Preface to the Second International Workshop on Personalizing Persuasive Technologies

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1 Introduction

Personalizing Persuasive Technologies (PPTs) is a growing research area which investigates how interactive systems can be designed to better suit people of various dispositions, inclinations, and capabilities, and hence increase the efficacy of persuasive technology to motivate behavior change. Research has found that individual characteristics such as personality type [21–23], age [20], gender [24, 25], gamer type [17, 26, 27], and culture [28, 29] as well as an individual's susceptibility to persuasive attempts [14, 30] can be useful dimensions for tailoring persuasive technologies. Research has also explored how various psychological processes can be used to explain the persuasive effect of tailoring [15, 31, 32].

In April 2017, we had the pleasure to organize the 2nd edition of the PPTs Workshop in Amsterdam, the Netherlands. The workshop offered researchers and practitioners from interdisciplinary backgrounds a platform to present their work and discuss their ideas on the opportunities and challenges facing the personalizing persuasive technology research community.

The Personalizing Persuasive Technologies Workshop 2017 (PPT'17) was a big success, with 48 participants (from 15 different countries), 12 paper presentations, and a keynote presentation from Prof. Judith Masthoff, from the University of Aberdeen. Each submission went through a thorough peer-review process and was assessed by at least two reviewers, using the single-blind peer-review approach. *The submissions were evaluated based on* their scientific quality and relevance to the PPTs workshop.

The accepted contributions covered two broad areas of Personalizing Persuasive Technologies: Personalization Methods, Tools, and Theories and Personalized Applications. Contributions in the personalized application can be grouped into three broad categories: personalized eHealth applications, personalized eCommerce applications, and personalized games and gamification.

2   Personalization Methods, Tools, and Theories

How to achieve personalization in the context of persuasive technologies, who to personalize for, and whether there is a need to personalize are current research questions of interest to the PPTs researchers and practitioners. Many submissions to the PPT'17 contributed to this direction:

Kaczmarczyk and Markopoulos, [1] in their paper "*An Avatar Creator as a Tool for Constructing a Personalized Persuasive Profile,*" discussed how gamification can be used as an alternative approach to the personality questionnaires for constructing users' profiles and predicting their individual susceptibility to different social influence approaches. The authors discuss why the profile assessed using their proposed approach (avatar creation) does not completely match the one evaluated using the Susceptibility to Persuasive Strategies Questionnaire.

Oyibo et al., [2] in their paper "*Investigation of the Influence of Personality Traits on Cialdini's Persuasive Strategies,*" investigated the relationships between personality traits measured using the Big Five personality traits and the six persuasive principles by Cialdini – *Reciprocity, Scarcity, Authority, Consensus,* and *Liking*. Designers can use their results to provide personalized solutions precisely targeting specific personality types.

Rezai et al., [3] in their paper "*Investigating Efficacy of Regulatory Fit Theory in Design of Persuasive Systems That Promote Physical Activity*" discussed their application of Regulatory Fit Theory in the context of physical activity promotion. In an ongoing study, participants receive persuasive messages tailored or contra-tailored to their regulatory orientation. The outcome of the study will demonstrate if the proposed personalization approach is effective.

Doreen et al., [4] in their paper "*Personalized Design Process for Persuasive Technologies,*" discussed a user-centered approach to designing personalized persuasive technologies called Personalized Design Process model (PDP-model). The PDP process incorporates discussions with domain experts, end-users, families, and relatives to PPTs design.

Oyibo et al., [5] in their paper "*Investigation of the Persuasiveness of Social Influence in Persuasive Technology and the Effect of Age and Gender,*" examined the effect of age and gender on the persuasiveness of social influence strategies - *Social Learning, Social Comparison, Competition* and *Reward*. They found that males are more susceptibility to Reward and Competition than females. Similarly, younger people are more susceptible to Reward and Competition. Their findings suggest that Reward and Competition will be more effective for younger males than the other groups.

3 Personalized Persuasive Applications: eHealth, eCommerce, and Other Domains

Many submissions to this workshop explored the domain dependency of the efficacy of personalized persuasive technologies by analyzing, designing, and evaluating PPT targeted at various behavior domains including Health and Ecommerce.

Dijkstra and Kooy, [6] in their paper "*The Learning model of Smartphone Feedback Applications in the field of e-health applied to the Step Counter The Learning model of Smartphone Feedback Applications,*" analyzed feedback mechanism in persuasive health application, their working principles, and their implications for the design of feedback devices using the Learning Model of Smartphone Feedback Applications.

