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Abstract

In this paper, a selection of the current primary approaches to Persuasive Design are analysed and discussed in relation to two ongoing research projects. Based on experiences gained when applying persuasive design to more established research areas, it is suggested that current research within the field of Persuasive Design may benefit from a more nuanced and context oriented perspective. Persuasive Design researchers commonly acknowledge that successful persuasion is dependent on acting within an opportune moment, often referred to as the rhetorical notion of Kairos. Kairos constitutes the link between the opportune moment and the appropriate action and does as such also signify an ethical perspective. As a result this paper argues that a recurring ethical perspective throughout a design process may be a central to constituting the unique claim of persuasive design in relation to more established research areas such as learning and digital mediation of cultural heritage.

Keywords

Persuasive Design, Kairos, Ethics, learning, cultural heritage

1. The indeterminate concept of Persuasive Design

The common perception of technology has changed radically as users all over the world have progressed from digital immigrants to digital natives, and adapted to considering technology a natural element in our surroundings. Computers are no longer a specific type of data processing equipment used by researchers, they are now used by just about everyone for just about everything, and with the dawning age of ubiquitous computing laid before us, we rapidly approach an era where computers will be an unnoticeable part of our everyday life.

The many different aspects of HCI, and the implications that interacting with computers have upon our perception of the world, have already been researched from a variety of angles. Amongst these is the ability to use computers as persuaders, when wanting to change the attitude or behavior of the users.

The term Persuasive Design (PD) most often springs from work originally presented by Stanford University researcher, BJ Fogg, who in 1998 introduced the notion of Persuasive Technology (PT) and in 2003 published the first book on the subject in which he identified a number of ways in which computers may be considered superior to human persuaders [1]. By persuasive, Fogg proposes that computers hold a particularly strong potential to change the attitudes and behaviors of the users, but emphasises that the designer cannot rely on coercion or deception in influencing the user. Fogg defines a specific perspective on interactive computer technologies, which distinguishes itself from e.g. marketing technologies or technologies which somehow mislead the users.

Approaching the notion of computers as persuaders from a social psychology perspective, Fogg defines 'The Functional Triad', a categorized framework consisting

of a number of design principles which through analysis of a variation of persuasive technologies where identified as common in persuasive technologies.

Figure 1 - The Functional Triad as visualised by Fogg [1]

As shown in Figure 1, Fogg argues that a persuasive technology may function as a tool, a medium for simulation or as a social actor. For each of these roles Fogg lists a number of persuasive principles, which – through analysis of a large variety of persuasive technologies – he identifies as system design commonalities. These principles are listed in Table 1:

Computer Role	Ability	Design Principles
Tool	Making target behaviour easier to do Leading people through a process Performing calculations or measurements that motivate	Reduction Tunnelling Tailoring Suggestion Self-monitoring Surveillance Conditioning
Medium	Allowing people to explore cause-and-effect relationships Providing people with vicarious experiences that motivate Helping people rehearse a behaviour	Simulation
Social Actor	Rewarding people with positive feedback Modelling a target behaviour or attitude Providing social support	Social signals

Table 1 - Overview of The Functional Triad, and the design principles defined in each category

The functional triad is originally described as a framework for evaluating and understanding the user's experience of applying a technology, and it is suggested that the simple task of understanding the psychological role of the technology may benefit researchers as they explore the notion of persuasive technologies further. Moreover, the functional triad is argued to be of value to designers who seek to develop persuasive technologies, in the sense that the three different roles of the triad may serve as inspiration in the design process [1].

In continuance of Fogg's work, researchers have taken a variety of approaches to persuasive design, several of which focus on development based conceptualizations of

the persuasive principles presented in the functional triad. Most renowned within the PT research community, is the Persuasive System Design model (PSD), which was introduced by Oinas-Kukkonen and Harjumaa in the acknowledgement that the functional triad lacked a design oriented perspective [2]. The PSD model presents a categorization of the persuasive principles of the functional triad, which establishes a link between these principles and well known features of requirement specifications, thereby making the categories more apprehensible for system developers.

