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A nudge for positive behaviours: digital nudging in higher education

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Abstract

In 2018, embarking upon my PhD in Education, I conducted a literature review. My preliminary findings came to a determination of three key points, as presented below. However, during the Covid-19 context, 2020-22, there was a rapid shift in the sector to teaching online and a consequent shift in the literature. I believe it noteworthy to present this piece to the academic community to highlight what I perceive as a move in the literature findings. Now, in 2023, there is clear evidence that Higher Education is moving towards digital nudging (Brown et al., 2023; Plak et al., 2023). It is important for Learning Development professionals to consider the ethical implications of this change and how nudging might be used in virtual learning environments, especially given the rapid rise of Artificial Intelligence, which is likely to be deployed alongside learning analytics to shape students' learning behaviours.

Keywords: digital nudging, nudging, online learning design, virtual learning environment

Main Communication

During the preliminary stages of my PhD there was the idea of investigating student experience scripting through the use of 'online nudging methods in digital learning environments'. Nudging is about creating a choice architecture. Thaler & Sunstein (2009:6)

define a nudge as "any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives." Building upon this idea, Weinman et al. (2016: 433) state a digital nudge "is the use of user-interface design elements to guide people's behavior in digital choice environments".

Notwithstanding my own interest in affect theory and other interpretive approaches to experience and behaviour, I had limited experience of 'digital nudging' research. However, at the time as an Educational Developer, I took an interest in the way in which digital systems, in particular Virtual Learning Environments, might be having an impact on student learning and engagement. With that in mind I conducted a short review of literature summarising and noting nine key articles and reading a further nine articles for greater breadth.

From the literature in 2018, I believed there to be three key findings:

- First, there is a lack of a consensus and clarity of language about what digital nudging is thought to be. Acquisti et al., (2017) believes it to be more overt design choice for the user, Mik (2016) believes it to be the narrowing of choice causing the nudge, whereas Cas tmo and Perrson (2018) put forward the theory that there is the more conscious intervention by the designer/controller for the subconscious of users.

- Second, and intrinsically linked to the first point, is the lack of clarity of where digital nudging occurs in online learning environments. The confusion appears over the point at which nudging happens, whether it is in the design of, or actually 'in', the online learning environment. For example, Thistoll and Yates (2016) propose nudging as prompting students to complete a course; whereas Castmo and Perrson (2018) propose a more data science approach to the method of user interface design and prioritisation of information presented to the user. Here the nudging has started prior to user interaction.

- Lastly, it was apparent that there is a lack of an existing research framework to go about investigating digital nudging for online learning environments and more broadly digital nudging. The literature, in many cases, utilised others' previous research and in some cases took data from the 'real world' and applied it to the 'virtual world'.

During the pandemic, digital nudging has been used extensively to support students in adapting to virtual learning environments and for increasing motivation and 'ability' (Plak et al., 2023). With access to data and the way in which students (and staff) might be using digital systems, there are risks of surveillance cultures arising and the lack of context may lead to complications, especially if data is utilised in decision making. This links to discussion of whether online nudging can be done at a much larger scale and debates about the ethical questions of such approaches. Here, institutions have used nudges to encourage students to attend online classes, complete assignments on time, provide prompt time (thinking time following prompts given to students), and to engage with digital learning materials and online assessments. This has been achieved through learning analytics that staff and digital systems can use to provide pop-ups, notifications, and reminders, which 'nudge' students with timely and personalised prompts to act (Motz et al. 2022; Rodriguez et al., 2022; Brown et al., 2023; Plak et al. 2023). This is the case for those people who might be more vulnerable and accept nudges without question, and this might result in those people having a less nuanced view of what they are doing (and arguably the world they live in) which may be disempowering.

One of the most significant impacts of digital nudging has been on student engagement in online learning. By using nudges to encourage students to participate in online discussions, complete assignments, and attend virtual classes, universities have been able to increase engagement levels significantly (Brown et al., 2023). In turn, this has led to improvements in academic performance, with students achieving higher grades and more significant learning outcomes.

However, the increased use of digital nudging has also raised concerns about privacy and autonomy (Plak et al., 2023). Hence, there are concerns that digital nudging can be manipulative and may undermine students' autonomy and decision-making abilities. Thus, the reliance on digital nudging may exacerbate existing inequalities, with some students being more susceptible to nudges than others, such as those with differing levels of digital literacy.

