The EDIE Method – Towards an Approach to Collaboration-Based Persuasive Design

Sandra Burri Gram-Hansen(✉)

Department of Communication and Psychology, Aalborg University, Aalborg, Denmark
burri@hum.aau.dk

Abstract. This paper presents the initial steps towards a collaboration-based method for persuasive design – the EDIE method (*Explore*, *Design*, *Implement*, *Evaluate*). The method is inspired by Design-Based Research, but developed to combine different design approaches that have dominated the persuasive technology field over the past decade. The rhetorical notion of Kairos is considered a key element in the EDIE method, resulting in a distinct focus on participatory design and constructive ethics. The method is explained through a practical example of developing persuasive learning designs in collaboration with the Danish Ministry of Defence and the Installation Management Command.

Keywords: Persuasive design · Energy and environmental behaviour · Sustainability · Design-Based research · Participatory design · Constructive ethics · Persuasive design framework

1 Introduction

In this paper, the initial steps towards a collaboration-based method for persuasive design is presented and discussed. The framework is based upon the Design-Based Research Methodology (DBR) [1], but distinguishes itself by combining different context- and system-oriented approaches from the persuasive technology field, and by enabling ethics to be applied constructively throughout the design process. The method constitutes some of the results found by applying DBR when exploring the potential of persuasive learning designs in the Danish army.

Over the past decade, different methods to persuasive design have been discussed and exemplified, as researchers have taken either a primarily system-oriented [2] or primarily user-centred approach to the design process [3, 4]. Simultaneously, the theoretical underpinning of the notion of persuasive technologies has been explored and developed through both practical exemplifications and thorough literary investigations [5, 6]. Across these different approaches the rhetorical notion of Kairos [7] continuously establishes itself as a key concept to persuasion, both from a narrow system-oriented angle and a wider more contextual perspective. From the foundation of this classical rhetorical understanding of timing and appropriateness, it has been argued that persuasive initiatives are only successful when applied within the intended use context,

A. Meschtscherjakov et al. (Eds.): PERSUASIVE 2016, LNCS 9638, pp. 53–64, 2016.
DOI: 10.1007/978-3-319-31510-2_5

that the notion of persuasion and subsequently persuasive technologies hold a strong ethical demand, and that a user-centred approach to design is a requisite to successful persuasive designs [6].

Within the persuasive technology research field, several researchers have argued that Value Sensitive Design and Participatory design are particular relevant to the development of persuasive designs [10–12], partly due to the ethical implications related to designing for behaviour change, and partly in respect to the rhetorical notion of Kairos. Kairos sums up the concept of the opportune moment, in consideration of time, place and manner in which a persuasive initiative is taken. Kairos constitutes both a narrow understanding of the appropriate time for something to take place, and a wider more philosophical understanding of appropriateness within an intended use context. In order for designers to grasp this opportune moment, they must strive to create an appropriate balance between the persuasive initiative and the intended use context. [7]. Whilst both the temporal and location-based perspectives of Kairos may possibly be defined and formalised without user involvement, detecting the appropriate manner is dependent on user participation [6]. As designers we may share our ideas regarding new approaches to digital learning, but only those who understand the practice of the intended use context can determine whether or not our ideas may be both applicable and persuasive.

This paper presents the argument that the system-oriented and user-centred approaches, which have been developed and/or discussed in relation to persuasive technology, may be constructively combined in the development process. Considering Kairos throughout the design process facilitates this bridge between design approaches, leading to the initial version of the EDIE method - a collaboration-based persuasive design approach.

2 The EDIE Method

As previously stated the Edie method is inspired by and developed in accordance with the DBR methodology - an iterative process for developing, testing, evaluating, and refining design solutions. As a research methodology it is most often applied in the context of learning and education, but the applicability of the approach is not restricted to this domain. By design based, it is understood that research is conducted as designs are developed and implemented in practice and that the research is oriented towards exploring best practices or generating directions for future design processes [1]. Particular attention is directed towards DBR's consistent focus on stakeholder collaboration and the mentioned focus on the intended use context. By maintaining yet adjusting this constituent, both the wider notions of Kairos and the ethical demand related to persuasion, may be taken into consideration.

The EDIE method is a collaboration-based persuasive design methodology, constituted by the four phases *Explore*, *Design*, *Implement*, *Evaluate* (EDIE) visualised in Fig. 1. The method aims to facilitate a bridge between the human-centred and the system-centred approaches, which have dominated the persuasive technology field. Rather than focusing solely on either the user-centred or the system-oriented aspects of persuasive design, the method provides directions for designers to include both perspectives in the design process, and to let the different perspectives constructively influence each other.