Whilst the PSD model can be perceived as a broader approach to the development of persuasive technologies, similar steps have been taken within the narrower field of Information Architecture (IA), in which the persuasive principles related to Fogg's Tool category have been mapped to strategies commonly applied IA components [3]. The exploration of the notion of Motivating Information Architecture (MIA) leads to the conclusion that whilst the persuasive principles originally identified by Fogg, can be related to IA components, the principles themselves does not lead to any extraordinary design ideas, but did disclose features within IA where persuasive principles may have potential. However, the potential of the design principles are dependent on the way in which they are implemented, and the challenge remains in defining how, when, and where a persuasive principle may be most efficient.

The mentioned perspectives represent the primary methodological reflections related to PD presented within the PT research community, and both PSD and MIA constitute important and valid arguments regarding potential approaches to a deeper understand of PD. Other methods are described and commonly applied in relation to PD, such as The Design With Intent toolkit (DWI) [4] and concepts such as Value Sensitive Design (VSD) [5] and Inspiration Card Workshops (ICW) [6, 7]. However, PSD in particular but also MIA distinguish themselves by focusing specifically on PD, whilst the others constitute methods which are successfully applied in other research areas and have proven to also have potential in relation to PD.

At a general level both PSD and MIA approach PD with a primary focus on the design principles presented within the functional triad and both approaches appears to emerge from the expectation that PD constitutes a new approach to design of interactive technologies which claim may be potentially be established through a strengthened methodological foundation.

However, whilst PD does call for a stronger theoretical and methodological foundation, this commonly taken focus on the mentioned design principles is challenged once applied to more established research fields, as the novelty of the design principles is lacking not only in IA, but also in wider understandings of design. Also, the focus on the design principles rather than on the roles presented in the functional triad as originally intended by Fogg, does appear to complicate the identification of a unique claim in PD, due to the lack of novelty in the design principles.

2. Persuasive or just improved?

Amongst the areas in which the system oriented approach to PD has been challenged and found insufficient is the widely established area of technology enhanced learning, in the following exemplified by the EU funded research project e-PLOT (Persuasive Learning Objects and Technologies).

The e-PLOT project was initiated in November 2010 and aims to develop a pedagogical framework for active engagement, based on persuasive design, as well as to demonstrate its value by creating tools and exemplars of adaptable, reusable

learning resources. The goal of the project has been to generate more effective active e-learning resources and provide teachers with the necessary tools to both create new and adapt existing resources to suit their needs.

The development perspective in e-PLOT aimed at further enhancing two specific learning technologies; GLOMaker and 3ET. The first being an authoring tool for creating learning objects, and the second an exercise tool which automatically generates grammatical exercises for language learning. Learning Objects and similar types of learning technologies have often been criticized for not taking learning theory and pedagogy into consideration [8, 9]. They are often described as taking a "water fall approach" to learning, by which "knowledge" is presented through a technology and students are expected to learn simply from being exposed to the learning material in a different and multimodal way. One primary issue with this approach to learning is that focus is on the presentation of the learning material, rather than on the actions of the learner. In the acknowledgement that persuasive technologies by definition require interaction between the user and the technology, it was expected that a primary benefit of considering persuasive design in relation to learning objects would be the promotion of a more constructivist approach to learning, in which student motivation and activity would be a requisite for learning.

In the duration of e-PLOT, researchers have performed analysis of both the theoretical overlap between learning and persuasion, as well as an analysis of the practical application of persuasive principles in the two learning technologies. The approaches taken to the analysis were primarily inspired by the practices which have dominated the PT research field, such as the previously mentioned PSD model. Results show that, as expected, both in theory and in practice, the overlap is extensive, and that a vast number of persuasive principles have been applied in the learning technologies even prior to the PLOT project [10].

