

Generative AI for Authentic Point-of- Need Learning

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1 Executive Summary

When we consider Generative AI (GenAI) for point-of-need learning, what is it that this technology can bring to the learning experience? Is it facilitating a better, more engaging experience, or is it simply a way to access information faster, such as using Google or YouTube in a more efficient way?

Currently conversational AI (common form of Gen AI) can be quite transactional - very much an ask-and-respond experience with little personalisation or personality. While some chatbots exist with friendly avatars, it is difficult to move away from the fact that most interactions are superficial, and can be missing an authentic, personal element.

The use of GenAI in educational contexts has been a topic of much interest, speculation, and apprehension, particularly with regard to OpenAI's ChatGPT, but the use of GenAI in a corporate learning environment is perhaps less of a topic of discussion currently. In a corporate context, GenAI has the potential to provide users with quicker access to relevant learning material. However, does this constitute improved learning or merely more efficient access to information? Many off-the-shelf AI tools retrieve information from the internet and in the case of corporate learning this is a concern, as most organisations have their own learning materials in their own learning management systems, with many companies required to comply with regulatory requirements. In this case, retrieving an answer to a learning query from external sources could lead to users retrieving incorrect, inaccurate, conflicting or non-compliant information.

As GenAI continues to be developed it is worth considering what the real benefits are to the learner and user experience. In this short article, we will explore the use of point-of-need learning and ask how this learning experience could be made more authentic, reliable and valuable to the learner?

2 Introduction

The potential for Artificial Intelligence (AI) to have a significant impact on human behaviour has been a topic of discussion for many years and has generally focused on the automation of repetitive or manual tasks where a machine could be ‘trained’ to replicate the performance of a human. More recently, greater emphasis has been placed on the use of AI, and in particular Generative AI (GenAI), in areas such as education, media and the arts. Generative AI¹ is a type of artificial intelligence that can create new content and ideas, including conversations, stories, images, videos, and music based on its analysis of a database of previously existing content.

GenAI may provide the opportunity for learners to obtain bespoke information quickly; however, the learner may face challenges related to the accuracy, reliability and quality of the information received, and the authenticity of the interactions, thereby affecting the learner’s trust in the technology. As interfaces such as ChatGPT, Bard, Bedrock are further enhanced, accuracy may no longer be an issue, but rather, the development of an authentic relationship between the GenAI assistant/mentor and the learner/user. In this case, what are the elements of the learner experience that can be optimised to develop an authentic relationship between learner and technology that is both user-friendly, engaging, and most importantly, valuable?

Efforts in this area are already underway. Some GenAI interfaces have used avatars to provide a more personalised and engaging experience. For example, the ChatGPT-Personality-Selector² extension provides users with an extensive list of personalities to choose from, allowing them to choose the persona of their chatbot, with personas ranging from educators and doctors to stand-up comedians and psychics.

¹<https://aws.amazon.com/what-is/generative-ai/>

²<https://www.futuretools.io/tools/chatgpt-personality-selector>

The research suggests that ‘even minimal customisation of avatars can help people learn better in a virtual environment’³. This research has to date mostly focused on the generation of avatars for experiences such as Virtual Reality (VR) where users can visually customise the avatar to look more like themselves and share their characteristics. However, companies are starting to explore how chatbots could be represented as avatars as in the VR world.⁴

Although the authenticity of the experience can benefit all types of learners, it can be more beneficial for a non-tech savvy group of learners. One question that needs to be addressed in this context is how might we enhance the perception of authenticity of the experience for this group and promote meaningful interactions and develop a genuine relationship. For example, perhaps we can improve the conversation design to be more human-like or personalise the experience by integrating components of emotional intelligence⁵, which is about identifying, incorporating, comprehending, and controlling emotions.