Fig. 1. The EDIE method - a collaboration-based persuasive design method

The different steps in the process, enable designers to consider and apply aspects of e.g. persuasive system design [13] and ambient persuasion [14], while consistently considering the intended use context and applying ethics constructively throughout the design process. Thereby, both the wider and the narrow perspectives of Kairos are acknowledged and considered.

2.1 Basic Distinctions

Whilst DBR and similar approaches are iterative both in the understanding that all four steps can be repeated several times, and internally within the test and refinement phase, it is predominantly a research methodology, and iterations will expectedly come to an end once the research questions have been answered. Persuasion on the other hand can be understood as a continuous process of shaping, reinforcing or changing the behaviour of users [2, 15], as users are constantly influenced not only by the persuasive system with which they are interacting, but also by changes to their use context and their community of practice. From a persuasive design perspective, it is important to acknowledge that when a technology is added to a context, whether this be within the physical

or digital realm, the context and the user's perception of the context is altered [6]. In order for this to be taken into consideration when applying the the EDIE method, iterations must continuously take place both on a wider scale and within the different phases.

Furthermore, the EDIE method distinguishes itself from DBR by including ethical reflections throughout the design process. One of the distinct claims of persuasive design, may be seen as a strong ethical demand, calling for ethical reflections not only regarding the overall persuasive intention, but also regarding the appropriateness of the different persuasive initiatives [12]. The DBR approach already emphasises the importance of stakeholder collaboration, but does not have a distinct focus on applied ethics. The EDIE method on the other hand, considers ethics both within the individual phases of the process, and more importantly, transfers ethical considerations from one phase to another. Furthermore, participatory design is applied throughout the four phases of the EDIE method, in order to ensure acknowledgment of domain experts, and to enable the ethical considerations to be constructive for design process.

As mentioned above, persuasion can be defined as the intent to shape, reinforce or change attitudes and behaviours. The persuasive intent will most likely spring from an already established need for behavioural influence, and as a result, the first step of the EDIE method distinguishes itself from DBR by a more exploratory approach to gaining an understanding of the domain and potentially determine why the intended behaviour does not already take place.

The design and implementation phases are distinguished by the inclusion of theories and methods with specific relevance to persuasive design. Evaluation in the fourth phase however, is directed towards establishing the effect of the persuasive initiatives, rather than determine best practice or design directions.

In consideration of the aforementioned influence that technologies can have on the context, new iterations must start by again exploring the intended use context in order to identify significant changes. This particular distinction is visualised by the on-going spiral in Fig. 1.

3 Applying the EDIE Method in Practice

The Danish Military is a highly complex organisation with a combination of armed forces, technical staff and civilian employees. As such, employee tasks and work facilities differ greatly as 33% of the military employees are office workers, whilst others rarely work indoors.

In order to optimise and standardise learning material across Danish Military Establishments, an increasing amount of learning material is digitalised and distributed centrally. One of the topics, which have been developed as a digital resource, is material regarding environmental legislation and appropriate environment behaviour in the Danish military. To ensure that the information is fully disseminated, all employees are required to complete the e-learning course "*The Environmental Driver's License*" (EDL) with a minimum of 80% correct answers to the included questions.

Whilst EDL does ensure standardised dissemination of environment material, this traditional e-learning course is nonetheless faced with several fundamental challenges:

- Far from all Danish military establishments are equipped with sufficient digital resources to enable the majority of their employees to attend an e-learning course
- The learning material presented in EDL does not differentiate between the different segments of employees in the Danish Military

Whilst the practical issue regarding insufficient digital resources may easily be solved, the problems related to lack of differentiation in the learning material constitutes a greater challenge. When all employees are required to relate to all the learning material, the topic may be perceived as less relevant to the individual employee, thus they may be lead to believe that the EDL is generally meant for someone else in the organisation. The lack of relevance to individual employees may potentially have negative consequences both in relation to transferability of the knowledge acquired (it may be difficult to transfer the content of EDL to practical tasks at the military establishments), and also to the long-term effect of the e-learning course.

The aforementioned problems related to EDL formed the basis of a new approach to environment education, initiated by the Installation Management Command (IMC) in 2014. In order to not just inform employees about environmental requirements in the Danish Military, but to also motivate a more environment friendly attitude and behaviour in the organization, IMC initiated the development of a prototype for environmental education which distinctively draws upon motivational elements, and which reforms the notion of digital learning within the organization.

