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Why use of artificial intelligence should be centred around emotions to create effective learning environment in the corporate workplace?

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Abstract: This research introduces the concept of Emotions Based Collaborative Prompting (EBCP) as a response to the need for unified learning environment in the corporate workplace. The first section examines the key characteristics of workplace learning, presenting three core propositions: (1) workplace learning is both informal and diverse, requiring adaptable approaches; (2) corporate settings provide inherent structures that can be leveraged for collaborative learning; and (3) emotional engagement and human interaction play a central role in effective learning processes. The second section describes how EBCP framework creates an environment that helps identify emotions, assign emotions with parameters, and allows these parameters to be collected, analysed and turned into context-aware learning environment. It concludes that that EBCP allows people who come from different social backgrounds, age groups and positions in the organisation collaborate and generate knowledge based on both formal and informal interactions.

Introduction

The corporate workplace is diverse, and it is challenging to design learning environment that accommodate individuals from varying age groups, social backgrounds, and organisational roles. (Tynjälä, 2008). The common denominator for all in the organisation is experiencing emotions and while positive emotions, such as curiosity and joy, enhance learning, the negative emotions, such as frustration and anxiety, slow down the learning process (Ashkanasy & Dorris, 2017). Given that collaborative interactions can transform negative emotions into positive emotions (Baker, Andriessen, & Järvelä, 2013), the concept I propose explores the potential of self-regulation and collaborative learning enhanced by artificial intelligence.

Collaborative learning has been established method and proven to be more effective than competitive or individualistic learning (Johnson, Johnson, & Smith, 2007); nonetheless it is a very broad concept, and its structure and aspects depend on the desired outcome (Dillebourg, 1999), so the environment in the corporate workplace, within a group including AI agent requires adequate structure. Here comes, the self-regulated learning that focuses on creating environment that best serves the learner (Zimmerman, 2010). In other words, to effectively collaborate and learn, it is necessary to self-regulate, (Tynjälä, 2008) talks about integrative pedagogics consisting of theory, practice, and self-regulation. To employ this principle to knowledge creation, it is necessary to define the environment, actors and the tools. I came up with the concept of *emotions based collaborative prompting (EBCP)* that integrates the need of structure of collaborative learning (Dillebourg, 1999) with the reflexive nature of self-regulated learning (Zimmerman, 2010).

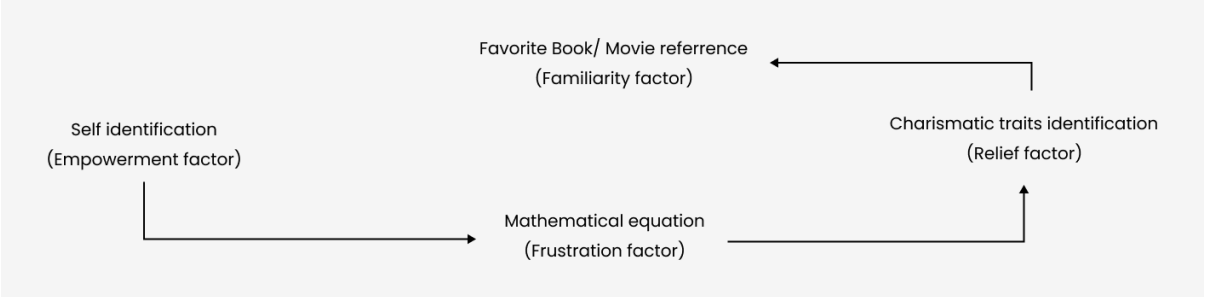
Human - human interaction

The diversity between the corporate workplaces means that it can be a restrictive or an open learning environment all depending on the organisational culture (Monks & Minow, 2011). Yet, corporate has common characteristics being strong hierarchical order (Tannenbaum et al., 1977), as well, as division on the regular employees, who for the purpose of this research I call learners; and managers, who I call supervisors. Corporate is also an environment of lifelong learning (Tynjälä, 2008) that demands resilience and flexibility (Mallin, 2019), to cope with the growing complexity of workplace technologies (Cascio & Montealegre, 2016).

Complexity theory states that complex problems arise from simple interactions between parts of a system over time, and the system's unique features can only be understood by examining how its parts interact (Manson, 2001). Therefore, understanding complex problems requires fragmentation into smaller digestible pieces and this can be enhanced by AI model used in collaborative multi-agent, multi-reasoning prompting framework (Chen, Han, & Zhang, 2024). Generative AI has the capabilities needed to support collaborative learning (Cress & Kimmerle, 2023), and while it lacks conceptual understanding, and simply relies on word transitions and probabilistic modelling, I build on the view that with well-designed prompts it helps knowledge generation (Cress & Kimmerle, 2023).