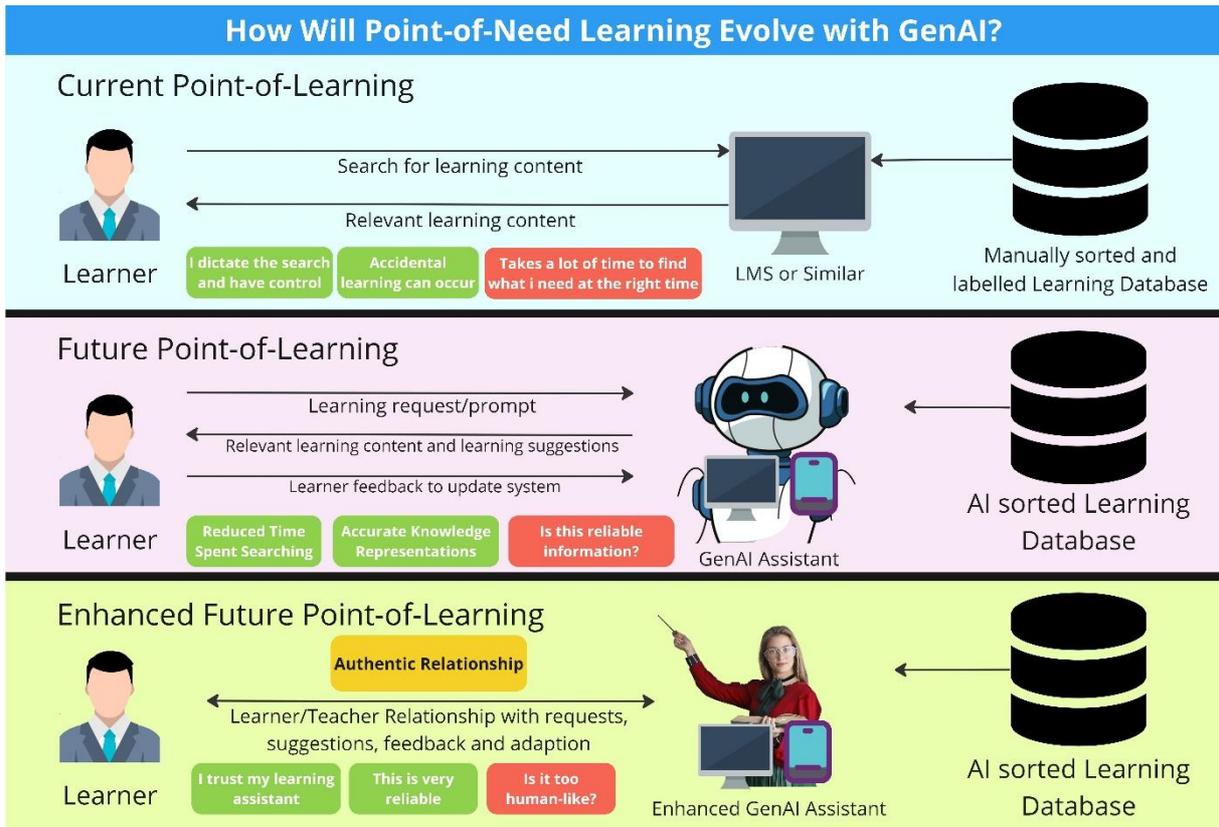
Generative AI has the capability to provide learners with timely and valuable information, but how might we develop this relationship further to develop a more effective and engaging learning experience that elicits useful data, such that we can understand how the learner is engaging with the AI and then decide how we can develop the experience further.

While the GenAI is the topic of conversation on most educators’ lips at the moment, how it will continue to be developed for education and for corporate learning still remains to be seen. In our graphic below we try to imagine the future of point-of-need learning compared to the current state of the art.

³ <https://www.bath.ac.uk/announcements/customising-avatars-to-look-more-like-you-improves-learning-in-virtual-environments/>

⁴ <https://4experience.co/avatars-and-chatbots/>

⁵ Salovey, Peter, and John D. Mayer. "Emotional intelligence." *Imagination, cognition and personality* 9, no. 3 (1990): 185-211.



3 Point-of-need Learning

Also referred to as “just-in-time” learning, this type of learning has been gradually growing in the workplace, with a greater demand for this type of learning whereby the learner can access what they need when they need it⁶. The ability of learners to access material when they need it, particularly in a corporate context, helps to reduce the time learners spend searching for information or having to trawl through the organisation's LMS to find a particular piece of information. Point-of-need learning allows learners flexibility, as they can work at their own pace and access material when it suits them, giving them a level of autonomy over their learning.

