

# Persuasive Technology: Making a Difference Together

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**Abstract.** This workshop will discuss the research efforts that are being made aimed at changing human behavior and attitude. It will engage the persuasive technology community to jointly look at where do we stand and where do we want to go with the field. In 2018, it will be fifteen years since the seminal book on persuasive technology was published. Since then, already twelve annual conferences have been held on the topic. At the same time, not all expectations have been met over the last decade. Therefore, our community needs to come together and discuss ways for natural expansion and strategic growth. We need acknowledge weaknesses in the area of behavior change interventions and seek for ways to overcome them. This workshop will help facilitating discourses around human behavior, behavior change, persuasive technology, persuasive design, design with intent, personalized persuasion, health behavior change systems, socially influencing systems, user experience design for behavior change, persuasive cities, computer-supported influence, persuasive backfiring, dark patterns, and more. The workshop will discuss open questions, promote a healthy debate amongst academics, create strategic directions, and unify us around the essentials for advancing our community in a fundamentally fresh and novel way.

**Keywords:** Behavior Change, Persuasive Technology, Making a Difference, Models, Frameworks, Community, Strategic Directions.

## 1 Opening

People have unique beliefs and values that shape up their personalities over time. However not many act in accordance with their beliefs and values. It is not surprising to find a contradiction between peoples' beliefs and actual actions. Such inconsistencies gave birth to the Theory of Cognitive Dissonance [1]. Indeed, it was this particular gap in people's' beliefs and actual actions that was recognized by academics, psychologists and researchers leading to the manifest role of Persuasive Technology to shape up human behavior.

## **2 Advancing**

While several scholars studied human behavior and early interventions were designed to guide users through behavior change process [2,3], Brendryen and Kraft highlighted that technology-based interventions had the potential to change people's' behaviors [4]. Fogg (2003) introduced a new research area now known as Persuasive Technology [5]. His work originates from Human Psychology and hence it is essential to understand the interplay between the fields of Psychology and Information Technology when interventions are developed to shape up human behavior. The research field of Persuasive Technology highlights the potential of technology as a tool for persuasion where the earlier acts both as a medium and a social actor [5]. Following Fogg's work, researchers from around the globe started developing and analyzing persuasive technologies for a wide range of areas including but not limited to promotion of physical activity [6], saving energy [7], living happily [8], reducing soda consumption [9], managing mental disorders [10] and persuasive cities [11].

## **3 Learning from Success!**

Published research on Persuasive Technology largely provides evidence of learning from success. In other words, it is relatively hard to find scientific publications in the area of Persuasive Technology that highlight failures. This compels us to think whether we as researchers can learn from success only? Or is it so that our research settings are flawless that the research outcomes are always positive? It remains a fact that real knowledge is verified knowledge in a way that the knowledge base should be proven by intelligence or by (logical) evidence. Further, scholarly integrity in any research discipline demands abstaining from any unverified remarks [12]. We believe that the research in Persuasive Technology, while still a relatively young field must be devoid of biased and speculative results.

Persuasive Technology has received a great deal of attention from researchers who have often developed and / or analyzed stand-alone applications to promote desirable behaviors. However, a quick look at the previous conference proceedings indicates that researchers are still focused on application-driven studies with little attention to theoretical grounds. Hence there is a lack of balance between studying technologies and theories that support such work.

## **4 Bias?**

Another area that calls for discussion is an evident lack of publications that has highlight failures. This is in line with a review of empirical studies by [13] who investigated a variety of persuasive information systems and reported that reviewed studies primarily reported fully and/ or partially positive effects [13]. We argue that partial reason for an almost absence of publications that report failures is because of publication bias that pertains to acceptance of only those manuscripts that have statistically significant level

of results while all other submissions are more or less rejected. Similar reservations have also been put forward by [14]. Such a practice is equivalent to publication suppression that obstructs what could otherwise prove to be quality papers from being accepted. When it comes to Persuasive Technology this would result in serious inaccuracy rates in published literature. There is substantial evidence that convinces the existence of publication bias. Banks and colleagues propose that the degree of publication bias has grown to such an extent that available research results are unreliable of all research. They further highlight that publication bias is one of the greatest threats to the legitimacy of meta-analytic articles, which in turn are among the most significant instruments for advancing scientific research [14]. There could be several reasons for publication bias. One of the reasons could be authors' decision. In simple terms, authors have more control of their data. A classic example would be a situation where authors would not submit their work because of small sample size, statistically insignificant results or because of findings that contradict previous research.

