

Design thinking for AI integration in a leadership course

Younglong Kim

Southern Nazarene University, Bethany, Oklahoma, USA

Sarinporn Chaivisit

Kasetsart University – Bangkhen Campus, Bangkok, Thailand

Ayodeji Ibukun

Oklahoma State University, Stillwater, Oklahoma, USA, and

Thanh Do

Thai Nguyen University, Thai Nguyen City, Vietnam

Abstract

Purpose – This study aims to explore the possibilities and implications of artificial intelligence (AI) in Educational Technology through the lens of design thinking (DT) theoretical framework. DT guides this study through five processes: empathize, define, ideate, prototype and test. This research presents the process of developing a lesson plan with ChatGPT, an AI chatbot that uses natural language processing to respond to a user's prompts and produce humanlike conversational dialogue.

Design/methodology/approach – DT (Figure 2) as a human-centered approach to innovation is one of the teaching methods as well as a course design methodology in academia (Ward *et al.*, 2009; Zupan *et al.*, 2023). The primary reason for the usage of DT is because it is the process of seeking to understand the points of view of others such as students. DT has a total of five steps that flow as a cyclical process: empathize, define, ideate, prototype and test. During the process from empathy to test, “re-iterating and re-thinking” are extensively used to improve prototypes and to create a quality outcome.

Findings – This study employed DT as a framework to explore a course designed for educational leaders by utilizing ChatGPT. As an interactive iterative process, empathize, define, ideate, prototype and test were the five processes that this study followed. To empathize with educational leaders, an empathy map was used based on the categories: Says, Thinks, Does and Feels in the real-life-based scenarios that educational leaders shared. Accordingly, four real case scenarios having real issues that came from educational leaders were analyzed by the authors based on what they say, what they think, what they do and how they feel.

Research limitations/implications – One limitation of this study is that the feedback was received only by instructors. Instructors' feedback was extensively utilized to create the final version, but according to DT, any final product can always be improved by inviting current users, who will be both instructors and students in this case. Since the final users of the lesson included both instructors and students, it would be beneficial for future research to invite students who have learned through this lesson plan to provide their feedback. This would allow us to bring more diverse perspectives, leading to a better final outcome.

Practical implications – Overall, while ChatGPT provided rapid suggestions based on the prompts, the input needs to be curated by experts as the output is carefully appraised to ensure optimum applicability to the course syllabus and to ensure the students receive comprehensive training in applying the course contents.

Originality/value – This study suggests innovative practices by utilizing features of AI related to ChatGPT in supporting a leadership course. The study extensively used ChatGPT in the DT process: empathize, define, ideate, prototype and test. This study suggests possibilities for using AI so that practitioners can generate their ideas by leveraging ChatGPT for their benefit.

Keywords Educational leaders, Artificial intelligence, Design thinking, Educational technology tools

Paper type Research article



Introduction

In a world where change is constant, it is crucial to adopt innovative approaches to improve leadership skills. One such approach is the design thinking (DT) theoretical framework, which emphasizes a human-centered approach to innovation. Educators can use it to develop an academic course (Ward *et al.*, 2009; Zupan & Nabergoj, 2023). By using the DT framework, educators can design courses that are tailored to meet the needs of students and facilitate their personal and professional growth. This framework leverages the potential for developing and

tailoring lesson plans with the integration of ChatGPT (Chaivisit *et al.*, 2024), a cutting-edge artificial intelligence (AI) tool. ChatGPT can provide dynamic content from available online data to enhance instructional design for leadership courses using the DT framework. Thus, this study presents the process of developing a lesson plan through the DT process aided by ChatGPT.

Educational leaders

The influence of educational leaders on their subordinates makes it crucial for them to apply digital technological skills to bring about positive changes in their organizations (Lussier & Achua, 2010; Sun, Pina, & Kim, 2023). In a rapidly changing world, educational leaders must familiarize themselves with technology and learn to utilize it effectively (Keengwe, Kidd, & Kyei-Blankson, 2009; Kim, Curry, & Fiegenger, 2024). The importance of educational leaders in integrating educational technology for the benefit of their teachers and students cannot be overstated. If educational leaders lack the necessary understanding and skills in educational technology, they will be unable to effectively implement its use in their settings to support their teachers and students (Keengwe *et al.*, 2009).

Similarly, Sterrett and Richardson (2019) argue that educational leaders who have strong digital leadership can foster clear visions about educational technology to support and improve their students' academic success (Consortium for School Networking, 2014). Additionally, educational leaders must possess proficiency and a deep understanding of the benefits and drawbacks of various technologies, including highly controversial ones, like AI. To remain at the forefront of innovation, educational leaders should step out of their comfort zones and participate in professional development opportunities, such as graduate courses or training programs. By understanding the value and risks of emerging technology tools, educational leaders can offer practical strategies, such as instructional guidance and safety protocols, to ensure their proper use in their educational settings.

Leadership courses

Leadership courses provide integral components of academic and professional development for educational leaders or educational leaders-to-be (Sogunro, 1997). The components taught in the courses could equip each leader with essential skills such as communication (Men, 2014), collaboration (Wagh & Streib, 2006) and decision-making (Saaty, 2001; Kim *et al.*, 2024) skills that are required for school leaders. Mosley, Broyles, and Kaufman (2014) propose providing school leaders with suitable challenges and support to effectively implement the most current techniques. In addition, educational leaders can expand their horizons and learn from each other by exploring practical applications and engaging with peers (Robertson, 2016).

Educational leaders could enhance their understanding of deep learning by collaborating with other leaders and building relationships with them. It is crucial for them to have access to plausible educational scenarios or dilemmas that they may encounter in their organizations or schools. By taking relevant courses and being prepared for any challenges, they would be equipped to solve any problems that may arise. To support educational leaders, comprehensive instructional design for leadership courses is required; integrating technological tools into the course could enhance leadership skills. However, there are not many courses available that incorporate cutting-edge tools. This needs to be addressed because new educational technology, such as ChatGPT, is often adopted by students faster than educational leaders can keep up with it.

ChatGPT

ChatGPT is a natural language processing model developed by OpenAI that can be accessed from the website: chat.openai.com (Rahman & Watanobe, 2023). GPT-3 is a highly popular version of the generative pre-trained transformer. It uses a large language model that can

generate text similar to human writing and performs various language-related tasks with exceptional precision. The remarkable proficiency of GPT-3 in executing language-related duties has made it a preferred choice among many. ChatGPT has received tremendous attention around the world. Google Trends presents ChatGPT as the highest searched word, as shown in [Figure 1](#).