The persuasive learning design discussed in this paper aims to educate the drafted recruits in appropriate waste management and action in case of accidents. The central element in this persuasive learning design is the prototype of a location- and situation-based game *Acttention*, which has been designed and developed specifically to meet the requirements of the Danish Military. As such, the content is targeted directly towards the drafted recruits, whilst the game is designed to be flexible and easily adjusted to fit the needs of other employee groups. In the following sections, the individual steps of the EDIE method are elaborated and exemplified in practice.

3.1 Phase 1 - Explore

In order to gain a better understanding of the intended use context, and to define any particular requirements, that needed to be taken into consideration, Phase 1 constituted a thorough analysis of intended use context and the existing solutions.

The intended use context was explored through a combination of field visits and observation studies at the different army bases and supported by wider segmentation and target group analysis.

The segmentation analysis was based on a quantitative evaluation of the army employees' attitude towards environmental education in the organization [16]. From the analysis it was clear that whilst a majority of the respondents find energy and environmental considerations important, they do not consider the subject a primary concern to their function in the army. Moreover, the analysis concluded that 20% of the respondents were hesitant or even reluctant towards the subject of energy and environmental education within the organization. As such, the analysis underpinned

the relevance of persuasive design in the case due to the understanding learning takes place in the learner, and is dependent on his or her motivation towards the subject. Consequently, traditional learning designs would likely prove to be insufficient.

In order to accommodate the requirement that the learning design should be applicable across different army bases, two very different army establishments were selected as test locations for the pilot project, and field visits and in-situ interviews were conducted at both locations. Observation studies and similar ethnographic methods are often applied in relation to participatory design, and also exemplified by Davis when she argued towards the potential of participatory design in relation to persuasive technologies [4]. However, ethnography and similar approaches to understanding the intended use context may hold even more potential, if considering the rhetorical notion of Kairos a key concept to persuasion. Ethnography may facilitate the understanding of the contextual perspective, which also sums up the three dimensions of Kairos. Additionally, as the field research was done in collaboration with all primary project participants, the experiences shared formed the initial basis of a constructive ethical approach throughout the design process [12].

The field research was followed up by a series of creative workshops attended by representatives from the army, the navy and the air force, as well as from the IMC and the Danish Ministry of Defence. Apart from providing valuable insights regarding the basis of the mentioned reluctance towards the energy and environmental learning designs, the workshop also aimed to establish a mutual understanding between the participants. Thereby, the workshop also served as an initial step towards facilitating the collaboration between stakeholders throughout the design process – an outcome that was considered particularly important when working in a context with strong and evident hierarchical structures. Moreover, the workshops were planned and executed in consideration of ontological ethics, thus strengthening the constructive influence of ethics [12].

The workshop participants applied LEGO and Play-Dough as they created prototypes of future green army barracks, leading to a number of specific requirements for the architects to take into consideration. As the workshop progressed, it furthermore constituted a significant contribution to the context exploration, as they provided a number of rich explanations to practice within the intended use context. Amongst the specific requirements uncovered during the workshop was the need for environmental education to be included in other activities. Part of the reluctance towards the subject is related to a well-known challenge in educational systems – that there is much to teach and very little time to do it.

In order to also include evaluations of the existing technical solution, the PSD model [13] was applied to analyse and evaluate the EDL. The PSD framework facilitated a deeper understanding of the existing learning design, and helped initiate the discussion of the potential of persuasive principles in learning technologies. The system analysis led to the conclusion that the EDL failed to reduce and tailor the complex learning material. The analysis clarified that one of the primary challenges of the EDL was the intent to educate and motivate all employees through the same system. As mentioned, this not only constituted a practical problem, it also imposed an educational challenge as people are rarely motivated by material that they do not find relevant. For instance, smokers who do not wish to stop smoking are seldom influenced by the many campaigns

regarding the subject, whereas smokers who have an endogenous wish to quit smoking may be able to find help and support through the different initiatives. As a result, it was decided that the prototype should focus on a specific group of employees (drafted recruits in the Danish Army), but that the design should be scalable in way that would enable it to be transferred to other groups of employees a later time.

3.2 Phase 2 - Design

Based on the information gathered from the analysis of practical problems, steps were taken towards the development of a learning design that would both provide information regarding appropriate environmental behaviour and motivate the learners to change both their attitude and their behaviour. As was the case in the first phase, the design phase was also conducted as a participatory design process. At this stage, the design group was narrowed in and consisted of representatives from the IMC, researchers, and technical developers with a background in experience design. All participants had been involved in the first phase of the process, ensuring that not only practical but also ethical considerations were brought along into this second phase.

