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Innovating Artificial Intelligence for Workforce Preparation and Knowledge Development

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ABSTRACT

Artificial intelligence (AI) transforms workplaces by streamlining operations, automating tasks, and enhancing decision-making. To bridge the knowledge gap in AI best practices, a workshop was created for executives, integrating change management principles. The workshop aimed to help participants understand AI's role, use AI tools for predictive analytics, and develop strategies for leveraging AI in change initiatives. This paper outlines the workshop's impact on building confidence, knowledge, and positive attitudes towards AI in the workplace.

Keywords: Artificial Intelligence (AI); AI knowledge; Organizational change; Confidence

1. Introduction

Artificial intelligence (AI) is the process of programming machines to perform tasks that generally require human intelligence [1]. AI is transforming the way we interact with each other, altering not only our daily lives but also reshaping our work environment. In the workplace, AI streamlines operations, automates repetitive tasks, and enhances decision-making processes. From analyzing massive datasets to predicting market trends, AI empowers businesses to make strategic decisions swiftly and accurately [2]. Moreover, AI-driven technologies facilitate personalized experiences for customers, improving satisfaction and loyalty. As organizations strive to stay competitive in today›s AI driven market landscape, integrating AI into their operations becomes not just advantageous but essential for sustained growth and success. This necessitates the introduction of AI practices amongst executives [3,4].

In an effort to bridge the knowledge gap surrounding artificial intelligence (AI) dissemination, particularly concerning best practices, within the organiza-

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tional workforce, an AI workshop was created that incorporated change management principles. Change management is the systematic approach and set of practices aimed at effectively planning, implementing, and monitoring organizational changes to ensure smooth transitions, minimize disruptions while maximizing desired outcomes [5]. When considering the integration of AI into an organization, this needs to be done carefully with CM at the forefront [6].

The goals of this workshop were to help workers understand the role of AI in the organization, understand how to use AI tools for prediction analytics, help to explore AI-driven tools and techniques for enhancing stakeholder engagement and communication, help in the development of strategies for leveraging AI to support the adoption of change initiatives, and to help workers gain insights into real-world applications and case studies where AI facilitated effective change management [7].

The aim of this paper is to outline how artificial intelligence (AI) a workshop designed for teaching AI to start-up executives, to help learning the process of integrating AI into the workplace, referred to as change management (CM) [8]. The 4-day workshop helped with creating confidence, knowledge, and changing attitudes surrounding AI and its importance in the workplace.

2. Methods

2.1 Program description

This AI workshop was conducted in Beijing, China from July 1–14th 2023, where all participants were start-up executives. The AI workshop contained 8 modules, spread over 4 non-consecutive days. Participation in this workshop was completely voluntary. Participants were recruited through email. For all participants who volunteered to participate in the workshop, a survey was administered before the start and at the end of the workshop. All surveys were administered online, while all workshop events took place in-person.

In order to participate in the workshop, participants were required to attend all 4 days of the workshop and

complete both surveys. Since the workshop was administered in English, all participants were also required to speak English. Only participants who gave informed consent were able to participate in the workshop.

2.2 Workshop details

The AI workshop spanned four days, focusing on integrating artificial intelligence (AI) into change management (CM). On Day 1, participants were introduced to AI and CM concepts, exploring the relevance of AI technologies in change management. They delved into theoretical frameworks for AI›s role in CM, identifying potential AI applications within their organizational strategies through an activity called "AI Change Agents". Day 2 focused on AI tools and techniques, teaching participants how to use AI-driven analytical tools for predictive analytics to assess change impacts and plan integrations. They also learned to enhance stakeholder engagement using AI, culminating in an activity where they designed AI-enhanced communication plans. Day 3 involved implementing AI in change initiatives, with case studies showcasing successful AI-facilitated changes and discussions on overcoming common obstacles. Participants engaged in an "AI Change Management Simulation" to apply AI concepts in managing a change scenario. On the final day, the focus was on building AI-ready CM strategies and exploring future trends in AI and organizational change. Participants discussed emerging AI technologies and their potential impacts, sharing insights and predictions in an activity titled "AI in Change Management – Vision 2030". The workshop concluded with a wrap-up session, where participants reflected on their learnings and developed action plans for applying AI in their change management efforts.

