavioural approach to psychology in North America in the 1950's. PCT research is primarily interested in understanding how each individual construes, or makes sense of, the world around them. PCT expounds upon a basic postulate and 11 corollaries. Furthermore, it argues that an individual's personal construct system is composed of various superordinate constructs with all other subordinate constructs falling underneath them in a hierarchical fashion. In other words, these superordinate constructs compose one's basic identity (ibid), which in turn can be viewed as

the root of human action (cf. Beach 2010). PCT research in IS emerged in the 1990's (e.g. Hunter 1993) and made its way into the mainstream IS literature in the early 2000's (e.g. Tan and Hunter 2002), primarily via its methodological extension the repertory grid technique or RepGrid. Unfortunately, while RepGrid has enjoyed a considerable amount of success in IS research, the bulk of its founding theory (PCT) and the theory's broader implications for other areas of IS research has largely been overlooked.

The basic postulate of personal construct theory states that "a person's processes are psychologically channelized by the ways in which he anticipates events", and "we are talking about that person as an event—the processes that express his personality" (Kelly 1955a, p. 7). The basic postulate simply means that everything a person can understand, identify with, perceive, etc., is the result of the way in which that person tries to predict some future event, and that event can be a person, place, object, concept, etc., including the person themselves. So what does this mean with respect to online persuasion? First, we need to consider that the persuasive digital artefact is by its very nature (whether viewed as an independent or social agent) attempting to get a person (an event) to do something (a process) that the person would *not* normally do; or, in PCT terms, consider or construct an alternative (Kelly 1955a). The opposite of this is what the person would normally do, which is based on correctly anticipating events most of the time (cf. ibid). Therefore, based on the basic postulate, we must recognize that what is being 'asked' of the person in a persuasive situation is to be 'wrong' or incorrectly anticipate an event – the event being themselves – and furthermore to not only accept being wrong about themselves, but somehow also find it within themselves to take the action sought by the persuader after having just been invalidated.

For example, if we successfully persuaded someone to give to charity, we may be dealing with a superordinate construct as the 'charity – success through hard work' dichotomous construct tends to be a highly controversial one. If the individual previously viewed giving to charity as 'wrong' we would have to convince them that giving to charity is not wrong, i.e. that they were wrong. In other words, they would have to admit to themselves that they were wrong, and after having been invalidated at a superordinate level then give someone money.

Additionally, if we examine what other challenges may be inherent in this process, one that surfaces is how someone chooses at each point in this process. While there are 11 corollaries in PCT, we believe that the choice corollary best illustrates additional fundamental challenges that face online persuasion researchers. The choice corollary presents an interesting challenge, as it appears to suggest that a person may be persuaded only if we begin by understanding his or her personal construct system. The choice corollary states that "A person chooses for himself that alternative in a dichotomized construct through which he anticipates the greater possibility for the elaboration of his system" (Kelly 1955c, p. 11). In other words, if an individual is faced with a situation in which he or she must choose among various courses of action, the action chosen is simply the path that leads to a richer or expanded personal construct system – a system that will allow for better anticipation of events, not further invalidation.

This elaboration is of course very individualized, and, indeed, "elaboration of the system is possible only if the superordinate constructs are permeable enough to tolerate the incompatibilities which will crop up as the aftermath of one's making his choice" (Kelly 1955a, p. 525). Therefore, the challenge that this presents to persuasion is one of understanding how to make a person's superordinate constructs, or basic identity, permeable, as well as understanding that some individual's identities may be so tightly construed that there is no 'right' answer with respect to persuasion in such a situation – it may simply never happen. Or alternatively, there may be individuals that purposely move towards invalidation as this itself may lead to re-construal and, therefore, an expanded system (cf. Fransella 2003). However, if they are already moving towards invalidation, they would already be doing the very thing we wished them to do; they do not need persuading. This also begins to answer our question of what makes the digital artefact likable, as what defines likeable may simply be that which leads to an expansion of the personal construct system.

Dimensions of Transition & Persuasion

PCT views the process of an individual's change in behaviour, attitudes, worldview, etc., as transition (cf. Kelly 1955a, 1955b). As outlined in the preceding section, we can view the persuasive process on the part of the individual being persuaded as psychological transition, in that they are transitioning (being persuaded) from one set of constructs which were assumed to be 'correct', to another (slightly different) set of constructs which were construed after one or more of the originals were shown to be 'incorrect'. This new set of constructs then represents the new 'correct' set with which they anticipate events. As illustrated earlier, this transition comes as no small task given the nature of what is being asked of the individual being persuaded. In this section we describe some of the "dimensions of transition" (cf. ibid), how they might relate to an online persuasion situation involving digital artefacts, and further illustrate the seriousness of the persuasion process.

