

Building for Joy in the Digital World

Rachel Siow Robertson¹, Jennifer George²,
and Matthew Kuan Johnson³

¹Hong Kong Baptist University, Hong Kong

²Goldsmiths, University of London, U.K.

³University of Oxford, U.K.

ABSTRACT

User experience of digital platforms and technologies tends to be quite ‘thin’, characterized by low-quality engagements such as addictive tendencies or browsing on autopilot. In this paper, we take an interdisciplinary approach to identifying more cognitive and active dimensions of ‘thick’ user experience, introducing a new design and User Experience framework which is centred around the notion of joy. We consider existing frameworks which focus on dimensions such as delight, happiness, satisfaction, pleasure, adoption, and retention. We argue that many harmful kinds of engagement either do not impact negatively on these assessments, or even result in higher scores. We explain how we are working at developing measurements that operationalise different dimensions of joy, drawing from a series of case studies of different digital platforms and applications.

Keywords: Joy, Digital platforms, User experience, Positive affect, Attitudes, Survey, Hats, HEART

INTRODUCTION

As people spend more time using digital platforms, concerns have been raised about the quality of user experience that most end up having. One issue is that user experience can be predominantly negative, involving a “constant play of low-level emotions – such as anxiety, frustration, and anger” (Levy, 2016, p. 34). End-users spend time doomscrolling (Sahakian, 2022; Starkman, 2022), toiling through automated selection loops (Errick, 2022; Metschan et al., 2022), navigating nudging, excessive monitoring, and privacy breaches (and overly-demanding security features, as discussed in Krol et al., 2015), and scrolling past shaming, explicit, or false content (Ribeiro et al., 2020; The Media Insight Project, 2022; Vogels, 2021a). Another concern is that even when user experience is positive, it is still detrimental to well-being. End-users have intense positive emotions as they take delight in malicious activities like trolling (March and Steele, 2020), or as they form addictive patterns of use (Beyens et al., 2016; Kuss and Lopez-Fernandez, 2016; Király et al., 2015; von der Heiden et al., 2019). Or, they may only get a low-level pleasure when browsing for hours on autopilot (Baughan et al., 2022; Baym et al., 2020). Despite high levels of engagement and positive affect, user experience remains ‘thin’ – lacking in normative, active, and cognitive dimensions.

We argue that digital technologies should be *designed for joy* – supporting ‘thicker’ experience which involves deeper interactions, greater cognitive engagement, and overall flourishing. Although there is no one definition of joy, the kind of experience we are interested in involves an intense feeling of fulfilment and a deep alignment between some good in the world, and oneself and others (Johnson, 2020a, 2020b). Recent work within positive psychology suggests that joy encompasses a range of motivations and intensities, and a cognitive profile which includes recognition of integrity, dependence on external factors, and normative assessments. Joy is a rich concept for use in evaluating user experience.

In this paper, we begin with existing frameworks, explaining the problem of ‘thin’ user experience. We bring in the latest empirical and conceptual research on joy, showing how it is a thicker notion of positive experience. Drawing on examples from our case studies, we then introduce our joy-focused framework.

RELATED WORK

Many existing frameworks seek to inform design goals and provide metrics for the emotional side of user experience, going beyond dimensions of functionality and usability. Most of these focus on emotions related to happiness, such as ‘delight’ in Walter’s *Designing for Emotion* (2011) and Norman’s *Emotional Design* (2007), and ‘fun’ and ‘enjoyment’ in Blythe and Monk’s *Funology* (2018). We take Google’s HaTS (Happiness Tracking Survey, Müller and Sedley, 2014) and HEART frameworks (Rodden et al., 2010) as representatives of these approaches, as they are widely used and apply to a range of popular products.

HaTS has nine items and asks about overall satisfaction, likelihood to recommend, frustrations with the product, appreciated features of the project, satisfaction with various product attributes, tasks it is used for, satisfaction with those tasks, time spent using the product, and usage frequency. HEART represents a general framework of five dimensions, with the creation of surveys and measurements left to the researcher. **Happiness** measures general satisfaction with the product (HaTS provides a survey for this). **Engagement, Adoption, and Retention** make use of behavioural data to study how involved the user is with the product, such as the average length of user comments, how many users join per day, and how many users continue to utilise the platform per week. **Task Success** measures the effectiveness and efficiency of interaction with the platform and involves behavioural measures, such as how many users successfully use a feature.