While technology is advancing, educators have not had enough time to prepare to utilize ChatGPT for their classrooms and schools. [Crawford, Cowling, and Allen \(2023\)](#) claim “the need for good leadership in teaching ChaptGPT” (p. 6) as many potential problems could arise, such as unethical usage. As ChatGPT is an emerging and powerful technology, it is required that educational leaders fully have a fundamental understanding of ChatGPT applications for education. Since this is a new situation, researchers need to develop a fresh and creative approach to address any emerging issues. Furthermore, the argument regarding AI has a significant effect on students’ learning performance, which is an essential segment that educational leaders should take into account for the benefit of their students ([Wang, Sun, & Chen, 2023](#)).

Emerging research on AI literacy emphasizes the need for educational leaders to understand how AI systems work, evaluate their outputs and use them responsibly ([Miao, Holmes, Huang, & Zhang, 2021](#); [Long & Magerko, 2020](#)). Incorporating AI literacy into leadership development helps to foresee concerns such as bias, misinformation, data privacy and excessive dependence on generative tools. Including these principles in course design ensures that technologies like ChatGPT are applied with educated decision-making, oversight by humans and a dedication to fair results.

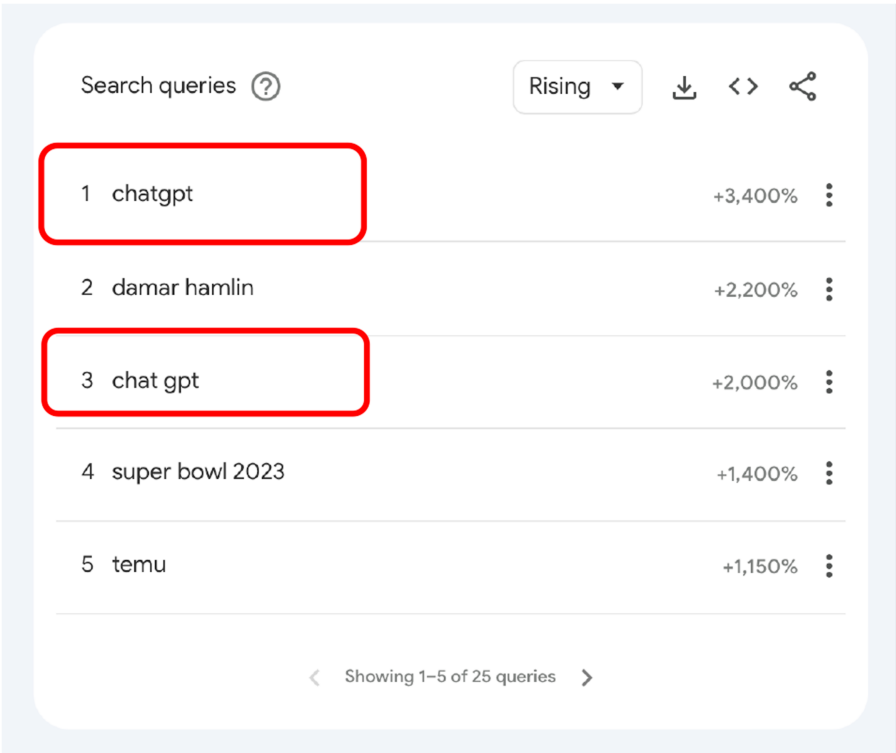


Figure 1. Google Trends as of June 6, 2023

Community of inquiry

The Community of Inquiry (CoI) framework (Garrison, Anderson, & Archer, 2000), which focuses on the key interaction of Teaching Presence, Social Presence and Cognitive Presence, provides a theoretical lens for examining how AI-supported course design improves meaningful learning. In leadership preparation courses, core competences, such as communication and decision-making align directly with the CoI framework's Social and Cognitive Presence. This alignment is increased by the purposeful integration of AI tools, which enhances instructional design and scaffolding, hence strengthening Teaching Presence. ChatGPT, a generative AI, serves as a facilitator to support personalized scaffolding, encouraging learner engagement and providing opportunities for creative discussion.

Recent research emphasizes the importance of generative AI tools like ChatGPT as facilitators in all three components of the CoI framework (Mollick & Mollick, 2023; Anderson, Nguyen, & Moreira, 2025). These tools can improve teacher presence by supporting instructional scaffolding, such as individualized feedback and differentiated explanations. They increase social presence by modeling complicated scenarios and allowing role-playing interactions. Generative AI also improves cognitive presence by increasing possibilities for inquiry, critical reflection and idea synthesis.

Methodology: design thinking

This study follows Practitioner Inquiry (Cochran-Smith & Lytle, 2009), using the DT process (empathize, define, ideate, prototype and test) as a systematic framework for reflection and innovation in practice (Wang & Hannafin, 2005). DT (Figure 2) as a human-centered approach to innovation is one of the teaching methods as well as a course design methodology in academia (Ward *et al.*, 2009; Zupan & Nabergoj, 2023). The primary reason for the usage of DT is because it is the process of seeking to understand the points of view of others, such as students. DT has a total of five steps that flow as a cyclical process: empathize, define, ideate, prototype and test. During the process from *empathy* to *test*, “re-iterating and re-thinking” is extensively used to improve prototypes and to create a quality outcome (Zupan & Nabergoj, 2023, p. 470).

While this study's primary methodology is the DT framework, it also demonstrates strong alignment with the CoI framework. Specifically, the emphasize and define stages boosted social presence by enabling participants to express their opinions, emotions and challenges using Empathy Maps and Personas. The ideate and phototype stages increased cognitive presence by empowering participants to explore problem-solving and solution refinement. Importantly, the researchers increased teaching presence through instructional decisions made during the prototype and test stages, as they developed, guided and evaluated learning experiences with AI-generated content.

Brown and Katz (2011) suggest that educational leaders should learn how to think like designers to get benefits for their organization. Meinel and Leifer (2011) also emphasize the value of collaboration among diverse roles of people, such as educators, instructional designers and subject matter experts, when using DT to design a course. Thus, this study employs DT to develop a lesson for educational leaders to learn essential skills, including communication, collaboration and decision-making.