"There are four terms which have particular relevance to transition: threat, guilt, fear, and anxiety" (Kelly 1955a, p. 488-489). In PCT, when a person experiences either threat or fear it is the result of that person's perception of an imminent change in his or her core constructs which is the result of invalidation in one form or another. Anxiety is what a person experiences when they realize that not only have they been invalidated, but that the

invalidating event lies outside of his or her ability to explain it/construct system. Guilt is what a person experiences when they have been dislodged from one or more "core roles" due to some event. Any or all of these can result in hostility towards anyone or anything that may have played a part, which can result in the individual completely shutting down during the transition (ibid).

This has obvious implications for the persuasive process, as these emotions are typically not associated with successful persuasion. Yet, every time a person is persuaded about a significant value or belief, they experience these emotions to some degree, since to be persuaded is to experience transition from one set of beliefs to another. Given the strength and negative connotations typically associated with these emotions in the event of a major superordinate construct shift, would one expect an individual to assign the attribute likeable to something or someone that had honestly persuaded them? Or if they responded to the artefact as likeable, might that person have already had a similar worldview and the supposed persuader simply gave them an additional construct with which to expand their system subsequently causing the person to agree that they had been persuaded and liked the artefact? Either is possible, but the key here is to acknowledge the emotional experiences inherent in transition (and therefore in persuasion) and the possible implications for the variables that online persuasion researchers aim to test.

For example, say that we wish to increase the donations to a charitable organization via their website, and we constructed a digital artefact that we believed to be theoretically sound with respect to extant online persuasion literature, specifically that it appeared to embody all things likeable. We then wanted to test the likeability construct so we deployed the artefact to a website, recruited visitors, observed their donating behaviour, and then asked them to what degree they felt that the artefact was likable. What did likeability lead to? Was it persuasion (change in attitudes), or was it simply another way to bolster the person's basic identity by adding yet another experience? If viewed through a PCT lens, it would appear to be the latter. Otherwise, if the person had actually been persuaded, thereby going through a psychological transition, it is unlikely that the person would immediately respond to the artefact as likeable the majority of the time in the same sense that likeable is conceptualized in the previously reviewed persuasion literature.

Consider the earlier scenario in which a person, for one reason or another, was adamantly against donating money to any organization. However, something about the artefact or the information presented by the artefact did indeed change the person's attitude towards donating, which according to PCT necessarily involves a transition that necessarily results in them experiencing some level of threat, fear, anxiety, and guilt. Would it be a stretch of the imagination to say that the person who was *actually* persuaded had responded to having *not* liked the artefact? If that is the case, and if it is indeed persuasion we are interested in, what are the implications of throwing away the outlier if this is the one case in which someone was actually persuaded?

Without considering these questions such as these we charge forward assuming that factors such as likeability lead to persuasion and we risk the possibility of having not solved any actual problem or made any meaningful discoveries. On the other hand, if we are critical of what persuasion might actually be and sensitive to what this transition means to individuals then this might offer online persuasion researchers a much more fruitful way forward, as we might then actually be studying persuasion rather than rationalizations about persuasion. By taking a PCT view of persuasion as psychological transition we can not only begin to understand what the process of persuasion could mean to individuals, and therefore why it has become such a challenge, but also rethink the very idea of what it means to persuade.

DIGITAL ARTIFACTS: THE MULTIFACED AGENTS OF PERSUASION

In unpacking the 'blackbox' of online persuasion, taking a PCT view illuminates another potential issue that could influence our understanding of the concept: the ambiguity of the role the digital artefact plays in the persuasion process. By artefact we refer to any digital technologies (e.g. hardware and software) that can be used in the process of persuasion. To properly address this issue it may be problematic to take the same approach as extant literature (e.g. Zhang et al. 2011) and view digital artefacts as static or unchanging constants that have no effect on the process of psychological transition, or as mere passive containers for persuasion techniques.

First, digital artefacts are fundamentally different to traditional media used to persuade in that they are unstable and constantly in flux, altering their look and feel with each manifestation on a device. Second, artefacts have agency (Leonardi 2010) (i.e. they materially change the world around them), and, hence, need to be acknowledged as an active actor in the persuasion process. Third, as the majority of the classic persuasion techniques were arguably created for static media; the application of these techniques to online situations may be problematic and needs closer examination. Consequently, this calls for a critical analysis of the nature of digital artefacts, questioning how they differ from traditional media, what media specific considerations need to be applied to effectively persuade, and how existing techniques may be adapted to the digital realm. Viewing artefacts as active agents that materially alter the world around them (Leonardi 2010; Orlikowski and Iacono 2001) provides us with a vital perspective shift needed to begin these investigations. Importantly, through this approach, the artefact is

attributed responsibility for persuading the individual to undertake a specific action and, as such, is viewed as an active and multifaceted agent of persuasion.