AI tools can be used to direct learners to the learning resources they need when they need it; however, what is the benefit of this for the learner? Is saving time the ultimate goal and does this constitute ‘learning’? For example, if a learner is using GenAI or a chatbot to locate information quickly, it removes the opportunity for incidental learning to occur. Incidental or accidental learning refers to unintentional or unplanned learning that results from the learner engaging in other activities in the workplace, such as completing particular tasks or searching for information. In this case, learners can learn something that was unintended, in the process of looking for something completely different.

Currently, GenAI solutions often use the internet as a library from which to pull relevant information as Generative Pre-trained Transformer (GPT) models use large amounts of publicly available digital content data (natural language processing [NLP])⁷. In the corporate learning context, information needs to be pulled from the organisation’s library, whether that be a Learning Management System, Document Control System or specific organisational repository. In the case of regulated industries, the accuracy of this information is essential and the use of incorrect information or practices can have serious repercussions.

⁶ <https://www.td.org/insights/just-in-time-or-moment-point-of-need-training-in-todays-enterprise>

⁷ Baidoo-Anu, D., & Owusu Ansah, L. (2023). Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning.

Generative models are trained on a large amount of data, and the quality of the model is highly dependent on the quality and quantity of the data. For example, if the data is not sufficient or not relevant, the model will not be able to perform as well⁸. In this case, the AI can only learn if the library is correctly taxonomized, labelled, and/or tagged, which could be a challenge in a corporate environment where operating procedures, regulations, learning materials, etc. are regularly updated.

However, this point-of-need experience is still lacking the personal touch. We know that users can be apprehensive, skeptical, distrustful or even fearful of receiving or sharing information with AI, but at the same time also curious as to its usefulness⁹. Therefore, how can an authentic learning relationship be developed between the learner and the AI?

⁸ Baidoo-Anu, D., & Owusu Ansah, L. (2023). Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning.

⁹ Abeba Birhane, Atoosa Kasirzadeh, David Leslie & Sandra Wachter (2023), Science in the age of large language models. Nature Reviews Physics. <https://www.nature.com/articles/s42254-023-00581-4>

4 An Authentic Point-of-Need Learning Experience

Authenticity in the world of Human-Computer Interaction (HCI)?

Without invoking the work of existential philosophers such as Kierkegaard, Nietzsche, Heidegger, we can define authenticity as a sincere expression of values, beliefs, and ideas. From a psychological perspective, authenticity could be described as how we perceive reality and whether that reality is to be believed and can be verified. When we perceive someone as being authentic we are more likely to want to believe, trust, and form relationships with them. In human-computer interaction terms, the term “realness” is often used to denote “human-likeness,” which pertains to whether a machine feels like a real human with an authentic personality to users.

Importance of Authenticity for human-AI interactions

The emergence of Generative AI tools, like ChatGPT, introduces an extraordinary capability to replicate authentic interactions spanning writing, imagery, and speech unlike any AI technology that has come before it. This advancement holds potential for creating convincing content and interactions. However, inherent authenticity remains a challenge despite efforts to enhance interactions through the introduction of human characteristics such as small-talk, reactive language and interactive avatars. In the midst of technological progress, the effort to create authentic human-computer interaction underscores the enduring value of personal touch. However, terms like ‘virtual’ and ‘artificial’ by their definition are associated with being inauthentic, thereby creating a base perception that may imply mistrust or skepticism. Perhaps a change of lexicon is required as technologies become advanced, for example the use of the term Extended Intelligence could imply a human-machine intelligence continuum.

Emotional Intelligence in AI

A key component of authenticity is emotional intelligence, which is the ability of one to recognise and utilise emotional cues and nuances to better understand and address the needs of other people. Using GenAI tools to merge AI capabilities with emotional understanding offers the opportunity for tailored solutions to learners' educational and emotional requirements. Training AI to detect emotional cues and nuances, using techniques such as

sentiment analysis can personalize and contextualise human-AI interactions, thereby enhancing engagement and learning outcomes. Ethical collection and protection of emotional data underscore the responsibility embedded in this evolution.