Participant context and data sources

Participants included one primary instructor, one guest instructor, two instructional designers and five educators/graduate students in an online leadership development course. Data sources



Figure 2. Design thinking process

comprised design logs, teaching materials, reflective journals and AI-generated prototypes of the lesson plans. Data collection and analysis occurred concurrently through iterative cycles. The following section presents the detailed methodological process, structured around the DT processes: emphasize, design, ideate, prototype and test.

Empathize

Empathize is a first step as a user-centered approach to understanding the needs and perspectives of potential learners who would be in the course. Kelley and Kelley (2013) highlight DT in that students are considered to design a course in an educational setting. In this process, instructors could understand the needs and wants of their students and use them in a course design. An Empathy map is one of the tools used for this process to engage with the target audience (Tschimmel, 2012). All information is gathered during this first process.

Define

All information gathered during the first process is organized. The researchers identified problems and challenges, and then used them in designing educational leadership courses. This approach is one of the core concepts of DT as it emphasizes the voice of students. According to Brown and Katz (2011), defining problems should be elaborated in a human-centered manner. *Define* process aims to create “meaningful and actionable problem statements” (Plattner, 2016, p. 3). The methods used in this process include 5-Whys and Persona (Tonkinwise, 2011). 5-Whys uses why questions repeatedly to go deeper into the situation and problems; Perona began using human-computer interactions to invent a person by naming and creating their personality, including their situation, in the DT process (Brenner, Uebnickel, & Abrell, 2016; Cooper, 2004).

Ideate

Ideate, also known as a brainstorming stage, is the phase dedicated to generating ideas throughout the process. Tschimmel (2012) suggests that making creative ideas is a key element in DT for innovation. Tschimmel (2012) also recommends both group work and visual tools be employed in this brainstorming process to help group members understand the different ideas generated. This brainstorming stage could facilitate creating innovative ideas for course design (Tschimmel, 2012). In the ideation phase, a highlight is on the quantity of ideas created rather than the quality of individual ideas.

Prototype

Prototype serves as a way of “visualizing and testing new solutions” (Tschimmel, 2012, p. 4), demonstrating its significance in the development process. In this process, an interactive design is a fundamental element, as it allows products to be refined: prototyping and redesigning processes are actively on, meaning that solutions and outcomes are tested iteratively. According to Jung, Kim, Lee, and Shin (2019), a rapid prototype allows designers to interact with users and listen to them to improve the design.

Test

Test and evaluation are essential to finding any parts that help improve the outcomes of the prototype. In this process, Tschimmel (2012) suggests that potential or final users be involved in testing the prototype and its outcomes. Feedback from them provides an opportunity to understand the final users, in this case, potential and real students of the course. DT emphasizes reflective processes, as this process leads to the improvement of the final product (Cross, 2023; Plattner, 2016). Additionally, tests are essential to refine and improve the outcomes, including prototypes, and also build empathy through the observation of users or students (Plattner, 2016).

Results: implementation

This section provides the practical ways the five processes of DT along with visual images and the tools, are being used.

Empathize

Four real-based cases were used to *Empathize* educational leaders. These cases were from educational leaders who are mostly in leadership positions at his/her educational institutions as well as graduate students in an educational leadership program. While reading four different cases, the Empathy map was used to understand educational leaders and their problems. According to this map, Says, Thinks, Does and Feels were categorized so that course designers could emphasize the target audience; instructional designers wrote four parts of Says, Thinks, Does and Feels based on the scenarios (Figure 3).

In this process, [Padlet.com](https://padlet.com), an online bulletin board, was used. Meanwhile, a physical board is also helpful to visualize the ideas among many participants in personal meetings; sticky notes can be used any ideas can be shared by posting more than two per person on the board. All participants can read through and even share their thoughts. In this meeting, all four authors shared what they think about educational leaders and their situations by trying to understand the situations and themselves. Sharing what each found is helpful to understanding the big picture; post-its or maps help make connections between participants (Plattner, 2016).

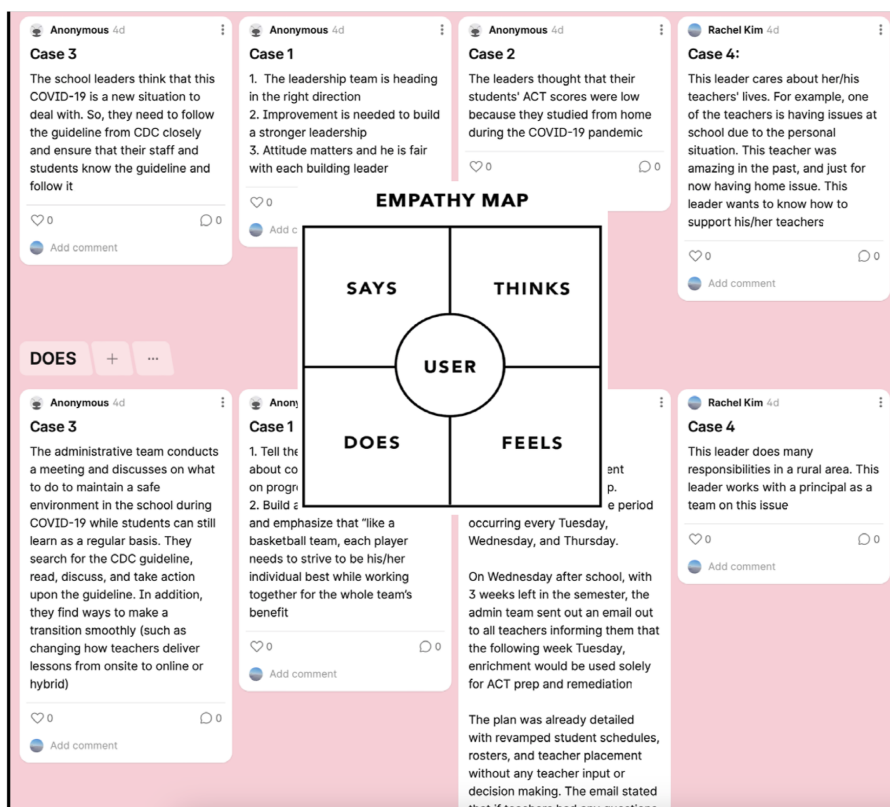


Figure 3. Example of empathy map

Define

The goal of *Define* is to create a meaningful and practical problem statement based on the information collected during the first stage. Persona was used by each author to understand each educational leader from a real-based scenario. In creating Perona, a random figure was picked and added from a free image at [Canva.com](https://www.canva.com), and categories including About, Goals, Challenges, Needs, Roles and Skills began to be filled by each author ([Figure 4](#)). To visualize Personas, [Canva.com](https://www.canva.com) was used as a tool. The main challenges found in the *Define* process included that educational leaders need to improve their communication skills, find creative ways to work with teachers, build decision-making competence and build strong teamwork. The primary needs for educational leaders include creativity for solving problems, communication skills and improving leadership.