The key argument in this section, with respect to what we said so far, is that the same message that may undermine or threaten an individual's core constructs in one medium may not have the same effect in another medium. Hence, just as we cannot assume that every individual will react the same way to the same cues (due to their unique nature), we cannot assume that the same persuasion technique will have the same effect across different artefacts. Artefacts in this sense are as complex in nature as the individuals they aim to persuade, and this complexity must be taken into consideration when testing persuasion techniques online. Consequently, digital artefacts cannot be treated as uniform and unchanging entities, for the subtle differences between media can fundamentally alter the persuasiveness of a message (McLuhan 1967) by altering the interaction between the artefact and the individual. However, there is no way to establish whether this is the case without acknowledging and controlling for these subtle differences during design and testing of the artefact. For instance, the look and feel of the artefact (Liang 2012) may significantly influence the strength of the message that is conveyed and the response to the message by the individual. Understanding this shift goes beyond looking at whether an artefact is "likable" or not, as the entire spectrum of relations the artefact is engaged in must be unravelled and analysed in terms of its effects on shifting core constructs within the individual.

However, this process is not simple or intuitive given our current state of knowledge, as digital artefacts are arguably fundamentally different to traditional media used to persuade (e.g. print, radio, television, etc.) yet there is little consensus in literature (Orlikowski and Iacono 2001) on how and why this is. To a significantly greater extent than traditional agents (e.g. people, print publications, etc.), digital artefacts are unstable and unpredictable – they are constantly in flux and alter in look and feel with each manifestation on a device. In other words, the same artefact may present in many different versions and 'disguises'. As such, digital artefacts are multifaced agents of persuasion. Due to their nature, these agents cannot be treated as a constant or blackboxed, but instead must be examined as unique individuals in their own right. This is particularly important, as the repercussions of this added layer of complexity on the effectiveness of persuasion techniques remain ambiguous and require further investigation. Taking a PCT view of persuasion may help researchers navigate this complexity, as this approach allows for a detailed investigation of the interaction between an individual and the artefact that gives equal weight to both without basing the analysis on pre-existing assumptions, and thus allows for the crucial interaction factors to be exposed.

The questioning of assumptions is vital, as little research has examined computer mediated persuasion (Guadagno and Cialdini 2002) which makes it problematic to directly transfer established persuasion techniques to the digital realm. For instance, an interpersonal persuasion technique may not be effective in a digital medium (e.g. Dubrovsky et al. 1991), either due to nature of the medium or the differences in the way the message is communicated. Similarly, text aiming to get people to donate to a cause may be more or less effective when distributed on a public website rather than emailed directly to a target list. As such, it is difficult to uncover what aspect of the artefact triggered a psychological change in the individual (e.g. whether it is the content itself or the change in the medium of delivery), let alone be able to consistently orchestrate the desired response. However, acknowledging that digital artefacts are the agents of persuasion in an online context provides the foundation for unpacking this process and, ultimately, creating effective persuasion techniques. This shift in perspective is vital, as it implies that effective communication has to be tailored to the medium (McLuhan 1967) and cannot be assumed to be equally effective across all media or individuals.

An added benefit of this approach is that it allows for both researchers and practitioners to retreat from relying on abstract measures of likability in order to create and tailor effective persuasion techniques across media. Hence, when viewing the artefact as responsible for triggering a psychological transition, we need to critically assess the artefact in question in order to be able to confidently answer what aspect acted as a catalyst for the change. For instance, a website that attempts to get people to donate money for a cause may be more or less persuasive depending on which device it is accessed on. The same pop-up or banner ads displayed may elicit a very different response if the website is viewed on a desktop or mobile device, as the screen size and interaction with the digital artefact fundamentally changes with each materialization. This change in response, content delivery and interaction with the artefact, is common among different devices as the interaction of the user with the hardware often influences the way an artefact is used (Liang 2012) (e.g. differences between touchscreens and mouse/keyboard devices). Hence, as persuasion is highly contextual (Gass and Seiter 2011) it may be beneficial to tailor the techniques used to a particular digital artefact to ensure that, regardless of the materialization, the technique remains effective and elicits the desired outcome. However, further research is required to understand whether this is the case, and, if so, how it may be done effectively.

Consequently, without understanding how an artefact materializes differently across different devices, it is extremely difficult to narrow down what feature or property of the artefact acts as the catalyst for the psychological change within the individual. This knowledge is critical in not only measuring psychological change, but also in developing and re-designing persuasive digital artefacts. Hence, we argue that artefacts cannot

be 'blackboxed' or treated as static constants in understanding the process of online persuasion or creating effective persuasion techniques online.

CONCLUSION

To use ICT to persuade effectively we need to understand what the process of persuasion means to individuals. Without this understanding we may not have the clearest picture of what it means to persuade. In this paper we have given at least one alternative view of persuasion: a process of psychological transition. This transition is informed by personal construct theory, and this theory may offer useful insights for online persuasion researchers, particularly due to the challenges faced by the nature of digital artefacts. This view gives a potentially clearer way towards developing testable constructs by understanding persuasion itself, thereby basing the constructs on some form of 'why' rather than just assuming validity. This may allow us to begin dealing with the digital artefact in real time, and online persuasion researchers could examine the possibility of working PCT principles into learning and affective computing algorithms thereby creating more effective and affective persuasive digital artefacts.

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