I propose to design the order of interactions by starting the learning process with recurring human - human interaction that helps identify learner's emotions and capabilities. This intervention prioritises coming up with a learning strategy before using AI model, and thus can improve the quality of prompts (Wang et al., 2023). It is researched that online learning platforms which used human assisted intervention in their online course were able to maintain the student more engaged and decrease the dropout rate (Psathas et al., 2023). A Recurring human - human interaction commences learning experience and is repeated throughout the whole cycle.

Figure 1
Human - human interaction



Contextual self-identification: who am I and who I need to be, to get what I want through values clarification and strengths and weaknesses assessment is used to boost empathy (Spiro, 1992). Empathy increases quality of interactions, helps mutual understanding, and creates safe spaces for communication and self-disclosure, which can indirectly support learning and collaboration (Elliott, Bohart, Watson, & Greenberg, 2011).

Negative emotions, like frustration, often harm learning outcomes (Ashkanasy & Dorris, 2017). Complex mathematics problem solving can be an emotional and strategic challenge (Muis et al., 2015) and when learners' confusion is resolved through implementation of metacognitive learning strategies, their emotional state transitions to engagement/flow (Di Leo, Muis, Singh, & Psaradellis, 2019). Habit develops through the consistent repetition of behaviours aimed at achieving specific goal (Wood & Rünger, 2016), if this goal is to solve a complex mathematical problem as a part of recurring human – human interaction, the reappraisal as a metacognitive learning strategy (Ashforth & Humphrey, 1995) can be applied to form a habit of asking self-reflective questions when faced with frustration caused by a complex problem.

Informal learning often comes from interactions within the workplace social network (DiMicco et al., 2008). Charisma is described as a quality that allows individuals, influence and inspire others to follow them (Babcock-Roberson & Strickland, 2010). Identifying charismatic traits can help learner social learn and contextualise workplace complexities. Similarly, casual discussions about favourite book and humoristic references create a bond (Cooper, 2008) and allow both learner and supervisor to social learn (Bandura, 1977).

Human – human interaction is indispensable for emotions based collaborative prompting. Here comes the question on how to design the collaborative prompting experience between supervisor, learner, and AI model, so that human-human relations remain central, despite AI model playing crucial role in the learning experience?

Collaborative Prompting

Emotions based collaborative prompting is based on the interaction between three actors: the learner, the supervisor, and the AI-model. I suggest focussing on AI model's capability to break complex problems into smaller digestible pieces. Text longer than 40-70 characters per line tend to be tiring for the reader (Baymard Institute, 2022), thus each answer generated by AI model cannot be longer than 70 characters. This restriction builds on the curiosity gap theory and might help to push the student to ask more questions (von Stumm, Hell, & Chamorro-Premuzic, 2011) and think in terms of first principles (Irwin, 1990) as a preferred method to understand complex problems (Manson, 2001).

Whether short answers lead to irritation or anger should be further researched, yet an anger-related stimuli has potential to add dynamics to the prompting chat and let learner move forward more, than when presented with neutral stimuli being one elaborative answer (Richard et al., 2022). Short text answers might be a good way to

accumulate small chunks of knowledge over time, as per what (Ashton, 2002; Heikkilä, 2006; Tikkamäki, 2006) states that people in the workplace often rotate tasks. Journaling is proposed as a complementary element that helps structure thoughts and holds a self-regulatory potential (Sohal, Singh, Dhillon, & Gill, 2022), so the learner is designed to have freedom to write any length text or ask questions in the prompting chat at any time.

Happiness is one of the most valued and pursued goals of an organisation (Ghosh, 2018) and it contributes to the resilience (Cohn et al., 2009), learning experience should be fun and it gets more fun when it is a collaborative experience (Reis, O'Keefe, & Lane, 2016). Given the big benefits of collaboration and pre-designed restriction to three actors, the maximum number of actors in EBCP needs to be further investigated. Emotion induced responses hold significant influence on the cognitive processes including perception, attention, learning, memory, reasoning, and problem solving (Tyng, Amin, Saad, & Malik, 2017), therefore, I designed supervisor as delivering the emotional responses, but only in a form of emojis, GIFs, and memes as being universal methods of modern communication (Highfield & Leaver, 2016)((Grundlingh, 2017).
Since, imagination has been enumerated as one of the top managerial skills (Giraud & Zaher, 2022) the fact that art-based activities enhance creativity through expression and visualization (Karwowski & Soszynski, 2008) makes supervisor's role both-ways beneficial. Yet, analysis of emojis reveals that in digital communication, they primarily convey positive emotions (Novak, Smailović, Sluban, & Mozetič, 2015), what might be misleading for the learner, thus further investigation of this design aspect is required, similarly the use of GIFs requires further research. The extent to which emoji, GIF or meme, are representative of emotions of human interactions in the corporate workplace is unknown and needs to be further researched, similarly the skills of the supervisor to express their emotions through visual forms and its effect on efficiency of EBCP remains unexplored. The limitation to solely visual expression is meant to decrease the natural centralisation of the collaborative output around the supervisor (Milliken, Morrison, & Hewlin, 2003) and shift focus to the learner, emphasising their role as the central agent in constructing their learning experience.