Ideate

Brainstorming matters at this stage; quantity matters more than quality when generating ideas among diverse stakeholders ([Tschimmel, 2012](#)). At this stage, ChatGPT was used ([Figure 5](#)) by using four similar but different prompts as follows.

- Prompt 1. Design a graduate level course that can help a school superintendent improve his communication skills.*
- Prompt 2. Build a graduate level course for a school superintendent to develop her leadership skills and improve communication skills.*
- Prompt 3. Create a course for preservice educational leaders that can assist them to develop decision-making skills.*

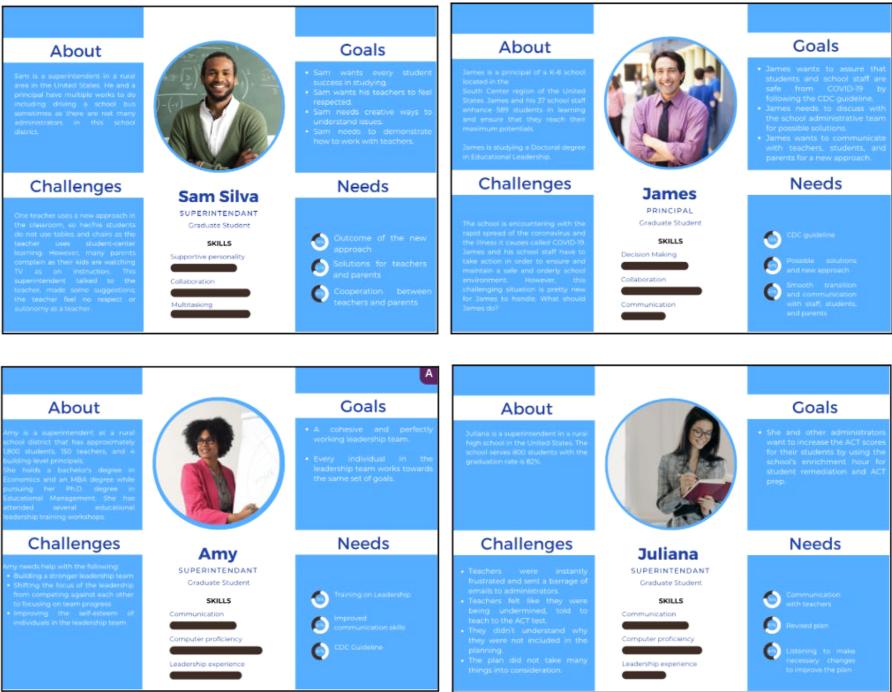


Figure 4. Examples of creating Persona

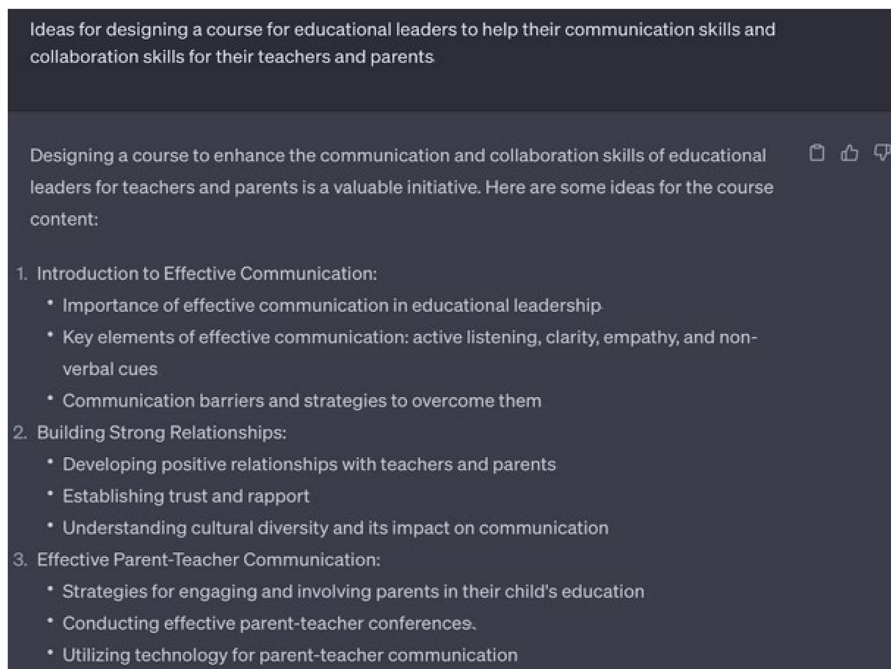


Figure 5. Screenshot of ChatGPT output

Prompt 4. Ideas for designing a course for educational leaders to help their communication skills and collaboration skills for their teachers and parents.

Four different prompts were made by each author, and all of the prompts were typed on June 27, 2023, around 9:00 pm (CDT). The suggestions made by ChatGPT can be found in [Appendix 1](#). Leadership skills involve three skills: communication, decision-making and collaboration. Leadership skills encompass three key components: communication, decision-making and collaboration.

Prototype

Prototyping provides visual solutions in an iterative process ([Tschimmel, 2012](#)). As rapid prototype was one of the main characteristics of the *Prototype* process, diverse prompts were used in ChatGPT to create a prototype. Additionally, in order to see the details and quality of the output, a lesson plan was chosen instead of a syllabus. In this way, specific activities, tools, or methods could be evaluated as a repetitive design process. A total of four different prompts were used in ChatGPT, and the prompts have been revised according to the suggestions from ChatGPT. After reviewing four different lesson plans, the authors redesigned the lesson plan and made it the final one, which will be used in a real leadership course. The final prompt and its response can be found in [Appendix 1](#).