2.3 Measures

Pre- and post- workshop surveys required participants to answer questions about their attitudes, knowledge, and their confidence towards interacting with AI in the workplace using a 5-point Likert scale (1strongly disagree, 5strongly agree). Each survey

consisted of 27 questions where knowledge, attitudes towards AI, and confidence of participating in an integrated AI work environment were evaluated. Statistical analysis was done on all data collected at the beginning and end of the 4-day workshop.

2.4 Statistical analysis

Statistical analysis of all 27 items was conducted on pre- and post- workshop surveys using a Cronbach's alpha, to determine knowledge and attitudes towards AI before and after the workshop. Cohen's d was used as a measure for effect size. Next, Mann-Whitney U Tests were performed to determine if there were any significant differences between items between the pre- and post- workshop survey.

3. Results

3.1 Participants

Of the thirty people who attended the AI workshop, all 30 participated in the 4-day workshop. All participants who attended also completed the pre- and post-survey, so all participants were included in the analysis.

3.2 Reliability analysis

The Cronbach's alpha coefficient for all items in the pre- and post- survey were = 0.98 and = 0.96, respectively, indicating high internal reliability between each item in order to measure knowledge, attitudes, and confidence towards AI.

3.3 Pre- and post-survey evaluation

There was a significant improvement on knowledge, attitudes, and confidence towards AI (n = 30, p < 0.002, W = 0) with large effect size (d = 0.78).

3.4 Difference between pre- and post-workshop survey

Table 1 shows the results of paired Mann-Whitney tests for each item. There was a significant increase in participant understanding of AI based tools in their field (p = 0.043, W = 40). Participants believed they were more able to utilize AI tools in their field (p = 0.045, W = 52.5). There was also a significant increase on participant's ability to utilize AI tools for adaptive feedback (p = 0.024, W = 53), and for personalized learning (p = 0.028, W = 37).

Table 1. Difference between pre- and post-workshop survey

item	question	N	Pre-percent(4+ Likert) in %	Post-percent(4+ Likert) in %	P-value	Effect size
1	I know how to interact with AI-based tools in everyday life.	30	43	47	0.48	−0.13
2	I know how to perform certain tasks using AI-based tools.	30	43	60	0.11	−0.31
3	I know how to initiate tasks based on AI technology through text or voice.	30	37	50	0.13	0.15
4	I have enough knowledge to use AI-based tools.	30	27	33	0.17	0.32
5	I am familiar with AI-based tools and their technical capabilities.	30	17	30	0.12	0.25
6	I understand the impact of AI tools on my field of work.	30	50	60	0.06	0.29
7	I can assess the usefulness of feedback provided by AI tools for work.	30	43	60	0.11	0.36
8	I can choose AI-based tools for knowledge application.	30	47	53	0.19	0.24
9	I know how to use AI-based tools to enhance learning efficiency.	30	30	37	0.34	0.18
10	I can interpret messages from AI-based tools to provide real-time feedback.	30	37	50	0.21	0.32
11	I understand AI-based tools and their applications in the workplace.	30	43	53	0.14	0.28
12	I have sufficient knowledge to choose AI-based tools.	30	23	37	0.09	0.32
13	I can use AI-based tools to search for relevant information in my field of work.	30	53	53	0.54	0.11
14	I know that professionals in my field of work use various AI-based tools.	30	33	40	0.25	0.22
15	I can use AI-based tools to better understand the content of my field of work.	30	37	30	0.85	0.04

Table 1 continued

item	question	N	Pre-percent(4+ Likert) in %	Post-percent(4+ Likert) in %	P-value	Effect size
16	I know how to utilize AI-based tools specific to my field.	30	23	27	0.40	0.18
17	In my field of work, I know how to use different AI-based tools for adaptive feedback.	30	23	43	0.03	0.42
18	In my field of work, I know how to use different AI-based tools for personalized learning.	30	30	53	0.03	0.41
19	In my field of work, I know how to use different AI-based tools for real-time feedback.	30	23	50	0.01	0.48
20	I can use various strategies to optimize work efficiency using AI-based tools.	30	23	47	0.02	0.45
21	I can appropriately integrate AI tools into content optimization for my work.	30	37	50	0.11	0.30
22	I can take a leadership role among colleagues in integrating AI-based tools into our field of work.	30	27	33	0.11	0.20
23	I can choose various AI-based tools to monitor my work performance.	30	27	20	0.52	0.12
24	I can evaluate the effectiveness of AI-based tools in my work.	30	37	43	0.17	0.25
25	I can assess whether AI-based tools can improve efficiency in my work.	30	37	40	0.36	0.17
26	I can understand the legitimacy of any decisions made by AI-based tools.	30	37	53	0.08	0.33
27	I can understand who is responsible for the development of AI tools in their design and decision-making.	30	33	37	0.31	0.19