Authenticity can enhance AI Point-of-Need Learning

Authenticity, undoubtedly, can exert a positive influence on user experience, as long as it doesn't compromise performance. In terms of point-of-need learning discussed earlier, the impact of learning and the perception that the AI is being helpful to the learner could be greatly enhanced if the AI demonstrates some form of emotional intelligence. If we take the example of a point-of-need chatbot, people often feel frustrated when chatbots provide irrelevant responses¹⁰, but when chatbots express emotions, they can actually improve users' moods¹¹. To make chatbots more relatable and empathetic, further research is needed for chatbots to understand users' emotions and respond with appropriate emotional cues for better interactions.

Can our Point-of-Need 'bot' have a personality?

In AI terms, if we are supposing that an AI engine has a form of intelligence that can emulate that of a human actor, then we may also suppose that this AI engine has a personality. We can be simplistic in terms of the definition of personality. For example, if an AI is designed to be an outright assistant, we can say that the AI is 'helpful.' Whereas if an AI is designed to challenge and provoke for the purpose of learning, we could class the AI as being 'adversarial.' Therefore, we can say that the personality of the AI is heavily influenced by the context of the learning. One question we may ask in the context of human interactions with AI, is does the human perceive the AI actor as being authentic in the context that the learning is taking place? In other terms, we are not trying to design an AI that can be trusted in totality, but rather

¹⁰ X. Wang and R. Nakatsu, "How do people talk with a virtual philosopher: log analysis of a real-world application," Entertainment Computing – ICEC 2013. ICEC 2013, Springer, Berlin, Heidelberg, vol. 8215, pp. 132–137, 2013.

¹¹ E. Adamopoulou and L. Moussiades, "An Overview of Chatbot Technology," Artificial Intelligence Applications and Innovations. AIAI 2020. IFIP Advances in Information and Communication Technology, Springer, Cham, vol. 584, p. 373, 2020.

design an AI that a human can build a trusting relationship with in terms of the learning being offered.

Level of emotional intelligence in current chatbots

There's a growing interest in creating chatbots that can understand and respond with emotions. This is challenging but important for their success. The launch of Microsoft Taybot¹² and Google's Duplex¹³ without any integration of EI has led to some challenging performance issues, such as the use of abusive language, unrealistic robotic-like conversation, or asking overly personal questions. Existing efforts in this domain to integrate EI in chatbots are restricted to use of specific languages e.g. the majority of work being done with the Chinese language, with a large amount of manual classification still required to correctly label the emotions.¹⁴

We may also ask did these products truly invest in understanding the contextual personality that the AI should require for its specific use cases. Therefore, If your bot's objective is entertainment, such as a fun quiz, then assigning it a well-defined personality is undoubtedly warranted. However, if your bot is going to be an AI assistant in a point-of-need style dynamic for an employee in a high pressure job, then perhaps shaping the chatbot's personality to the user and the context can greatly enhance the learning experience and the benefit to the user.

¹² <https://www.makeuseof.com/lessons-microsoft-learned-tay-ai-disaster/>

¹³ <https://www.mobileappdaily.com/news/google-duplex-ai-imitating-humans>

¹⁴ Bilquise, G., Ibrahim, S. and Shaalan, K., 2022. Emotionally Intelligent Chatbots: A Systematic Literature Review. *Human Behavior and Emerging Technologies*, 2022.



Crafting the Appropriate Personality for Gen AI can be the ultimate solution¹⁵

Designers may consider integrating currently available personality models, such as the VIA Signature Strengths Model¹⁶, the Five-factor Personality Model¹⁷ or alternatives such as Insights¹⁸. Recognizing the individual personalities of AI entities not only yields tangible benefits, especially in enhancing user experiences, but also empowers industries to improve interactions.

5 Conclusion

To conclude, authenticity in point of need learning using Gen AI could be achieved by integrating EI into the experience and giving the solution a unique personality using well-established models. Existing work has tried to meet this target, but is limited with the type of datasets and methods. Moreover, the importance of fact-checking, domain expertise, peer review, plagiarism and cultural sensitivity should not be underestimated in this realm. As key leaders in the Edtech industry, referring to these points whilst delving into your next AI journey, these findings can be a game changer for you.

¹⁵ <https://landbot.io/blog/chatbot-personality#section-4>

¹⁶ <https://www.viacharacter.org/>

¹⁷ <https://www.verywellmind.com/the-big-five-personality-dimensions-2795422>

¹⁸ <https://www.insights.com/>