Test

Test is the outcome of the process in DT. Potential or final users of the lesson plan. Either course instructors or students are the proper audience to test the outcome ([Tschimmel, 2012](#)). In this study, instructors, also serving as authors, used the lesson plan to teach an educational leadership course for graduate students. DT emphasizes reflective processes ([Cross, 2023](#);

Plattner, 2016). Therefore, after this lesson plan was used, instructors used the following reflective journals.

- (1) *If any, what were your favorite lesson activities and why?*
- (2) *If any, what were your favorite educational tools used and why?*
- (3) *If any, what challenges did you face in teaching leadership skills through this lesson plan?*
- (4) *If any, what advantage did you have in teaching leadership skills through this lesson plan?*
- (5) *Any other thoughts?*

Both instructors agree that a flipped learning method, which was suggested by ChatGPT, was excellent in this lesson, as students were able to be prepared for the class. In addition, ChatGPT played a role as a brainstorming tool to generate class content, allowing the main instructor to save some time for brainstorming and making presentation slides. However, ChatGPT still required an instructor to revise the lesson plan five times to fully prepare the lesson. For example, the lesson plan by ChatGPT did not present examples of leadership for communication, collaboration and decision-making. Instructors need to find proper examples to share with the students. All of the students on Zoom followed the instructions smoothly and asked relevant questions to complete the assigned tasks, demonstrating an effective learning outcome.

Also, the wordings used in ChatGPT needed to be trimmed as a “right command” so that ChatGPT could provide the outcomes that the instructors expected to have. Besides this limitation, ChatGPT did not suggest an evaluation process of how to measure student success from learning this lesson. Therefore, instructors may need to consider incorporating ChatGPT as a teaching assistant into their instructional methodologies; however, a thoughtful and discerning approach is imperative. This approach entails the deliberate integration of critical thinking processes to facilitate the delivery of accurate and tailored content and the implementation of highly effective pedagogical strategies. With consideration, instructors can better use this AI tool for their students.

Discussion

This study demonstrates how AI features of ChatGPT support instructional innovation, showing its application in a leadership course within a distance-education context. The study extensively used ChatGPT in the DT process: empathize, define, ideate, prototype and test. This study suggests possibilities for using AI so that practitioners can generate their ideas by leveraging ChatGPT for their benefit. For example, they can use ChatGPT as an aid to their communication and decision-making tools (Kim *et al.*, 2024). Similarly, teachers at both the secondary and tertiary levels could use ChatGPT for designing their teaching courses in the way this study used it to develop a lesson plan for multiple subject matters, including a leadership course. Furthermore, educators across different subjects could benefit from using ChatGPT by following the process presented in this study.

The connection between ChatGPT and the DT and CoI framework contributes several perspectives to this study. First, this study showed that using ChatGPT for brainstorming improved cognitive presence by speeding up idea production and exploration of instructional approaches. In addition, through the DT framework, the researchers promoted social presence by engaging in co-analysis using Empathy Maps, Personas and shared decision-making during the prototype stages. Finally, teaching presence developed when instructors carefully selected prompts, gathered AI outputs and guided learning activities to help students build leadership skills. Hence, the use of DT and ChatGPT naturally fosters situations associated with CoI, resulting in increased involvement and informed decision-making in leadership education.

While there are considerable possibilities for integrating ChatGPT into various applications (Chaivisit *et al.*, 2024), there has been limited comprehensive discussion regarding the quality of the outcomes or any emerging issues or challenges that may arise, especially in the course design, including a leadership course. This underscores the argument by Fullan and Quinn (2023) that human creativity remains essential in the realm of AI, emphasizing the need for humans to contribute solutions in its implementation. More studies are required to thoroughly understand and address any potential issues and to establish a clear understanding of the quality of outcomes that ChatGPT and other AI tools can produce. This would be critical in understanding the effectiveness and reliability of the technological tools in an educational context.

The current research explores a novel approach to design a graduate course showcasing various educational technological tools, such as Empathy Map, Persona, a virtual bulletin board and visual software. In addition, it demonstrates that DT can be extensively used for educational leadership courses with AI. Future studies could include using DT to create guidelines for using AI in different educational leadership courses such as ethical decision-making and data-based decision-making. Increased data from more participants, such as educational leaders, graduate students and faculty members, would bring a deeper understanding of the impacts of AI in educational leadership areas.

The limitation of this study is that the feedback was received only by instructors. Although their inputs extensively shaped the development of the final version, according to DT, any final product can always be improved by inviting current users, who will be both instructors and students in this case. Since the final users of the lesson included both instructors and students, it would be beneficial for future research to invite students who have learned through this lesson plan to provide their feedback. This would allow us to bring more diverse perspectives, leading to a better final outcome (Jung *et al.*, 2019). Nevertheless, this study is still significant, as the design that emerged from the DT process was implemented in a real-life scenario that educational leaders may encounter in their organization.

Conclusions

This study employed DT as a framework to explore a course designed for educational leaders by utilizing ChatGPT. As an interactive iterative process, *empathize, define, ideate, prototype and test* were the five processes that this study followed. To empathize with educational leaders, an empathy map was used based on the categories: *Says, Thinks, Does and Feels* in the real-life-based scenarios that educational leaders shared. Accordingly, four real case scenarios having real issues that came from educational leaders were analyzed by the authors based on what they say, what they think, what they do and how they feel. The process facilitated a deeper understanding of the situations that educational leaders may encounter.

This study also used Persona to define meaningful problems for educational leaders (Plattner, 2016). Stating about educational leaders, their challenges, needs and potent profiles helped the analysis of the potential students by having a deeper understanding of educational leaders as well. ChatGPT was used to generate multiple ideas within a short time, and it generated many ideas for course design. Using four different prompts in ChatGPT, the authors generated diverse ideas, then compared and analyzed the outcomes to select one topic to make a lesson plan.

The alignment between the DT and CoI frameworks enhances the implication of this study. Integrating AI tools such as ChatGPT into DT activities improved instructional, social and cognitive presence, supporting meaningful interaction between leaders in education. This combination illustrates the need for including DT, AI and CoI theories when developing leadership courses. Future research can investigate how AI-enhanced DT practices promote CoI elements in different educational settings.