Consequently it was concluded that the claim of PD in relation to learning design was not constituted by the persuasive principles originally presented in the functional triad. As the persuasive design principles were already applied in the technologies, there was no reasonable argument that adding more persuasive principles to the design of the learning technologies would somehow make them persuasive rather than simply enhanced.

3. Persuasion rather than promotion

Based on the hypothesis that the physical location of the receiver influences the way in which a specific message is perceived, a similar study of the cross field between PD and digital mediation of cultural heritage (DMCH) is currently being researched. Current results within this second project supports the understanding that the unique claim of PD in relation to a more established research field is not determined by the persuasive principles themselves.

In the project, Kaj Munk's Vicarage in Vedersø, Western Jutland, is included as a practical outlet for exploring the theoretical and methodical connections that form the basis of the project. The museum, located in the actual Vicarage in Vedersø that was inhabited by Kaj Munk, was founded with the purpose of conveying the history of Kaj Munk as a writer, priest, and politician, and to make his historical connection to the Vedersø area apparent.

Kaj Munks' case is particularly interesting as his posthumous reputation is the subject of much discussion. Different groups have portrayed Kaj Munk's legacy or heritage very differently and there is little consensus on what can be viewed as Kaj Munk's

contribution to Danish national identity. Some portray him as an overly nationalistic, religious figure, flirting with fascism in the late 1930's, while others see him as the symbol of the non-violent part of the Danish resistance towards Gemany during the occupation in WWII. This lack of consensus on Kaj Munk's historical significance underlines that his cultural heritage is not self-explanatory from the recollection of fragmented events in his life.

Cultural heritage can be seen as identity-forming and –reproducing and aiming to re-establish the lost relation to our past and rediscover our roots [11, 12]. E.g. the former Danish Ministry of Cultural Heritage was created in order to rediscover the cultural roots of the Danes in a project that can be viewed as more or less nationalistic in its aim: to establish a national identity. Cultural heritage is no exact science with predictable, measurable results but rather something emotional, political, and identity-related.

The notion of heritage itself contains some form of influence as heritage is something you are born into without question and that you have to feel an emotional relation towards. However, it is unclear whether cultural heritage is a choice or a duty bestowed upon an individual and subsequently whether it is based on persuasion or motivation. What is becoming increasingly clear is that the Danish cultural heritage is under increased pressure from competing cultural offerings through travels, movies etc. which underlines how mediators of cultural heritage are interested in reaching the broadest audience possible in a way where the intended image of national identity is clearly reproduced.

In this perspective lies the connection to persuasion but in a broader sense than traditionally experienced within the field of PD. In the field of mediation of cultural heritage the intention is not to achieve a narrowly defined behaviour or attitude towards a specific subject. The aim is more broadly to motivate Danes to become more active users of cultural heritage experiences and change their views of cultural heritage to something dynamical that requires constant user engagement in order to renew its existence and justification. This motivation is more open than e.g. the intention of increasing visitor numbers at a specific museum or increase sales of a specific book with value towards cultural heritage.

4. Considering the notion of persuasion

The challenges faced when attempting to apply PD to various more established research fields, lead us to consider the notion of persuasion itself, rather than apply Fogg's notion of PT as basis of our understanding of PD.

The very idea of persuasion is commonly considered as having been brought into the world by classical rhetoric. In his 2003 textbook, Fogg made reference not only to the ideas presented by Aristotle, but also to the rhetorical notion of Kairos which may be defined as *the opportune moment* to perform a persuasive action [1]. Modern studies of persuasion are naturally influenced by other disciplines too, notably social psychology, anthropology, marketing and advertisement studies, usability and IT design etc. [13].

Several researchers have argued that the field of PD may learn a great deal from both classic and modern rhetoric, both in terms of methodology and in terms of gaining a deeper understanding of persuasion [14, 15]. Amongst the perspectives from classic rhetoric considered particularly relevant to PD is the mentioned notion of Kairos which is widely acknowledged as being a core concept to the field – this regardless of any differences in the general understanding of PD.