Thin vs. Thick User Experience

The problem with frameworks like HaTS and HEART is that they optimize for a thin understanding of pleasure, such that harmful engagements either do not impact negatively on their metrics, or even result in higher scores. Three major kinds of ‘thin’ user experience are of concern. These distinctions are not exclusive, and experiences can fall under one or all of these kinds.

Addictive: Positive experience could be part of a reinforcing and potentially addictive pattern of behavior (Beyens et al., 2016; Kuss and Lopez-Fernandez, 2016; Király et al., 2015; von der Heiden et al., 2019). For our purposes, we are referring to problematic habits such as compulsive or regularly excessive use (Chen et al., 2022; LaRose et al., 2003). For example, a social media user may get a rush of happiness when someone ‘likes’ their post, but will quickly look for the next ‘hit’ – more ‘likes’, shares, and comments.

Mindless: User experience can be lacking in cognitive engagement with the digital technology. An example is scrolling through endlessly updating (and often banal) posts on social media (Baughan et al., 2022; Baym et al., 2020).

Malicious: User experience can involve taking pleasure in malicious or harmful kinds of content or engagements such as trolling, bullying, nudging, harassment, grooming, and phishing (March and Steele, 2020). Users may also propagate mis-/dis-/mal-information and explicit or harmful content (Maheshwari, 2017). Malicious behaviour is widespread across digital platforms, including those for discussion, gaming, dating, and personal messaging and emailing (Vogels, 2021b).

Of course, products which promote the above experiences could end up with low scores. For example, there may be low adoption and retention if users associate a web-based application with constant phishing attempts. However, many applications remain popular despite being rife with addictive, mindless, and malicious engagement. In fact, we can expect that retention and engagement will be high with addicted users. Similarly, mindless interactions may correlate with longer periods of engagement. Furthermore, technologies or platforms which allow users to carry out malicious actions may score highly on happiness and engagement for actors who enjoy those kinds of behaviours. Thus, products which support ‘thin’ kinds of user experience can end up doing well within typical frameworks.

We see our critique as adding to calls for better design frameworks, such as Alex Klein’s proclamation that “delight is dead” and his ‘Periodic Table of Human Elements’ (Klein, 2022a, 2022b), the seven principles of the Humane by Design resource (www.humanebydesign.com), and the work of the Centre for Humane Technology (www.humanetech.com). Similar frameworks have been offered by Calvo and Peters (2014; see Peters et al., 2018), and Pohlmeier and Desmet (2017). To briefly expand on one of these, Pohlmeier and Desmet intend design to be about “creating opportunities for people to have pleasurable and meaningful experiences”. They identify three components enabling human flourishing: pleasure, personal significance, and virtue. However, they acknowledge that this entails design which prioritises indirect effects and intangible values.

Pohlmeier and Desmet recognise a problem: abstract notions such as ‘flourishing’, ‘humanization’, and ‘wellbeing’ are difficult to apply. Indeed, Pohlmeier and Desmet end up using notions of happiness, joys, and pleasure interchangeably, bringing us back to the problem of thin experience with which we began. What does experience of flourishing feel like, and how can it be designed for and measured? We suggest that thicker notions of experience allow for differentiation between types of positive affect and motivations and open up space for assessing normative and cognitive

dimensions, rather than relying on descriptive measures of user behaviour and self-reported satisfaction.

Joy and Recent Developments in Positive Psychology

The demand for a more nuanced approach to positive affect parallels a recent move in positive psychology, where there has been a shift in focus from happiness and ‘thin’ conceptions of pleasure to ‘thicker’ notions, such as joy (see e.g. Emmons, 2020; Johnson, 2020b, 2020a; Watkins et al., 2018). Joy encompasses a variety of experiences, from the excitement of a party to the serenity of meditation, but there are some shared features which can be brought out.

Much of the literature in psychology on joy is grounded in the ‘broaden and build tradition’, which suggests that joy functions to support us in learning new ways of thinking and behaving (Fredrickson, 2009, 2004). According to this theory, many negative emotions benefit us in an immediate way. For example, when we feel disgust about something in front of us, the negative emotion functions to keep us away from what may be harmful. By contrast, some positive emotions like joy provide longer term benefits, by facilitating activities such as playful experimentation, imagination, and creation. Through these activities, we form new skills and relationships, which help us to face future obstacles.