To prototype the course design, the authors selected one topic and used ChatGPT to generate a lesson plan. Using four distinct prompts, ChatGPT produced four lesson plan

options. For the final version of the prototype circle, the authors revised and synthesized the four lesson plans to create a fifth version. Following the DT process, the authors tested the final, fifth version (Appendix 2) with end users to collect feedback. After using the lesson plan, instructors generated reflective notes that could be used to create a final version of the lesson plan for graduate students taking educational leadership courses. Overall, while ChatGPT provided rapid suggestions based on the prompts, the input needs to be curated by experts as the output is carefully appraised to ensure optimum applicability to the course syllabus and to ensure the students receive comprehensive training in applying the course content.

Acknowledgments

We would like to express our sincere gratitude to TeleED, a valuable platform that uses real-world cases to deepen our understanding of leadership in the dynamic field of education. We are especially grateful to the organizers and participants for their dedication to advancing leadership excellence through this outstanding educational initiative.

Appendix 1
Lesson Plan by ChatGPT (Lesson Plan by ChatGPT – 4th version)

Prompts

Make a lesson plan for two hours for the educational leadership course where graduate students (masters level) learn leadership skills including communication, collaboration, and decision making skills; make suggestions of educational technology tools that can be used in this lesson and the modes of the courses such as a lecture or flipped learning.

Suggestions by ChatGPT

Lesson Plan: Leadership Skills - Communication, Collaboration, and Decision-Making Skills in Educational Leadership

Duration: 2 hours

Objective:

By the end of this lesson, graduate students will be able to:

(1) Understand the importance of communication, collaboration, and decision-making skills in educational leadership.

(2) Identify key strategies and techniques for enhancing these skills in an educational leadership context.

(3) Explore and utilize relevant educational technology tools to support effective communication, collaboration, and decision-making.

Lesson Procedure:

Introduction (10 minutes)

(1) Welcome the students and provide an overview of the lesson's objectives and outcomes.

(2) Highlight the importance of communication, collaboration, and decision-making skills in educational leadership roles.

(3) Explain the role of educational technology in supporting and enhancing these skills.

Part 1: Communication Skills (40 minutes)

Lecture: Importance of Effective Communication in Educational Leadership (10 minutes)

(1) Present a brief lecture on the significance of effective communication skills for educational leaders.

(2) Discuss the impact of communication on building relationships, fostering a positive school culture, and promoting student success.

Flipped Learning Activity: Educational Technology Tools for Communication (30 minutes)

(1) Prior to the class, assign students readings or video resources on various educational technology tools for communication, such as:

• Video conferencing tools: Zoom, Google Meet

• Collaborative document editing tools: Google Docs, Microsoft Office 365

• Instant messaging tools: Slack, Microsoft Teams

(2) Instruct students to explore and familiarize themselves with one or more of these tools.

(3) During the class, facilitate a discussion where students share their experiences, advantages, and challenges of using the assigned technology tools for communication in educational leadership.

Break (10 minutes)

Part 2: Collaboration Skills (40 minutes)

Lecture: Importance of Collaboration in Educational Leadership (10 minutes)

- (1) Present a brief lecture on the significance of collaboration skills for educational leaders.
- (2) Discuss the benefits of collaboration in fostering teamwork, professional development, and innovative practices in educational settings.

Flipped Learning Activity: Educational Technology Tools for Collaboration (30 minutes)

- (1) Prior to the class, assign students readings or video resources on various educational technology tools for collaboration, such as:
 - Project management tools: Trello, Asana
 - Virtual whiteboarding tools: Miro, Jamboard
 - File sharing and collaboration tools: Dropbox, OneDrive
- (2) Instruct students to explore and familiarize themselves with one or more of these tools.
- (3) During the class, facilitate a discussion where students share their experiences, advantages, and challenges of using the assigned technology tools for collaboration in educational leadership.

Break (10 minutes)

Part 3: Decision-Making Skills (40 minutes)

Lecture: Importance of Effective Decision-Making in Educational Leadership (10 minutes)

- (1) Present a brief lecture on the significance of effective decision-making skills for educational leaders.
- (2) Discuss the impact of decision-making on strategic planning, resource allocation, and student outcomes in educational settings.

Flipped Learning Activity: Educational Technology Tools for Decision-Making (30 minutes)

- (1) Prior to the class, assign students readings or video resources on various educational technology tools for decision-making, such as:
 - Data analysis and visualization tools: Tableau, Excel
 - Survey and feedback tools: Google Forms, SurveyMonkey
 - Virtual meeting and collaboration tools: Zoom, Microsoft Teams
- (2) Instruct students to explore and familiarize themselves with one or more of these tools.
- (3) During the class, facilitate a discussion where students share their experiences, advantages, and challenges of using the assigned technology tools for decision-making in educational leadership.

Wrap-up and Reflection (10 minutes)

- (1) Summarize the key points discussed during the lesson.
- (2) Ask students to reflect on their learning experiences with educational technology tools for communication, collaboration, and decision-making.
- (3) Encourage students to identify opportunities for applying these skills and tools in their future educational leadership roles.

Conclusion (5 minutes)

- (1) Recap the main takeaways from the lesson.
- (2) Thank the students for their active participation.
- (3) Emphasize the importance of continuous development of communication, collaboration, and decision-making skills in educational leadership.
- (4) Provide resources for further exploration of educational technology tools in leadership contexts.

Note: The lesson plan incorporates the flipped learning approach, where students engage with the assigned materials before the class, enabling in-class discussion and application. The suggested educational technology tools can be adjusted based on the availability and suitability for the educational leadership context.

Appendix 2
Lesson Plan by ChatGPT (Prototype (5th version) by us and ChatGPT)

Suggestions by ChatGPT and revised by authors

Lesson Plan: Leadership Skills

- (1) Communication
- (2) Collaboration
- (3) and Decision-Making Skills in Educational Leadership

Duration: 2 hours

[Presentation link](#)

Place: Hybrid: In person classroom/online classroom

Students: Graduate students in a master's degree level

Objectives:

By the end of this lesson, graduate students will be able to:

- (1) Understand the importance of communication, collaboration and decision-making skills in educational leadership.
- (2) Identify key strategies and techniques for enhancing these skills in an educational leadership context.
- (3) Explore and utilize relevant educational technology tools such as ChatGPT to support effective communication, collaboration and decision-making.