Kairos is described as three-dimensional and is often referred to as timing, or the ability to perform the appropriate action at the right time and in the right place. In term of appropriate, the performed action is required to be not only effective but also ethical in consideration of time, location and manner in which a specific action is taken [16].

In relation to the previous mentioned approaches to PD, Kairos is often taken into consideration from a narrow understanding of the concept and referred to as the appropriate moment to apply a given persuasive principle. However, PD may benefit from considering Kairos from a wider and more nuanced perspective in which the concept contributes to a more general understanding of the world and the context in which a technology is to be applied.

In other words, the understanding of Kairos in relation to PD should expand from including not only narrow translations such as "particular point in time" and "specific circumstance", to also include wider concepts such as "situation", "occasion" and "opportunity". Likewise, the perception of Kairos amongst practitioners of PD should develop from being mostly related to timing within specific design solution, to being a concept which places a strong focus on appropriateness overall, thus placing ethics as a core element in any approach to PD.

5. On the role of ethics in PD

Besides from addressing the importance of appropriate timing of persuasive initiatives, Kairos does also emphasize the importance of ethical reflections in the design process. The acknowledgement that persuasion must take place in an appropriate manner, does not only refer to selecting the principles to implement in a system, but also to a general understanding of the context in which the technology is to be applied. In light of the challenges faced when applying persuasive design principles to more established fields, it appears reasonable to explore if the potential claim of PD, may actually be related more to the understanding of appropriateness, and in continuance, the persistent focus on ethics.

Fogg originally defined PT as any type of interactive computer technology designed with the intent to change people's attitudes or behaviour, without using coercion or deception [1]. As such, PT by definition focuses solely on endogenous persuasive intentions, in the extent where the intention becomes a core element in the design. However, the definition also emphasises the importance of ethical considerations, by accentuating that persuasive technologies do not coerce or deceive users whilst fulfilling persuasive goals.

The original definition of persuasive technologies is argued to be problematic in a number of ways. Amongst others, the emphasis on persuasive technologies being ethical is problematic as the perception of ethicality is based on the social reality of the evaluator, and a technology which appears perfectly ethical to the designer, may be considered unethical if applied in an unintended or unexpected use context.

In order to address some of the challenges related to the ethics of PD, steps have been taken towards a three dimensional approach to ethical evaluation, which considers not only the consequences of the technology but also the intention and the use context [16].

Commonly used approaches to ethical evaluation of technologies such as the ACM Code of Ethics, tends to place the primary responsibility of applying a technology, on the designers and developers, thus discarding the responsibility of the users who apply the technology. Contrarily, Albrechtslund argues that designers, are limited to

conceiving only the intended use of a technology, but have no way of ensuring that the actual use will resemble their intentions. Once a technology is developed and handed over to the users, the perception of both the technology and the intended use is influenced by the context in which it is applied and the social reality of the users. In fact, the usage more often deviates from the original intention, making it inequitable to hold the designers solely responsible for the consequences of a technology [16, 17]. However, the acknowledgement that the designer is unable to foresee all possible use scenarios should not be interpreted as an excuse for the designer to disclaim responsibility for unethical use of a technology. Contrary, once aware that the technology may potentially affect users far beyond the intended aim the designers should more than ever be aware of the reciprocal responsibility which emerges between themselves and the users - and as such, ethical evaluation should be initiated from the very beginning of the development phase, whilst the notion of the technology is matured and explored [10].

Challenging as it may be, the strong demand for ethical reflections in relation to PD, may in fact be one of the aspects which distinguishes PD from other more established research fields such as IA, learning and DMCH. While persuasion in other design traditions is acknowledged as an integral part of a design process, PD enriches the design process with a communicative determination and a demand for a recurring ethical evaluation process.

The definition of ethics as a core element in PD is strengthened even further when the understanding of ethics is related to Kairos, and as such considered a vital perspective towards determining the appropriateness of a given persuasive strategy. Ethical considerations in the design process itself has so far been recognised as an important aspect [5] but it has generally not been seen as a necessity in persuasive design.

6. Acknowledgements

7. References

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