The ‘broaden and build’ tradition suggests that joy is supported by a variety of motivations, such as feelings of safety, freedom, ease, and creativity. Additionally, joy feeds back into these motivations, facilitating more feelings like safety which promote further engagement. Joy also varies in intensity, with different intensities aligning with different kinds of engagement. For example, excited joy may support engagements related to goal pursuit, whereas calm joy may go into maintaining bodily equilibrium and readiness to engage (Johnson, 2020a; Meadows, 2014).

Another important feature of joy is its cognitive profile. Joy involves a “concern-based construal” in which one takes the intentional object of joy as good (Roberts, 2013). This can include recognising that one is experiencing integration within or between oneself, others, and the world, for reasons that are at least partially outside of one’s direct control (Johnson, 2020a; Johnson and Robertson, in prep; Volf, 2015). The recognition of dependence on external factors usually comes with an experience of gratitude that things have gone well. Indeed, joy and gratitude seem to mutually potentiate one another (Watkins et al., 2018).

As joy involves taking the object of joy to be good, it also has a normative dimension. Theorists also delineate normatively desirable joys, which are taken in the right object in the right way, such as joy in helping others. By contrast, normatively undesirable joys include joy taken in harm done to others (schadenfreude or sadism; see Arnett, 2022; Johnson, 2020a).

The concept of joy may have other advantages, as some suggest that joy resists hedonic adaptation (Chesterton, 1927, pp. 106–7), and is compatible with sorrow and oppression (Casioppo, 2020; Lu and Steele, 2019; Packnett, 2017; Thompson, 2015; Underwood, 2020). Unlike other positive emotions

such as happiness, joy can be maintained in support of overall flourishing despite adverse circumstances.

DESIGNING FOR JOY

Joy encompasses a range of motivations and intensities, and a cognitive profile which includes recognition of integrity, dependence on external factors, and normative assessments. Drawing on these elements of joy, we propose a design and UX framework with five dimensions: **Motivation, Intensity, Integrity, Normative, and Dependent**. As part of our research, we carried out or supervised several case studies. Below, we draw on these studies to provide examples of 1) survey questions which target the different dimensions of joy, and 2) how UX research can further explore and apply the different dimensions of joy.

Motivation

This dimension evaluates the conditions involved in ‘broadening and building’: feelings of safety, freedom, ease, and creativity that facilitate experimentation and learning. It considers whether the platform provides sufficient context for these motivations, and whether there are mainly thin motivations for engagement, such as desire for pleasure, or thicker motivations, such as desire for social connection, self-actualization, or even seeking joy itself.

1) *Survey questions*. For a study of social media platforms, we asked, “To what extent do the following factors motivate your use of [product]?”. Participants selected from a grid. A fully labelled 5-point scale made up the columns of the grid, ranging from ‘none at all’ to ‘a great deal’. Rows consisted of a range of motivations: freedom and ability to experiment, safety, social connection, competition, pursuing or achieving goals and rewards, greater or lesser consciousness of one’s whole person, gratitude, and beauty or aesthetic factors. We also provided an open answer text box, asking: “Are there any other factors motivating your use of [product]? Please explain”. We were interested in whether platforms supported or changed motivations, so we asked an open-ended question: “Have your motivations for using [product] changed over time? Please explain”.

2) *Exploring motivation*. A relevant case study we engaged with investigated how to prevent hedonic adaptation when using mobile fitness apps, which are prone to drop-off in engagement over time (Lu, 2022). This study introduced design elements which facilitated motivations for joy, such as offering reminders of personal progress and unexpected achievements (greater self-awareness and gratitude), and capacities for flexible goal-setting (freedom).

Integrity

This evaluates end-users’ experience of three kinds of integrity (Johnson and Robertson, in prep; Robertson and Johnson, 2023). The first kind of integrity is integration in the direction of self-to-world. This has to do with seeing oneself, the world, and others rightly, and relates to the truth or quality of

content. The second kind is world-to-self integrity, or self-efficacy, in which one is able to change some feature of the world according to one's desires. The third kind is self-unity/self-consciousness, in which one achieves a higher degree of psychic unity (a consistency between one's beliefs, desires, hopes, projects, and commitments). Integrity is important because joy is a response to the experience of one of the three types of integrity (Arnett, 2022; Johnson, 2020b, 2020a; Van Cappellen, 2020). The three kinds can be mapped to related psychological constructs, so standard psychometric tests can also be selected for inclusion within this dimension.