Lesson Procedure:

Introduction (10 minutes)

- (1) Welcome the students and provide an overview of the objectives and outcomes of the lesson.
- (2) Highlight the importance of communication, collaboration and decision-making skills in educational leadership roles.
- (3) Explain the role of educational technology in supporting and enhancing these skills.

Part 1: [Communication](#) Skills (30 minutes)

Lecture: Importance of Effective Communication in Educational Leadership (10 minutes)

- (1) Present a brief lecture on the significance of effective communication skills for educational leaders.
- (2) Discuss the impact of communication on building relationships, fostering a positive school/organization culture and promoting student success.

Flipped Learning Activity: Educational Technology Tools for Communication (20 minutes)

- (1) Prior to the class, assign students readings or video resources on various educational technology tools for communication, such as:
 - Video conferencing tools: Zoom, Microsoft Teams and Google Meet
 - Collaborative document editing tools: Google Docs and Microsoft Office 365
 - Instant messaging tools: Slack, Microsoft Teams, GroupMe and Line
- (2) Instruct students to explore and familiarize themselves with one or more of these tools.
- (3) During the class, facilitate a discussion where students share their experiences, advantages and challenges of using the assigned technology tools for communication in educational leadership.

Break (5 minutes) Q&A

Part 2: [Collaboration](#) Skills (30 minutes)

Lecture: Importance of Collaboration in Educational Leadership (10 minutes)

- (1) Present a brief lecture on the significance of collaboration skills for educational leaders.
- (2) Discuss the benefits of collaboration in fostering teamwork, professional development and innovative practices in educational or organizational settings.

Flipped Learning Activity: Educational Technology Tools for Collaboration (20 minutes)

- (1) Prior to the class, assign students readings or video resources on various educational technology tools for collaboration, such as:
 - Project management tools: Trello, Asana, ClickUp and [Monday.com](#)
 - Virtual whiteboarding tools: Miro, Padlet and Jamboard
 - File sharing and collaboration tools: Dropbox, OneDrive and Google Drive
- (2) Instruct students to explore and familiarize themselves with one or more of these tools.
- (3) During the class, facilitate a discussion where students share their experiences, advantages and challenges of using the assigned technology tools for collaboration in educational leadership in schools or organizations.

Break (5 minutes) Q&A

Part 3: [Decision-Making Skills](#) (30 minutes)

Lecture: Importance of Effective Decision-Making in Educational Leadership (10 minutes)

- (1) Present a brief lecture on the significance of effective decision-making skills for educational or organizational leaders.
 - (2) Discuss the impact of decision-making on strategic planning, resource allocation, and student/staff outcomes in educational or organizational settings.
- Flipped Learning Activity: Educational Technology Tools for Decision-Making (20 minutes)
- (1) Prior to the class, assign students readings or video resources on various educational technology tools for decision-making, such as:
 - Data analysis and visualization tools: Tableau, Excel and ChatGPT
 - Survey and feedback tools: Google Forms, Qualtrics and SurveyMonkey
 - Virtual meeting and collaboration tools: Zoom, Microsoft Teams and Google Meet
 - (2) Instruct students to explore and familiarize themselves with one or more of these tools.
 - (3) During the class, facilitate a discussion where students share their experiences, advantages and challenges of using the assigned technology tools for decision-making in educational leadership.
- Wrap-up and Reflection (5 minutes)
- (1) Summarize the key points discussed during the lesson.
 - (2) Ask students to reflect on their learning experiences with educational technology tools for communication, collaboration and decision-making.
 - (3) Encourage students to identify opportunities for applying these skills and tools in their future educational leadership roles.
- Conclusion (5 minutes)
- (1) Recap the main takeaways from the lesson.
 - (2) Thank the students for their active participation.
 - (3) Emphasize the importance of continuous development of communication, collaboration and decision-making skills in educational or organizational leadership.
 - (4) Provide resources for further exploration of educational technology tools in leadership contexts.
- Note: The lesson plan incorporates the flipped learning approach, where students engage with the assigned materials before the class, enabling in-class discussion and application. The suggested educational technology tools can be adjusted based on the availability and suitability for the educational leadership context.

References

- Anderson, J. E., Nguyen, C. A., & Moreira, G. (2025). Generative AI-driven personalization of the community of inquiry model: Enhancing individualized learning experiences in digital classrooms. *International Journal of Information and Learning Technology*, 42(3), 296–310. doi: [10.1108/IJILT-10-2024-0240](https://doi.org/10.1108/IJILT-10-2024-0240).
- Brenner, W., Uebernickel, F., & Abrell, T. (2016). Design thinking as mindset, process, and toolbox: Experiences from research and teaching at the University of St. Gallen. In *Design thinking for innovation: Research and practice* (pp. 3–21).
- Brown, T., & Katz, B. (2011). Change by design. *Journal of Product Innovation Management*, 28(3), 381–383.
- Chaivisit, S., Asino, T. I., Jongsermtrakoon, S., Thompson, P., Rezaie, F., & Siripattanakul, S. (2024). Empowering educators with generative AI tools and support. In R. Sharma, & A. Bozkurt (Eds.), *Transforming Education with Generative AI: Prompt Engineering and Synthetic Content Creation* (pp. 56–81). IGI Global. doi: [10.4018/979-8-3693-1351-0.ch003](https://doi.org/10.4018/979-8-3693-1351-0.ch003).
- Cochran-Smith, M., & Lytle, S. L. (2009). *Inquiry as stance: Practitioner research for the next generation*. New York: Teachers College Press.
- Consortium for School Networking (2014). The empowered superintendent: Professional learning and practical tools for effective technology leadership, The School Superintendents Association. Available from: <https://cosn.org/>
- Cooper, A. (2004). *The inmates are running the asylum: Why high-tech products drive us crazy and how to restore the sanity*. Sams Publishing. Available from: <http://itu.dk/people/russel/B%F8ger/Pearson.-The.Inmates.Are.Running.the.Asylum.pdf>