Azeved et al., [7] in their paper "*Towards a Platform for Persuading Older Adults to Adopt Healthy Behaviours,*" introduced an End-User Development platform that allows older adults and their caregivers to tailor Web applications to persuade older adults to adopt healthy behaviors.

Adaji and Vassileve, [8] in their paper "*Tailoring Persuasive Strategies in E-Commerce,*" explored the effects of different persuasive strategies in e-commerce based on shopper's data from Amazon.com. The work underlines the importance of tailoring persuasive strategies to individual users.

Seitz, [9] in his paper titled "*Personalizing Password Policies and Strength Feedback,*" argues that personalizing password polices and strength meters by focusing on individual differences rather than on the tasks may improve the user experience of password-based authentication.

4 Personalized Games and Gamification

Khoshkangini et al., [10] in their paper "*Generating Personalized Challenges to Enhance the Persuasive Power of Gamification,*" described a system which uses Procedural Content Generation and Recommender Systems to ensure long-term use of gamified applications by avoiding frustration or boredom. The results of a field case study in the area of sustainable urban mobility are promising and show that the chosen approach has a persuasive effect on players.

Jacoby and Coady, [11] in their paper "*Generating Personalized Challenges to Enhance the Persuasive Power of Gamification,*" discussed how mixed reality environments could be used to enable collaborators to share perspectives, e.g. in terms of personal experiences of history. Their paper raises a question on if and how a personalization approach could be helpful in the context of empowering individuals to act on global issues.

Fountoukidou et al., [12] in their paper "*Using tailoring to increase the effectiveness of a persuasive game-based training for novel technologies,*" discussed the theoretical

development and the use of tailored communication in a persuasive game-based training for the Multimedia Authoring and Management using your Eyes and Mind (MAMEM) technology to enhance user acceptance.

References

1. Kaczmarczyk M, Markopoulos P (2017) An avatar creator as a tool for constructing a personalized persuasive profile. Int. Work. Pers. Persuas. Technol.
2. Oyibo K, Orji R, Vassileva J (2017) Investigation of the Influence of Personality Traits on Cialdini ' s Persuasive Strategies. Int. Work. Pers. Persuas. Technol.
3. Rezai LS, Chin J, Bassett-Gunter R, Catherine Burns (2017) Investigating Efficacy of Regulatory Fit Theory in Design of Persuasive Systems That Promote Physical Activity. Int. Work. Pers. Persuas. Technol.
4. Dooren MMM Van, Visch VT, Spijkerman R (2017) Personalized Design Process for Persuasive Technologies. Int. Work. Pers. Persuas. Technol.
5. Oyibo K, Orji R, Vassileva J (2017) Investigation of the Persuasiveness of Social Influence in Persuasive Technology and the Effect of Age and Gender. Int. Work. Pers. Persuas. Technol.
6. Dijkstra A, Kooy E (2017) The Learning model of Smartphone Feedback Applications in the field of e-health applied to the Step Counter The Learning model of Smartphone Feedback Applications. Int. Work. Pers. Persuas. Technol.
7. Azeved C, Chesta C, Coelho J, et al (2017) Towards a Platform for Persuading Older Adults to Adopt Healthy Behaviours. Int. Work. Pers. Persuas. Technol.
8. Adaji I, Vassileva J (2017) Tailoring Persuasive Strategies in E-Commerce. Int. Work. Pers. Persuas. Technol.
9. Seitz T (2017) Personalizing Password Policies and Strength Feedback. Int. Work. Pers. Persuas. Technol.
10. Khoshkangini R, Valetto G, Marconi A (2017) Generating Personalized Challenges to Enhance the Persuasive Power of Gamification. Int. Work. Pers. Persuas. Technol.
11. Jacoby D, Coady Y (2017) Perspective Shifts in Mixed Reality : Persuasion through Collaborative Gaming. Int. Work. Pers. Persuas. Technol.
12. Fountoukidou S, Ham J, Midden C, Matzat U (2017) Using tailoring to increase the effectiveness of a persuasive game-based training for novel technologies. Int. Work. Pers. Persuas. Technol.
13. Orji R (2014) Design for Behaviour Change: A Model-driven Approach for Tailoring Persuasive Technologies. PhD Thesis:1–257.
14. Kaptein M, De Ruyter B, Markopoulos P, Aarts E (2012) Adaptive Persuasive Systems. ACM Trans Interact Intell Syst 2:1–25. doi: 10.1145/2209310.2209313
15. Dijkstra A (2014) The persuasive effects of personalization through: name mentioning in a smoking cessation message. User Model User-adapt Interact 24:393–411. doi: 10.1007/s11257-014-9147-x
16. Busch M, Mattheiss E, Hochleitner W, et al (2016) Using Player Type Models for Personalized Game Design - An Empirical Investigation. Int. J. Interact. Des. Archit. Accepted f:
17. Orji R, Mandryk RL, Vassileva J, Gerling KM (2013) Tailoring persuasive health games to gamer type. In: Proc. SIGCHI Conf. Hum. Factors Comput. Syst. - CHI '13. ACM Press, New York, New York, USA, pp 2467–2476