1) *Survey questions.* For our case study of social media platforms, we asked, "Indicate how satisfied or dissatisfied you are with [product] in the following areas". Participants selected their answers from a grid. The rows consisted of factors relevant to integrity: connection to the world, supporting feelings of empowerment, gaining a better understanding of oneself, accessing the desired kind of information, and the quality of the community and community norms. The columns were a fully labelled 5-point scale, ranging from 'extremely dissatisfied' to 'extremely satisfied', with 'neither satisfied nor dissatisfied' in the middle.

2) *Exploring integrity.* One case study we followed was about improving emotional recognition for autistic individuals in digital spaces (Roche, 2022). This study considered how joy is experienced by autistic individuals when digital technology is used to overcome barriers to emotional recognition. Beneficial features included those which allowed accurate and nuanced recording and sharing of emotions. This reflects the supervenience of joy on self-to-world integrity (as users reach a greater understanding of others' emotions), self-efficacy (as users share their own emotions in the way they want, and to the extent they want), and self-consciousness (as users achieve greater understanding of their own emotions).

Intensity

This measures the strength of experience (excited vs. serene joy; Johnson, 2020a; Meadows, 2014), allowing granular insights into kinds of positive experiences.

1) *Survey questions.* For our case study of social media platforms, we used an open-ended question: "Reflect on the experiences you have had while using [product]. Which (if any) of the following describe those experiences (please explain)". We provided bullet points to reflect on: 'intense and high-energy', 'calm, at equilibrium', 'making a breakthrough', 'struggle', and 'outrage'.

2) *Exploring intensity.* We followed a case study which investigated how immersive virtual experiences create empathy for refugees (Koker, 2022). There were varying intensities of joy in the virtual portrayal of a refugee family's journey, such as the joy of meeting friends along the way and finding safety in a new life. The study reflected how calm and serene joy can emerge and persist alongside (and without diminishing) intense sadness and distress.

Normative

This dimension enables the MIIND framework to go beyond descriptive evaluations of experiences, to assess normative (including moral and aesthetic) dimensions, and end-users' normative evaluations of these dimensions.

1) *Survey questions.* Our case study of social media platforms used an open-ended question: "Reflect on the experiences you have had while using [product]. Which (if any) of the following describe those experiences (please explain)". We listed options as bullet points: gratitude, unfairness, competitiveness, schadenfreude or sadism, powerful and positive social connection, powerful and negative social connection, and beauty or ugliness.

2) *Exploring the normative dimension.* In the case study of virtual representations of refugee experience, one research question was how to avoid perpetuating negative stereotypes, supporting long-term positive narratives and care instead (Koker, 2022). A suggestion is that sharing joy moves participants away from voyeurism and negative experiences like sadism or schadenfreude, and towards experiences with more positive normative dimensions like beauty, gratitude, and positive social connection.

Dependent

This dimension evaluates perceptual focus, exploring how end-users attend to factors outside of their control that affect their experience – features that contribute to feelings such as gratitude or unfairness. This reflects how joy involves awareness of external factors as part of the sense that integration is occurring for reasons outside of one's control (Johnson, 2020a; Volf, 2015). This sense of awareness marks active, normatively-informed, and cognitively engaged experiences.

1) *Survey questions.* There is overlap between this dimension and the **Normative** dimension, as answers indicate end-user awareness of external factors. We did not include separate questions for this in our survey on social media.

2) *Exploring the dependent dimension.* Examples from our case studies include the joy of an unexpected achievement highlighted by a fitness app (Lu, 2022), or the joy experienced by autistic individuals when technology is used to remove barriers to emotional recognition (Roche, 2022).

