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## **Predicaments of independence in PhD education and supervision: Navigating uncertainties of writing in a time of Generative AI**

Independence forms a key value in research education and PhD supervision (Elliot et al., 2023; Nerad et al., 2022:20-21). Rooted in pedagogic and political ideals shaping Western modern universities, independence was once associated with the solitude and freedom necessary for research (Clark 2006:446). Recent studies suggest that independence is a more complicated matter entangled in cultural norms and the supervision practices of local environments (Wichmann-Hansen & Nielsen 2023, Bastalich 2017), and highlight the importance of considering its entwinement with uncertainties and well-being (Elliot et al. 2023:4).

Scientific writing has traditionally been a key marker of independent thinking in doctoral education but is also a central source of uncertainty, and increasingly problems of well-being (Barnett 2021:198, Wisker 2019, Wisker & Robinson 2018). With the recent advent of AI technologies capable of generating text, writing practices in higher education are transforming (Chan 2024), promising productivity boosts for weaker writers (Noy & Zhang 2023), but also calling for careful considerations of how to deal with scientific knowledge making and research (Alasadi & Baiz 2023, cf. Jasanoff 2022). Indeed, for doctoral supervision, these transformations raise questions as to how PhD students and their supervisors navigate expectations of independence and uncertainties related to writing and scientific knowledge making.

This paper explores the expectations and experiences surrounding the independence of PhD students, focusing on the uncertainties related to writing and their reconfigurations in relation to text generation AI technologies. It draws on in-depth and ethnographic interviews (Spradley 1979) with PhD students and supervisors in six environments

across three Danish universities to account for differences in the dynamics of uncertainty and well-being between environments (Bengtzen & McAlpine 2022, Mackie & Bates 2019).

The paper shows that the use of text generation technologies bring out questions of how to navigate between expectations of independence and experiences of uncertainties for both PhD students and supervisors. It highlights that while text generation technologies offer new ways for doctoral researchers to get feedback in private spheres, thus reducing uncertainties, these technologies also introduce new uncertainties to the process of scientific knowledge making, as well as in the supervisory relationships. The paper argues that the use of text generation technologies interweave with existing cultural norms and social environments of PhD education, and highlights the need to address the uncertainties these technologies may give rise to in supervisory relations, as well as how their use interrelate with questions of being an independent researcher.

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