18. Egan D (1988) Individual differences in human-computer interaction. Handb Human-computer Interact M Helander (ed) Elsevier Sci Publ Amsterdam 543–568.

19. Oinas-kukkonen H, Harjumaa M (2009) Persuasive Systems Design : Key Issues , Process Model , and System Features Persuasive Systems Design : Key Issues , Process Model , and System Features. Commun Assoc Inf Syst 24:28.

20. Orji R, Mandryk RL, Vassileva J (2015) Gender, Age, and Responsiveness to Cialdini's Persuasion Strategies. In: Persuas. Technol. pp 147–159

21. Halko S, Kientz JA (2010) Personality and Persuasive Technology: An Exploratory Study on Health-Promoting Mobile Applications. In: Persuas. Technol. Springer, pp 150–161

22. Arteaga SM, Kudeki M, Woodworth A, Kurniawan S (2010) Mobile system to motivate teenagers' physical activity. In: Proc. 9th Int. Conf. Interact. Des. Child. ACM, Barcelona, Spain, pp 1–10

23. Alkış N, Taşkaya Temizel T (2015) The impact of individual differences on influence strategies. Pers Individ Dif 87:147–152. doi: 10.1016/j.paid.2015.07.037

24. Orji R, Mandryk RL, Vassileva J (2014) Gender and Persuasive Technology: Examining the Persuasiveness of Persuasive Strategies by Gender Groups. In: Adjun. Proc. 9th Int. Conf. Persuas. Technol. pp 48–52

25. Orji RO, Vassileva J, Mandryk RL (2013) Modeling Gender Differences in Healthy Eating Determinants for Persuasive Intervention Design. Persuas Technol 7822:161–173. doi: 10.1007/978-3-642-37157-8

26. Orji R, Vassileva J, Mandryk RL (2014) Modeling the efficacy of persuasive strategies for different gamer types in serious games for health. User Model User-adapt Interact 24:453–498. doi: 10.1007/s11257-014-9149-8

27. Busch M, Mattheiss E, Orji R, et al (2015) Personalization in serious and persuasive games and gamified interactions. CHI Play 2015 - Proc 2015 Annu Symp Comput Interact Play 811–816. doi: 10.1145/2793107.2810260

28. Khaled R, Barr P, Noble J, et al (2006) Our place or mine? Exploration into Collectivism-Focused Persuasive Technology Design. Persuas. Technol.

29. Orji R, Mandryk RL (2014) Developing culturally relevant design guidelines for encouraging healthy eating behavior. Int J Hum Comput Stud 72:207–223. doi: 10.1016/j.ijhcs.2013.08.012

30. Kaptein M, Markopoulos P (2009) Can you be persuaded? individual differences in susceptibility to persuasion. In: INTERACT. pp 115–118

31. Dijkstra A (2008) The Psychology of Tailoring-Ingredients in Computer-Tailored Persuasion. Soc Personal Psychol Compass 2:765–784. doi: 10.1111/j.1751-9004.2008.00081.x

32. Hawkins RP, Kreuter M, Resnicow K, et al (2008) Understanding tailoring in communicating about health. Health Educ Res 23:454–66. doi: 10.1093/her/cyn004

33. Orji R (2016) Preface to the International Workshop on Personalization in Persuasive Technology : Research Challenges and Opportunities Strategies Personalization in Persuasive Technology. In: Proc. Int. Work. Pers. Persuas. Technol. pp 1–5

34. Personalization in Persuasive Technology Workshop. http://ceur-ws.org/Vol-1582/.