In summary, the COVID-19 pandemic has led to (re)shaped/newly shaped online spaces in the higher education sector, now there is a significant increase in the use of digital nudging in higher education (Brown et al., 2023). While digital nudging can be an effective tool to improve student engagement and learning outcomes, universities and staff need to be mindful of the potential risks and ensure that students' privacy and autonomy are protected.

There remains much more of a conversation to be engaged in around the ethics and guidance of using learning analytics and systems that nudge students' learning behaviours online. There is need for the academic community to engage in meaningful debate to provide a better understanding of digital nudging and to work together to establish a robust method/methodology for researching digital nudging in online learning in higher education. Furthermore, this will give an opportunity to outline what and how 'positive' nudging might be done, who by, and what the safeguards might need to be. This is a particularly salient point for the academic community at a time when learning analytics and Artificial Intelligence look increasingly likely to be utilised together, especially with the proliferation of the likes of ChatGPT. With such a complex and rapidly changing landscape, it would be beneficial for Educational Developers, Learning Designers, Digital Systems Administrators, Academic Staff, and other parties to engage in discussion about online nudging. These discussions may help unpack some of the ethical implications of online nudging in virtual learning environments, learning management systems, and will help to inform academic staff. It would be heartening to see such discussions leading to higher education providers developing ethical codes of practice and transparency statements in course handbooks regarding the use of online nudging. Not only would it be useful to consider how online nudging is used, but how it might help facilitate greater engagement in learning leading to greater equity of opportunities.

Acknowledgements

Reference List

Acquisti, A., Adjerid, I., Balebako, R., Brandimarte, L., Cranor, L., Komanduri, S., Leon, P., Sadeh, N., Schaub, F., Sleeper, M., Wang, Y. and Wilson, S. (2017). 'Nudges for privacy and security: Understanding and assisting users' choices online', *ACM Computing Surveys,* 50, (3). Available at: doi: http://dx.doi.org/10.1145/3054926

Brown, A., Basson, M., Axelsen, M., Redmond, P. and Lawrence, J. (2023) 'Empirical Evidence to Support a Nudge Intervention for Increasing Online Engagement in Higher Education', *Education Sciences*, 13, pp. 145. Available at: https://doi.org/10.3390/educsci13020145

Castmo, M. and Perrson, R. (2018) 'The Alliance of Digital Nudging & Persuasive Design: The Complementary Nature of the Design Strategies', MSc Thesis. Lund University. Available at: https://www.lunduniversity.lu.se/lup/publication/8950219

Mik, E. (2016) 'The erosion of autonomy in online consumer transactions', *Law, Innovation and Technology*, 8(1), pp. 1-38, Available at: doi:10.1080/17579961.2016.1161893

Motz, B., Mallon, M. and Quick, J (2022) 'Automated Educative Nudges to Reduce Missed Assignments in College', *IEEE Transactions on Learning Technologies*, 14(2), pp. 189-200, Available at: doi: 10.1109/TLT.2021.3064613.

Plak, S., Klaveren, C. and Cornelisz, I. (2023) 'Raising student engagement using digital nudges tailored to students' motivation and perceived ability levels', *British Journal of Educational Technology*, 54, pp.554– 580. Available at: https://doi.org/10.1111/bjet.13261

Rodríguez, M., Guerrero-Roldán, A., Baneres, D. and Karadeniz, A. (2022) 'An Intelligent Nudging System to Guide Online Learners', *International Review of Research in Open and Distributed Learning*, 23(1), pp. 41–62. Available at: https://doi.org/10.19173/irrodl.v22i4.5407

Thaler, R. and Sunstein, C. (2009) *Nudge: Improving decisions about health, wealth and happiness.* London: Penguin Books

Thistoll, T. and Yates, A. (2016) 'Improving course completions in distance education: an institutional case study', *Distance Education*, 37(2), pp. 180-195, Available at: doi:10.1080/01587919.2016.1184398

Weinmann, M., Schneider, C. and vom Brocke, J. (2016) 'Digital Nudging', Business Information System Engineering 58(6), pp 433–436. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2708250

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