

Chapter 3

Start Small, Think Big!

Exploring GenAI in Learning and Teaching

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ABSTRACT

Generative artificial intelligence (genAI) is a cutting-edge technology that is guaranteed to disrupt education. Instructional technologists and librarians are best suited to share new technologies with their learning communities. Paths for adoption are not always smooth. The needs, abilities, and openness to change need to be ascertained, as well as the choice of which genAI applications to use in learning and teaching. The Diffusion of Innovations theory is used as a guide to not only identify those learners who may be best suited to apply the new technology, but also to choose the tools that may best serve the learning community. The profile of the user as well as the technology itself are important factors. It explains and reminds instructional technologists and librarians of best practices so that learners will understand and apply genAI. The chapter includes a framework for success in learning what the community needs and how to lead in the acceptance and use of genAI. Particular genAI tools that best serve learning communities, other readings, and resources are also included.

INTRODUCTION

By the time you read this chapter, generative artificial intelligence (genAI) will have evolved from the time of its writing. This chapter will provide a springboard for thoughts and activities that endeavor to enhance your learning community's un-

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derstanding and application of genAI. To start small is a deliberate and intentional process to prepare the way for safe and successful implementation of a tool that continues to develop.

Generative Artificial Intelligence (genAI) is a technology with the potential to change the instructional environment. What is genAI? “Generative AI is the general descriptor for algorithms that create new content (e.g., text, images, audio, computer code). Like all AI, generative AI is powered by machine learning models—very large models that are pre-trained on vast data sets and commonly referred to as Foundation Models (FMs).” (Educause 2024, para. 3). GenAI can provide materials so that every student in a class can feel supported and seen, and each can have their unique needs met by adapting learning tools to support each student. The teacher can then focus more fully on students and their learning. GenAI has the capability to accomplish the non-teaching aspects of the work. The classroom can be transformed into a learning space where students who have prior experience, interest, and understanding can be challenged at their higher level of understanding. Others whose facility with the language or whose reading issues are a barrier to learning can also be given the support they need to learn with the least amount of extraneous cognitive load. The personalization of learning at scale is an opportunity only dreamed of until recently. GenAI can act as an intelligent tutor for each individual child. Surprisingly, it has been shown that teachers only spend about 46% of their time actually teaching (Hardison, 2022). The rest of their time is spent in planning, collaboration, communications with parents or guardians, clerical and other work as well as finding resources to support specific student needs. GenAI can help provide content for each student according to need. In a regular classroom full of students with differing abilities, each is able to not only interact with their teacher, but they also receive lessons that reach them exactly where they are~ and the teacher has time to interact with each student, providing guidance as well as information and understanding. The best part is that teachers are experienced educators who can judge the efficacy of the material for each student. GenAI can provide avenues for productivity for teachers and administration. One of the concerns of the use of genAI, however, are the ethical considerations of its application. At every level, teachers and administration will need to be aware of the ethical uses of generative AI and will help students to also behave in ethical ways. For students, the use of a technology that can learn their strengths and weaknesses may be a change in the paradigm for them. The ability to utilize genAI for learning will be hampered by what is already an issue, namely the Digital Divide. This issue cuts across all communities and will multiply the difference in understanding of genAI just because it may not be a technology available to all learners. This is a known hindrance.

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