In the acknowledgement that the employees do not see energy and environmental issues as core focus areas, the persuasive learning design was developed with an intent to influence the community of practice in the Danish Military. By doing so, the design distinguished itself from traditional approaches to environmental education within the army, by recognising that the learners do not consider the learning content important.

With a specific focus on army recruits, it was determined that traditional e-Learning solutions such as the EDL would not be suitable, partly due to the age group (18–20 year olds), and partly due to the daily practice of this particular segment. Recruits spend most of their working hours outdoors, and the segment consists of a highly diverse group of learners, where some may be on their way to university, whilst others will have struggled all through school. Physical training is a high priority for the recruits, as many of them are in poor physical condition when they enlist. Competition is high within the segment, and training often includes an element of behaviourism, where good results are rewarded. As a result, the design moved towards a location-based game, which could be implemented as part of the physical training.

The initial design proposal presented by the technical developers consisted solely of the *Acttention* game. It was designed as a location-based game where the recruits would interact with touch screens, be presented with waste management related questions, and then sent to a relevant location on the Military base in order to link the content of the question to a specific location. However, very early in the design process, this solution was found inadequate both from a learning perspective and from a persuasive perspective. As a learning technology, the game lacked information regarding the appropriate action in different situations; information which was a necessity if the game was to facilitate learning, rather than merely be a quiz game with a 33% chance of giving a correct answer. From a persuasive design perspective, the game lacked transparent persuasive intentions both with regards to the in-game situation and with regards to the long-term effect. There was no apparent link between the individual components of the game, and an overall persuasive intention.

In order to address this issue, an instructional film based on the existing content from EDL, was created to ensure that all recruits were presented with knowledge regarding appropriate waste management. Consequently, the game was transferred from being a learning game to becoming a tool for motivating reflections regarding appropriate behaviour. A series of different scenarios with different solutions were implemented, designed to simulate situations the recruits might find themselves in when needing to recall their knowledge about appropriate waste management.

Persuasive design was considered both in the wider and more contextual aspect of implementing a new technology within a context, and in the specific design of the game. From a contextual perspective, the combination of specifically tailored learning material and the distinct respect towards the general attitude that environmental education is regarded as low priority, both became motivational elements in the learning design. Also, the instruction film included examples from both the army bases and civilian life, in order to highlight that the information provided by the film was relevant not only in relation to personnel working on Danish army bases. By doing so, the instruction film aimed to address one of the long-term goals of the Danish drafting procedure – educating valuable members of society.

System specifically, persuasive design was taken into consideration with regards to the user interaction with the touch screens and more specifically the feedback offered by the system. In order to ensure that the Acttention game facilitated learning without requiring too much attention, user feedback was provided as a combination of brief test messages (e.g. right answer, wrong code), and supported by brightly coloured icons. Furthermore, the correct answer was highlighted in green while wrong answers were highlighted in red. Research conducted by Ham and Midden has shown that whilst users have no relation to other colour codes such as blue/yellow, the combination of red/green is subconsciously understood as positive and negative [14].

3.3 Phase 3 - Implement

Prior to testing the design with recruits, a pre-test was conducted at one of the designated army bases, by a group of university students from a Masters program in Information Architecture. None of the students had any knowledge about practice in the army, but their feedback was considered significant as their education enables them to provide very specific system-oriented evaluations. As such, this test enabled us to test the functionality of the game within the intended use context, and at the same time incorporate some final adjustments to the design. For instance, the students found that the red/green colour-based feedback should be extended, and that the possibility to skip the feedback should be removed if the learner had solved a scenario incorrectly.

The first iteration of tests with recruits took place in November 2014 at Almegaard army base on the small Danish island Bornholm, and involved 62 recruits representing three platoons. This particular army base distinguishes itself by being one of the bases, in which the physical facilities are preserved as listed buildings although the buildings are still at use.

Almegaard is also one of the smaller army bases in Denmark, which means that most locations, such as recruit quarters, garage area and environment area are less than 1 km

apart and can be reached on foot. Other army bases are much larger and the different game related locations might be located so far apart that they cannot all be included. As such, Almegaard served well as a location for the first test iteration, as it enabled a test of the full range of the game.