Asking Directly About Joy

The end of a survey or interview is a good opportunity to ask directly about joy. This helps to avoid biases in which earlier questions about joy impact on responses to later questions (Landon, 1971; Müller and Sedley, 2014). For our study of social media, we offered a definition of joy: "Joy is a powerful positive experience or vision of some aspect of the world, or yourself, being the way you want it to be." We then asked a yes/no question, "Have you ever found joy, as described in this way, while using [product]?" If the participant answered yes, we provided an open-ended question, "Please describe the joy you found while using [product]. Did any of the features of the platform help make this possible?" If the participant answered no, we provided an open-ended question: "What would need to change about [product] to make joy possible for you?". In both cases, we ended with a yes/no question, "Were you looking for joy while using [product]?"

CONCLUSION

We began with concerns that digital technologies and platforms are “draining” joy, despite frameworks such as HEART and HaTS aiming at high levels of engagement and positive affect. We highlighted addictive, mindless, and malicious ways of engaging, and differentiated these from thicker forms of experience which promote flourishing. Joy, with its rich motivational and cognitive profiles, was proposed as the focus of a supplementary design and UX framework.

MIIND supplements HEART and HaTS by allowing for more granularity, as it can more clearly differentiate the types of affect and motivation involved. This is especially useful for the cases in which we want to see whether there are primarily addictive or malicious motivations for high levels of engagement. It also offers insights into the intensities and kinds of happiness and satisfaction in play, which goes towards screening out mindless engagement. Our framework is descriptive, but also provides space for normative assessment, including aesthetic and moral factors (e.g. harming joy and *schadenfreude*). Lastly, MIIND moves beyond behaviour and affect, evaluating the cognitive aspects of user experiences.

Future work could validate this framework by exploring whether designing with a combined MIIND-HEART approach increases adoption, retention, and task success. We could also explore whether MIIND-HEART designed products are more (or less) financially profitable. Our suggestion is that users will benefit, as they will have access to thicker forms of experience and flourishing. In turn, thicker engagement from users means better quality of information for technologists, who can collect data on more nuanced dimensions such as motivational and cognitive elements. Furthermore, committing to supporting joy and integrity (and having the data to substantiate this commitment) could help to tackle the erosion of trust in the tech sector (Edelman Trust Barometer, 2022) and support further engagement.

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REFERENCES

- Arnett, J. J., 2022. Joy: An integrative theory. *The Journal of Positive Psychology* 1–14.
- Baughan, A., Zhang, M. R., Rao, R., Lukoff, K., Schaadhardt, A., Butler, L. D., Hiniker, A., 2022. “I Don’t Even Remember What I Read”: How Design Influences Dissociation on Social Media, in: *CHI Conference on Human Factors in Computing Systems*. pp. 1–13.