## **5 Heading Where?**

The issue of publication bias applies to almost all the research disciplines and the research area of Persuasive Technology is no exception. Here, we would highlight another issue that is similar to publication bias. This critical issue is what we generally call as conflict of interest. If we go through the proceedings of all the conferences on Persuasive Technology, it is evident that prominent names seem to appear both in the scientific committees as well as in the list of authors of accepted publications. This is a clear case of conflict of interest, one would argue. We cannot undermine experience and contribution of senior researchers. However, we believe that an interesting and constructive dialogue can be held where both senior and relatively new researchers can share their views on the subject.

## **6 Outcomes**

The proposed workshop aims to bring researchers together to a forum that facilitates constructive discussion and debate. The research area of Persuasive Technology is receiving increasing interest from across the globe and deservedly so. Yet it is observed that the audience at Persuasive Technology conferences revolves mainly around the same crowd with a few exceptions. It is anticipated that the workshop will provide an opportunity for researchers from different disciplines to address the issue and come up with constructive recommendations leading to a change for the advancement of Persuasive Technology Community. Methodologically, the workshop will apply creative methods and artefacts in order to secure a positive and reflective dialogue amongst the participants. Inspired by Future Workshops [16], we aim to create a third space where discussions may include both constructive criticism, and definitions of desirable steps forward. We anticipate that this workshop will be an ideal platform for researchers to have their voices heard and at the same time contributing to the community.

We welcome topics included but not limited to: significance of theory-driven persuasive design, overcoming the fear to report failures, multidisciplinary contributions, publication bias, and attracting larger audience.

## References

1. Festinger, L. A (1957). *A Theory of Cognitive Dissonance*, Stanford, CA: Stanford University Press.
2. Revere, D., & Dunbar, P. J. (2001). Review of Computer-generated Outpatient Health Behavior Interventions Clinical Encounters “in Absentia”. *Journal of the American Medical Informatics Association*, 8(1), 62-79.
3. Reiter, E., Robertson, R., & Osman, L. M. (2003). Lessons from a failure: Generating tailored smoking cessation letters. *Artificial Intelligence*, 144(1), 41-58.
4. Brendryen, H., & Kraft, P. (2008). Happy Ending: A randomized controlled trial of a digital multi-media smoking cessation intervention. *Addiction*, 103(3), 478-484.
5. Fogg, B. J. (2003). Computers as persuasive social actors.
6. Toscos, T., Faber, A., An, S., & Gandhi, M. P. (2006, April). Chick clique: persuasive technology to motivate teenage girls to exercise. In *CHI'06 extended abstracts on Human factors in computing systems* (pp. 1873-1878). ACM.
7. Midden, C., & Ham, J. (2009, April). Using negative and positive social feedback from a robotic agent to save energy. In *Proceedings of the 4th international conference on persuasive technology* (p. 12). ACM.
8. Chatterjee, S., & Price, A. (2009). Healthy living with persuasive technologies: framework, issues, and challenges. *Journal of the American Medical Informatics Association*, 16(2), 171-178.
9. Langrial, S., & Oinas-Kukkonen, H. (2012). Less fizzy drinks: a multi-method study of persuasive reminders. In *Persuasive Technology. Design for Health and Safety* (pp. 256-261). Springer Berlin Heidelberg.
10. Langrial, S., Oinas-Kukkonen, H., Lappalainen, P., & Lappalainen, R. (2014). Managing depression through a behavior change support system without face-to-face therapy. In *International Conference on Persuasive Technology* (pp. 155-166). Springer, Cham.
11. Stibe, A., & Larson, K. (2016). Persuasive cities for sustainable wellbeing: quantified communities. In *International Conference on Mobile Web and Information Systems* (pp. 271-282). Springer, Cham.
12. Lakatos, I. (1976). *Falsification and the methodology of scientific research programmes* (pp. 205-259). Springer Netherlands.
13. Hamari, J., Koivisto, J., & Pakkanen, T. (2014). Do Persuasive Technologies Persuade? A Review of Empirical Studies. In *Persuasive Technology* (pp. 118-136).
14. Banks, G. C., Kepes, S., & McDaniel, M. A. (2012). Publication Bias: A call for improved meta-analytic practice in the organizational sciences. *International Journal of Selection and Assessment*, 20(2), 182-196.
15. Available at: [http://scitechconnect.elsevier.com/why-science-needs-to-publish-negative-results/?utm\\_source=socialmedia&utm\\_medium=All&utm\\_campaign=Why%20Science%20Needs%20to%20Publish%20Negative%20Results&sf8382783=1](http://scitechconnect.elsevier.com/why-science-needs-to-publish-negative-results/?utm_source=socialmedia&utm_medium=All&utm_campaign=Why%20Science%20Needs%20to%20Publish%20Negative%20Results&sf8382783=1). Accessed on April 15, 2015.
16. Jungk, R. a. N. M. (1987). *Future Workshops: How to Create Desirable Futures*. London, Institute for Social Interventions.