The test took place over three days, thus enabling the design team to iteratively evaluate and adjust from day to day. Adjustments to the setup were done in careful consideration of data comparability, but whilst the overall learning design remained the same, some changes were made in order to ensure higher stability in the game. Time wise, it would have been possible to conduct all three tests during one day. However to also exemplify the design's ability to adapt to the practice within the intended use context, the trial was included as an element within a three day course which besides from waste management also included *first aid* and *fire and rescue.*

For each individual test of the learning design, the participating recruits met in the army base auditorium, where they were informed about the overall plan for the event as well as the evaluation activities that would take place during their participation in the Acttention learning design.

The recruits then watched the short 15-minute instruction film before heading out to the Acttention game base. Here they were given further information about how to play the Acttention game, and divided in to smaller teams of 5–6 members. The Acttention game is run via three touch screens and one administration screen, and these were set up in a sheltered location with easy access to the surrounding perimeters. The recruits were provided with individual chip bracelets, which enabled them to register their individual interaction with the system, thereby ensuring that all recruits were presented with all the learning scenarios in the game.

Whilst a member of the design team gave the introduction to the course and evaluation, the commissioned officers were present and engaged throughout the process. Their involvement both served as a way of introducing them to the learning design in practice, thereby ensuring that they can handle future use of the system themselves, but it also served as a way to ensure credibility of the learning design in the eyes of the participating recruits and as an empowerment of the commissioned officers.

As the terms of the game and the team competition was explained, the recruits' seriousness was replaced with a more playful and relaxed attitude – still without losing focus on what was being required of them. The team spirit and the more relaxed and collaborative attitude was facilitated further by elements such as selecting a team name and enabling the system to *tailor* the touch screens to the different teams.

3.4 Phase 4 - Evaluate

The evaluation phase was specifically designed to evaluate both the learning outcome and the persuasive potential of the design. From a design perspective there was a high interest in evaluating if the persuasive learning design had motivated a more positive attitude towards environmental education amongst the participants, however, as the design had been developed within a learning context, it was also vital to ensure that the recruits had not only enjoyed themselves but also acquired the necessary knowledge. The evaluation methods combined qualitative and quantitative methods, in order

to ensure that both the learning potential and the persuasiveness of the design were assessed through the same evaluation process. In practice, this included questionnaires, observation studies and in situ interviews

Preliminary findings indicated that the combination of instructional film and location-based learning facilitated a transition from individual learning to collaborate learning. This blended learning approach and in particular the collaborative activities in the team-based learning game, ensured that all members of the platoon were able to engage in the learning experience and reflect upon the learning material.

Results from the first test showed that more than 71% of the recruits completed with results that meet or exceed the expectations of the Defence Academy. From a persuasive perspective, the learning design was well received by the recruits, who found it particularly positive to be physically active while learning, and who found the competitive element to be highly motivating. After completing the game, 78% of the recruits indicated that they found the learning material relevant and useful, and 81% indicated that learning about appropriate waste management had been fun. In light of the previously mentioned negativity towards the subject, the feedback regarding the learning experience was perceived as highly positive.

Moreover, the design enabled persuasion to take place at different user levels. Whilst the recruits may have been persuaded by engaging in the Acttention learning design, the commissioned officers and instructors were motivated and persuaded by a combination of experiencing Acttention in practice during the test iterations and more importantly having some sense of ownership of the learning design. To a great extent, this can be credited to the participatory design activities that have facilitated the entire development process. Feedback from the involved instructors and officers stated that it was a welcomed change to traditional communication within the organisation to see that their domain knowledge and input was distinctively taken into consideration in this new approach to digital learning. Both identified in the overall design decision to implement environmental education into a physical training session, and also specifically within the different scenarios.

4 Final Reflections - Future Research

Through the practical application of the EDIE method, it has been possible to combine context- and system-oriented approaches to persuasive design, whilst including ethical considerations throughout the design process. The consistent focus on participatory design facilitates both a deeper understanding of the intended use context, and the inclusion of ethical reflections in relation to persuasive designs.

By ensuring a continuous engagement by both designers and instructors, the methodology distinguishes itself from other similar design approaches, where participatory design most often takes place with a group of domain experts and only few representatives of the design team. In the acknowledgement that persuasive design is highly context dependent, the methodology presented in this paper suggests that all members of the design team must share experiences within the intended use context in order to partake in the design process. Not only to ensure that all members of the team acquire sufficient

knowledge about the intended use context, but also to ensure that crucial information is transferred from one phase of the methodology to another. In consideration of Kairos, it may be argued that only users, who are already a part of the intended use context, fully understand what may be appropriate within that context. Consequently, the individual members of the design team's different interpretations of the intended context, all become equally important pieces of a puzzle, which they must participate in putting together.