- Baym, N. K., Wagman, K. B., Persaud, C. J., 2020. Mindfully Scrolling: Rethinking Facebook After Time Deactivated. *Social Media + Society* 6.
- Beyens, I., Frison, E., Eggermont, S., 2016. “I don’t want to miss a thing”: Adolescents’ fear of missing out and its relationship to adolescents’ social needs, Facebook use, and Facebook related stress. *Computers in Human Behavior* 64, 1–8.
- Blythe, M., Monk, A. (Eds.), 2018. *Funology 2: From Usability to Enjoyment*, 2nd ed, Human-Computer Interaction Series. Springer.
- Brickman, P., Campbell, D. T., 1971. Hedonic relativism and planning the good society., in: Appley, M. H. (Ed.), *Adaptation Level Theory*. Academic Press, pp. 287–305.
- Calvo, R. A., Peters, D., 2014. *Positive Computing: Technology for Wellbeing and Human Potential*. MIT Press.
- Casioppo, D., 2020. The cultivation of joy: practices from the Buddhist tradition, positive psychology, and yogic philosophy. *The Journal of Positive Psychology* 15, 67–73.
- Chen, C., Cohen, O., Sundar, S. S., 2022. Differentiating Problematic from Habitual Instagram Use: A Uses and Grats 2.0 Perspective. *Social Media + Society* 8.
- Chesterton, G. K., 1927. *Orthodoxy*. Bodley Head, London.
- Edelman Trust Barometer, 2022. 2022 Trust Barometer Special Report: Trust in Technology, Edelman Trust Barometer.
- Emmons, R. A., 2020. Joy: An introduction to this special issue. *The Journal of Positive Psychology* 15, 1–4. <https://doi.org/10.1080/17439760.2019.1685580>
- Errick, K., 2022. More Than Half of People are Frustrated by Digital Government Services, Survey Finds. Nextgov.com.
- Fredrickson, B. L., 2009. Joy, in: Sander, D., Scherer, K. (Eds.), *The Oxford Companion to Emotion and the Affective Sciences*. Oxford University Press, p. 230.
- Fredrickson, B. L., 2004. The broaden–and–build theory of positive emotions. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences* 359, 1367–1377. <https://doi.org/10.1098/rstb.2004.1512>
- Johnson, M. K., 2020a. Joy: a review of the literature and suggestions for future directions. *The Journal of Positive Psychology* 15, 5–24.
- Johnson, M. K., 2020b. Joy: A reply to the replies. *The Journal of Positive Psychology* 15, 84–88.
- Johnson, M. K., Robertson, R. S., in prep. *Cultivating Joy*.
- Király, O., Urbán, R., Griffiths, M. D., Ágoston, C., Nagygyörgy, K., Kökönyei, G., Demetrovics, Z., 2015. The Mediating Effect of Gaming Motivation Between Psychiatric Symptoms and Problematic Online Gaming: An Online Survey. *Journal of Medical Internet Research* 17. <https://doi.org/10.2196/jmir.3515>
- Klein, A., 2022a. Designing for “delight” is dead. Medium. URL <https://uxdesign.cc/designing-for-delight-is-dead-677bca6ebd1> (accessed 1.30.23).
- Klein, A., 2022b. Humanize your product with the Periodic Table of Human Elements. Medium. URL <https://uxdesign.cc/how-to-humanize-your-product-92fc871d6b0f> (accessed 1.30.23).
- Koker, M., 2022. *Sense 360: Simulating empathy in film and virtual reality via documentary storytelling* (MSc Thesis). Goldsmiths, University of London.
- Krol, K., Philippou, E., De Cristofaro, E., Sasse, M. A., 2015. “They brought in the horrible key ring thing!” Analysing the Usability of Two-Factor Authentication in UK Online Banking. <https://doi.org/10.48550/arXiv.1501.04434>

- Kuss, D. J., Lopez-Fernandez, O., 2016. Internet addiction and problematic Internet use: A systematic review of clinical research. *World J Psychiatry* 6, 143–176.
- Landon, E. L., 1971. Order Bias, the Ideal Rating, and the Semantic Differential. *Journal of Marketing Research* 8, 375–378. <https://doi.org/10.2307/3149580>
- LaRose, R., Lin, C. A., Eastin, M. S., 2003. Unregulated Internet Usage: Addiction, Habit, or Deficient Self-Regulation? *Media Psychology* 5, 235–254.
- Levy, D. M., 2016. *Mindful tech: How to bring balance to our digital lives*. Yale University Press.
- Lu, J. H., Steele, C. K., 2019. ‘Joy is resistance’: cross-platform resilience and (re) invention of Black oral culture online. *Information, Communication & Society* 22, 823–837. <https://doi.org/10.1080/1369118X.2019.1575449>
- Lu, T., 2022. Investigating the Influence of Design to Prolong Positive Emotions and Prevent Hedonic Adaptation in Fitness Apps to Sustain Wellbeing (MSc Thesis). Goldsmiths, University of London.
- Maheshwari, S., 2017. On YouTube Kids, Startling Videos Slip Past Filters. *The New York Times*.
- March, E., Steele, G., 2020. High Esteem and Hurting Others Online: Trait Sadism Moderates the Relationship Between Self-Esteem and Internet Trolling. *Cyberpsychology, Behavior, and Social Networking* 23, 441–446.
- Meadows, C. M., 2014. *A Psychological Perspective on Joy and Emotional Fulfillment*. Routledge, New York.
- Metschan, S., O’Leary, J., Mancher, M., Spahich, A., 2022. Reimagining the government contact center experience—serving people with empathetic technology. *Deloitte Insights*. URL <https://www2.deloitte.com/us/en/insights/industry/public-sector/government-contact-center-technology.html> (accessed 10.25.22).
- Müller, H., Sedley, A., 2014. HaTS: large-scale in-product measurement of user attitudes & experiences with happiness tracking surveys, in: *Proceedings of the 26th Australian Computer-Human Interaction Conference on Designing Futures: The Future of Design, OzCHI’14*. Association for Computing Machinery, New York, NY, USA, pp. 308–315. <https://doi.org/10.1145/2686612.2686656>
- Norman, D., 2007. *Emotional Design: Why We Love (or Hate) Everyday Things*. Basic Books.
- Packnett, B., 2017. I’m an Activist, and Joy Is My Resistance. *Self*. URL <https://www.self.com/story/charlottesville-joy-is-resistance> (accessed 10.25.22).
- Peters, D., Calvo, R. A., Ryan, R. M., 2018. Designing for Motivation, Engagement and Wellbeing in Digital Experience. *Frontiers in Psychology* 9.
- Pohlmeyer, A., Desmet, P., 2017. From good to the greater good, in: *Routledge Handbook of Sustainable Product Design*. Routledge.
- Ribeiro, M. H., Ottoni, R., West, R., Almeida, V. A., Meira Jr, W., 2020. Auditing radicalization pathways on YouTube, in: *Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency*. pp. 131–141.
- Roberts, R. C., 2013. *Emotions in the Moral Life*. Cambridge University Press.
- Robertson, R. S., Johnson, M. K., 2023. Moral Education in and for Virtual Spaces, in: Yacek, D. W., Gary, K., Jonas, M. E. (Eds.), *Moral Education in the 21st Century*. Cambridge University Press, Cambridge.
- Roche, A., 2022. Enhancing joy for Autistic Individuals by improving Emotional Recognition in Digital Spaces (MSc Thesis). Goldsmiths, University of London.
- Rodden, K., Hutchinson, H., Fu, X., 2010. Measuring the User Experience on a Large Scale: User-Centered Metrics for Web Applications, in: *Proceedings of CHI 2010*.
- Sahakian, B. J., 2022. Here’s What Doomscrolling Is Doing to Your Brain— And How to Fix It. *ScienceAlert*.