- Crawford, J., Cowling, M., & Allen, K. A. (2023). Leadership is needed for ethical ChatGPT: Character, assessment, and learning using artificial intelligence (AI). *Journal of University Teaching and Learning Practice*, 20(3), 2, doi: [10.53761/1.20.3.02](https://doi.org/10.53761/1.20.3.02).
- Cross, N. (2023). *Design thinking: Understanding how designers think and work* (2nd ed.). London: Bloomsbury Publishing.
- Fullan, M., & Quinn, J. (2023). *The drivers: Transforming learning for students, schools, and systems*. Thousand Oaks, CA: Corwin Press.
- Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, 2(2-3), 87–105, doi: [10.1016/s1096-7516\(00\)00016-6](https://doi.org/10.1016/s1096-7516(00)00016-6).
- Jung, H., Kim, Y., Lee, H., & Shin, Y. (2019). Advanced instructional design for successive e-learning: Based on the successive approximation model (SAM). *International Journal on E-Learning*, 18(2), 191–204, doi: [10.70725/962362dtwhzr](https://doi.org/10.70725/962362dtwhzr).
- Keengwe, J., Kidd, T., & Kyei-Blankson, L. (2009). Faculty and technology: Implications for faculty training and technology leadership. *Journal of Science Education and Technology*, 18(1), 23–28, doi: [10.1007/s10956-008-9126-2](https://doi.org/10.1007/s10956-008-9126-2).
- Kelley, T., & Kelley, D. (2013). *Creative confidence: Unleashing the creative potential within us all*. New York, NY: Crown Currency.
- Kim, Y., Curry, K., & Fiegner, A. (2024). Exploring suggestions from educational leaders and ChatGPT for addressing problems of practice in TeleED: A qualitative case study. *Journal of School Administration Research and Development*, 9(2), 56–65, doi: [10.32674/k99grq33](https://doi.org/10.32674/k99grq33).
- Long, D., & Magerko, B. (2020). What is AI literacy? Competencies and design considerations. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* (pp. 1–16). Association for Computing Machinery. doi: [10.1145/3313831.3376727](https://doi.org/10.1145/3313831.3376727).
- Lussier, R. N., & Achua, C. F. (2010). *Leadership: Theory, application, & skill development* (4th ed.). Cengage Learning.
- Meinel, C., & Leifer, L. (2011). Design thinking research. In *Design thinking research: Studying co-creation in practice* (pp. 1–11). Springer.
- Men, L. R. (2014). Strategic internal communication: Transformational leadership, communication channels, and employee satisfaction. *Management Communication Quarterly*, 28(2), 264–284, doi: [10.1177/0893318914524536](https://doi.org/10.1177/0893318914524536).
- Miao, F., Holmes, W., Huang, R., & Zhang, H. (2021). AI and education: Guidance for policy-makers, United Nations Educational, Scientific and Cultural Organization (UNESCO) doi: [10.54675/PCSP7350](https://doi.org/10.54675/PCSP7350).
- Mollick, E. R., & Mollick, L. (2023). Assigning AI: Seven approaches for students, with prompts. *arXiv preprint*. doi: [10.48550/arXiv.2306.10052](https://doi.org/10.48550/arXiv.2306.10052).
- Mosley, C., Broyles, T., & Kaufman, E. K. (2014). Leader-member exchange, cognitive style, and student achievement. *Journal of Leadership Education*, 13(2), 50–69, doi: [10.12806/v13/i3/r4](https://doi.org/10.12806/v13/i3/r4).
- Plattner, H. (2016). An introduction to design thinking process guide, Institute of Design at Stanford. Available from: <https://web.stanford.edu/~mshanks/MichaelShanks/files/509554.pdf>
- Rahman, M. M., & Watanobe, Y. (2023). ChatGPT for education and research: Opportunities, threats, and strategies. *Applied Sciences*, 13(9), 5783. doi: [10.3390/app13095783](https://doi.org/10.3390/app13095783).
- Robertson, J. (2016). *Coaching leadership: Building educational leadership capacity through partnership*. New Zealand: Council for Educational Research.
- Saaty, T. L. (2001). *Decision making for leaders: The analytic hierarchy process for decisions in a complex world* (3rd ed.). Pittsburgh, PA: RWS Publications.
- Sogunro, O. A. (1997). Impact of training on leadership development: Lessons from a leadership training program. *Evaluation Review*, 21(6), 713–737, doi: [10.1177/0193841x9702100605](https://doi.org/10.1177/0193841x9702100605).
- Sterrett, W. L., & Richardson, J. W. (2019). The change-ready leadership of technology-savvy superintendents. *Journal of Educational Administration*, 57(2), 143–157, doi: [10.1108/jea-09-2018-0160](https://doi.org/10.1108/jea-09-2018-0160).

- Sun, M., Pina, L. N., & Kim, Y. (2023). *Cultivating leadership resiliency: Experiences of graduate international students during the COVID-19 pandemic*. Baltimore, MD: STAR Scholar Books.
- Tonkinwise, C. (2011). A taste for practices: Unrepressing style in design thinking. *Design Studies*, 32(6), 533–545, doi: [10.1016/j.destud.2011.07.001](https://doi.org/10.1016/j.destud.2011.07.001).
- Tschimmel, K. (2012). Design thinking as an effective toolkit for innovation. In *ISPIM Conference Proceedings* (pp. 1). The International Society for Professional Innovation Management (ISPIM).
- Wang, F., & Hannafin, M. J. (2005). Design-based research and technology-enhanced learning environments. *Educational Technology Research and Development*, 53(4), 5–23, doi: [10.1007/bf02504682](https://doi.org/10.1007/bf02504682).
- Wang, S., Sun, Z., & Chen, Y. (2023). Effects of higher education institutes' artificial intelligence capability on students' self-efficacy, creativity and learning performance. *Education and Information Technologies*, 28(5), 4919–4939, doi: [10.1007/s10639-022-11338-4](https://doi.org/10.1007/s10639-022-11338-4).
- Ward, A., Runcie, E., & Morris, L. (2009). Embedding innovation: Design thinking for small enterprises. *Journal of Business Strategy*, 30(2/3), 78–84, doi: [10.1108/02756660910942490](https://doi.org/10.1108/02756660910942490).
- Waugh, W. L., Jr., & Streib, G. (2006). Collaboration and leadership for effective emergency management. *Public Administration Review*, 66(S1), 131–140, doi: [10.1111/j.1540-6210.2006.00673.x](https://doi.org/10.1111/j.1540-6210.2006.00673.x).
- Zupan, B., & Nabergoj, A. S. (2023). Design thinking as a course design methodology. In *Design thinking* (pp. 17–39). CRC Press.

Corresponding author

Ayodeji Ibukun can be contacted at: ayo.ibukun@okstate.edu