



How to transfer knowledge to Generation Z

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Abstract. With this paper, we aim to raise awareness of the challenges of generational transition in the German nuclear industry. We present potential solutions for transferring and preserving knowledge in the future.

For approximately 60 years, Germany has operated nuclear facilities successfully and safely. Germany phased out the peaceful use of nuclear energy in 2023 by shutting down the last three nuclear power plants. At the same time, a generational shift is imminent within the next 5–10 years, as a significant number of knowledgeable experts will be retiring. Simultaneously, the first “fully digitalized” Generation Z, whose learning methods and preferences differ significantly from the previous generation (see Fig. 1), will enter the job market (McKinsey & Company et al., 2018). This requires the development and establishment of new methods and didactics (Chillakuri, 2020). Furthermore, educational institutions in Germany are reducing their curriculum offerings in the field of nuclear technology. This necessarily leads to the challenge of introducing and training a growing number of newcomers with limited prior knowledge in the complex field of nuclear technology. In our investigation, we focused on the development of new learning concepts. Various research approaches, studies, and internal evaluations were considered that addressed the learning preferences and styles of Generation Z (McKinsey & Company et al., 2018; Chillakuri, 2020; Cilliers, 2017).

Generation Z is characterized by a strong commitment to digital technologies, a high affinity for collaboration, and a preference for interactive and visual learning methods. Unlike previous generations, Generation Z increasingly favours informal, flexible, and context-based learning (Cilliers, 2017). To address these attributes, a *multilevel learning concept* was developed. The concept includes various digital and asynchronous (on-demand) formats that facilitate an attractive and flexible learning environment. A variety of media types, such as e-learning videos, podcasts, animated films, and virtual realities, were well-received by the participants. Attention span, which has changed compared to previous generations, was taken into account. To maintain attention, playful elements (gamification) were inserted into the format. Additionally, online expert discussions were established, as personal exchanges convey experiences and emotions, leading to a higher level of memorability.

The future of nuclear safety and competence in Germany depends on a successful transfer of knowledge in the coming years. A lack of adaptation of learning methods and didactics to the needs of current and future generations risks the loss of a significant portion of accumulated expertise. This loss poses a risk to nuclear safety, can drive up costs, and can lead to project delays of several years.

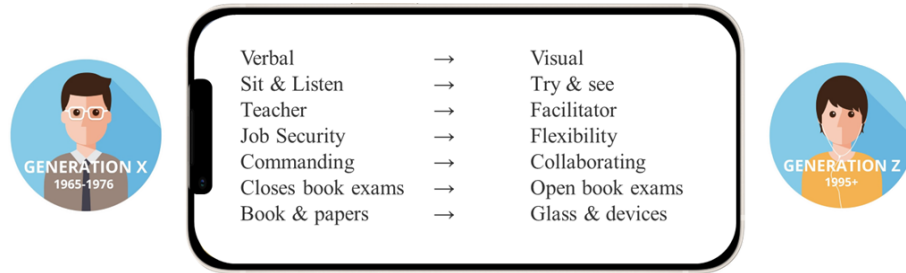


Figure 1. Job and learning expectations of Generation X vs. Generation Z (McGowan, 2018).

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