Furthermore, the consistent attendance of all designers ensured that a mutual understanding was established between them, based on the interactions that took place and the experiences that were shared. Several researchers have argued that ethics is a distinctive aspect of persuasive design. When taking ontological ethics into consideration, this persuasive design methodology facilitates that ethics becomes constructive for the entire design process.

Future research will involve a thorough clarification of the different phases of the EDIE method, so that they more precisely incorporate the different aspects of persuasive design. In 2016 the framework is to be applied in two individual cases equally complex to the one presented in this paper. From this it is expected that the individual phases of the approach will be more distinctly described, as will the specific considerations related to applying ethics constructively in the design process.

Acknowledgements. The practical exemplification presented in this paper was arranged and conducted in collaboration with Thilde Møller Larsen from The Defence Installation Management Command, Denmark

References

1. Reeves, T.C.: Design research from a technology perspective. Educ. Des. Res. **1**(3), 52–66 (2006)
2. Oinas-Kukkonen, H., Harjumaa, M.: A systematic framework for designing and evaluating persuasive systems. In: Oinas-Kukkonen, H., Hasle, P., Harjumaa, M., Segerståhl, K., Øhrstrøm, P. (eds.) PERSUASIVE 2008. LNCS, vol. 5033, pp. 164–176. Springer, Heidelberg (2008)
3. Lockton, D., Harrison, D., Stanton, N.A.: The design with intent method: a design tool for influencing user behaviour. Appl. Ergonomics **41**(3), 382–392 (2010)
4. Davis, J.: Generating directions for persuasive technology design with the inspiration card workshop. In: Ploug, T., Hasle, P., Oinas-Kukkonen, H. (eds.) PERSUASIVE 2010. LNCS, vol. 6137, pp. 262–273. Springer, Heidelberg (2010)
5. Torning, K., Oinas-Kukkonen, H.: Persuasive system design: state of the art and future directions. In: Proceedings of the 4th International Conference on Persuasive Technology. ACM, Claremont (2009)
6. Gram-Hansen, S.B., Ryberg, T.: Persuasion, learning and context adaptation. Special Issue Int. J. Conceptual Struct. Smart Appl. **1**(2), 28–37 (2013)
7. Kinneavy, J.L.: Kairos in classical and modern rhetorical theory. In: Sipiora, P., Baumlin, J.S. (eds.) Rhetoric and Kairos, Essays in History, Theory and Practice. State University of New York Press, Albany (2002)

8. Amiel, T., Reeves, T.C.: Design based research and educational technology: rethinking technology and the research agenda. Educ. Technol. Soc. **11**, 29–40 (2008)
9. Gram-Hansen, S.B., Ryberg, T.: Acttention – influencing communities of practice with persuasive learning designs. In: MacTavish, T., Basapur, S. (eds.) PERSUASIVE 2015. LNCS, vol. 9072, pp. 184–195. Springer, Heidelberg (2015)
10. Davis, J.: Design methods for ethical persuasive computing. In: Proceedings of the 4th International Conference on Persuasive Technology. ACM, Claremont (2009)
11. Davis, J.: Towards participatory design of ambient persuasive technology. In: Proceedings of Pervasive 2008 Workshop, Australia, Sydney (2008)
12. Gram-Hansen, S.B., Ryberg, T.: From participatory design and ontological ethics, towards an approach to constructive ethics. In: Ethicomp 2015, ACM SIGCAS, Leicester (2015)
13. Oinas-Kukkoen, H., Harjumaa, M.: Persuasive systems design: key issues, process model, and system features. Commun. Assoc. Inf. Syst. **24**, 28 (2009)
14. Ham, J., Midden, C.: Ambient persuasive technology needs little cognitive effort: the differential effects of cognitive load on lighting feedback versus factual feedback. In: Ploug, T., Hasle, P., Oinas-Kukkonen, H. (eds.) PERSUASIVE 2010. LNCS, vol. 6137, pp. 132–142. Springer, Heidelberg (2010)
15. Miller, G.R.: On being persuaded, some basic distinctions. In: Dillard, J.P., Pfau, M. (eds.) The Persuasion Handbook, Developments in Theory and Practice. Saga Publications, London (2002)
16. Operate, Målgruppeanalyse og Segmentering (2012)