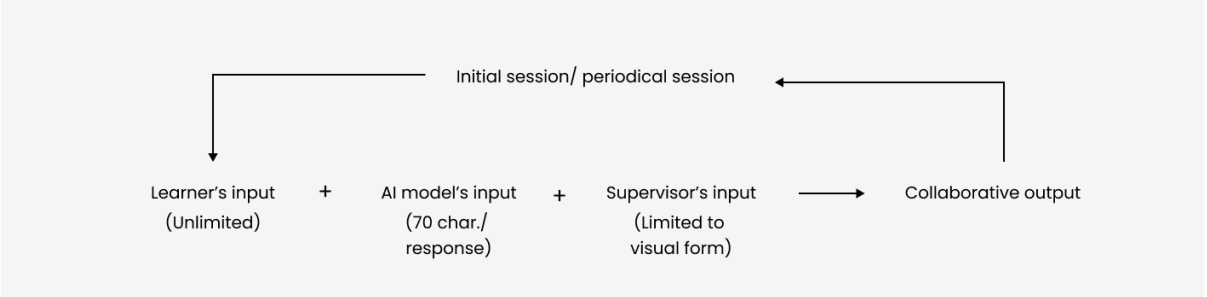
Collaborative Cycle

The collaborative cycle ends and starts with collaborative output that consists of any length text including questions and comments that learner adds, visuals of emotional character that supervisor adds and maximum 70 characters long merit-based answers that AI model adds. Each of the humans can refer to all messages, using memes, GIFs or Emojis. Since, part of the learning in the workplace is of an informal nature the employment of toolkit capable to analyse the social interactions like ConvoKit (Chang, Chiam, Fu, Wang, Zhang, & Danescu-Niculescu-Mizil, 2020)(Eraut, 2004b; Marsick & Watkins, 1990) would allow to turn implicit knowledge into an explicit knowledge and contribute to the unstructured learning in the organisation (Eraut, 2004). Conversational data analysis is a chance to introduce learning analytics to identify patterns and early-on address the learning gaps (Chen, Chen, & Lin, 2020).

The subjective and context-dependent nature of emotions makes their measurement challenging (James, 1922) and as per what (Kahneman, Diener, & Schwarz, 1999) state there's no single best way to measure emotions—they come in many forms and should be used in different ways. Every method only gives part of the picture when it comes to understanding emotions. EBCP builds on this perspective and suggests quantifying emotions based on collaborative output; this method highlights the learning potential of emotions in measurable terms. (Kahneman, Diener, & Schwarz, 1999) also highlight that emotions affect various systems, so data from these systems should be collected simultaneously. Using multiple measures improves the accuracy of identifying emotions and understanding their triggers and effects. However, promising this approach does not apply to EBCP, as scaling it would require introduction of synchronous chats and as (Zhang and Cranshaw, 2018) note, corporate synchronous chats often involve complex narratives, large data volumes, and frequent spillovers into other platforms like email what impedes the learning analytics.

To introduce context-aware learning environment it is necessary to introduce learner ontology, context acquisition mechanisms, as well as infrastructure and way to collaborate (Yang, 2006). EBCP suggests using recurring human to human interactions to gather necessary data about the learner. The context acquisition happens through collaborative action that results in collaborative output. The aspect of infrastructure depends on the organisational culture, cybersecurity measures and preferences of the people in the workplace. The infrastructure aspect in EBCP requires further investigation and testing whether it could be built as e.g. a tab in Microsoft Team's or as a WhatsApp channel. Underlying requirement for infrastructure in EBCP is that interaction between the learner, supervisor, and AI-model reflects the natural interaction between people in the organisation.

Figure 2
Collaborative cycle



Conclusion

This research proposes a learning environment in the corporate workplace where people who come from different social backgrounds, age groups and positions in the organisation can collaborate and generate knowledge based on both formal and informal interactions. Emotions based collaborative prompting framework creates an environment that helps identify emotions, assign emotions with parameters, and allows these parameters to be collected, analysed and turned into context-aware learning environment.

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