- Starkman, E., 2022. Doomscrolling: What to Know. WebMD. URL <https://www.webmd.com/balance/what-is-doomscrolling> (accessed 10.25.22).
- The Media Insight Project, 2022. The news habits and attitudes of the Gen Z and Millennial generations: News and digital fatigue. AmericanPress Institute. URL <https://www.americanpressinstitute.org/publications/reports/survey-research/news-and-digital-fatigue/>(accessed 10.25.22).
- Thompson, M. M., 2015. Reflections on Joy in the Bible, in: Volf, M., Crisp, J. E. (Eds.), *Joy and Human Flourishing: Essays on Theology, Culture, and the Good Life*. Fortress Press, Minneapolis, pp. 17–38.
- Underwood, L. G., 2020. Refining research on joy. *The Journal of Positive Psychology* 15, 54–57. <https://doi.org/10.1080/17439760.2019.1685575>
- Van Cappellen, P., 2020. The emotion of joy: commentary on Johnson. *The Journal of Positive Psychology* 15, 40–43. <https://doi.org/10.1080/17439760.2019.1685571>
- Vogels, E. a, 2021a. The State of Online Harassment. Pew ResearchCenter: Internet, Science & Tech. URL <https://www.pewresearch.org/internet/2021/01/13/the-state-of-online-harassment/> (accessed 10.24.22).
- Vogels, E. a, 2021b. Online harassment occurs most often on socialmedia, but strikes in other places, too. Pew Research Center. URL <https://www.pewresearch.org/fact-tank/2021/02/16/online-harassment-occurs-most-often-on-social-media-but-strikes-in-other-places-too/> (accessed 10.24.22).
- Volf, M., 2015. The crown of the good life: A hypothesis, in: Volf, M., Crisp, J. E. (Eds.), *Joy and Human Flourishing: Essays on Theology, Culture, and the Good Life*. Fortress Press, Minneapolis, pp. 127–135.
- von der Heiden, J. M., Braun, B., Müller, K. W., Egloff, B., 2019. The Association Between Video Gaming and Psychological Functioning. *Frontiers in Psychology* 10.
- Walter, A., 2011. *Designing for Emotion. A Book Apart*, New York, N. Y.
- Watkins, P. C., Emmons, R. A., Greaves, M. R., Bell, J., 2018. Joy is a distinct positive emotion: Assessment of joy and relationship to gratitude and well-being. *The Journal of Positive Psychology* 13, 522–539. <https://doi.org/10.1080/17439760.2017.1414298>