3.5 Overall attitudes

In the pre-workshop survey 43% of participants had the ability to utilize AI tools, while after the workshop 60% of participants felt more confident in their ability. There was also an increase in the percentage of people who have knowledge about AI with only 47% of participants having knowledge in the pre-workshop survey, to 67% now having knowledge upon completion of the workshop.

4. Discussion

There were significant changes in attitudes and knowledge towards AI from before the workshop to after the workshop. There was an increase in the number of participants who claimed to have gained knowledge and increase their ability to utilize AI in their organization. Attitudes towards AI increased across all items, however, there was significance observed across ability to use AI tools. These results suggest that administration of an AI workshop is useful for helping executives understand AI, integrate AI into their companies, and better prepare them for the changing AI climate [9-12].

Participant knowledge was calculated based on Likert scale values of 4 or 5, 5 being the highest possible. There were a significant number of participants whose responses increased form a from 1 or 2 to 3, however, since a value of 4 was not recorded in the post survey, they were not considered as gaining knowledge, even though, based on their response, they did. If all increases were considered, then the total number of post-workshop participants who felt confident after the workshop from 60% to 97%. Equally, the number of post-workshop participants who gained knowledge about AI goes from 67% to 93%.

The entire workshop was done over the course of 4 days over a 2-week span, which means that the course did not take place in 4 consecutive days. The choice of this style of administration was cater to the schedules of the participants in the program. It seemed advantageous to spread out the workshop which we believed would protect against attrition. Although this did protect against attrition as all participants participated in the entre workshop, it can be argued that a consecutive-day workshop protects against fragmentated learning and allows for a more cohesive and immersive experience. However, in this workshop, increased learning was still experienced. This could also be due to the small size of workshop. It is possible that with higher attendance comes an

increase in attrition and a need for restructuring the way the workshop is administered. This will be considered in future implementations of this workshop.

Most of the participants found the workshop useful and were able to gain from it. A future survey should be conducted to track whether any of the principles learned have been implemented and to find the strategies most used.

The survey used was the 5-point Likert scale for accessing knowledge, confidence, and utilization of AI tools. It seems to be asking the correct questions to access the outcome of the workshop as a Cronbach's alpha coefficient of = 0.98 and = 0.96 for the pre- and post- survey, respectively, was received. Another component that should be added to this survey are comments about the workshop on the post- workshop survey, and what each participant is hoping to get out of the workshop, on the pre-workshop survey.

A limitation of the study is that the size of the group was low with 30 participants, although having a larger group may not be as advantageous for learning. This was not tested. Another limitation is that there is currently no follow up analysis to determine the effectiveness of the workshop in practice. Future work will follow up on participants to understand which learning objectives or modules were most effective and that they are currently using.

5. Conclusions

This paper evaluated the efficacy of an artificial intelligence (AI) workshop held for start-up executives to help with understanding AI tools and integrating them into their companies. Upon completion of the workshop, participants were able to gain a better understanding for AI, able to utilize different tools that allow for the success of their companies while considering a change management plan for integrating AI.

Conflict of Interest

The study has no conflict of the interest.

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Appendix A

Workshop Outline

Day 1: Introduction to AI in Change Management

- Module 1: Introduction to Artificial Intelligence (AI) and Change Management (CM) An overview of AI technologies and their relevance to change management.
- Module 2: Theoretical Framework for AI's role in Change Management (CM) Participants explore change management theories and how to integrate AI tools into their companies.
- Activity 1: AI Change Agents: Participants are asked to identify potential AI applications within their organizational change management strategies. This activity calls for participants to write down these strategies and then discuss them within their workshop groups.

Day 2: AI Tools and Techniques for Change Management

- Module 3: Predictive Analytics for Assessing Change Impacts Participants learn to use AI-driven analytical tools to predict the outcomes of change initiatives and through CM, make plans for integration.
- Module 4: AI and Stakeholder Engagement Participants are taught techniques for using AI to improve communication, address resistance to change within their organization, and enhance stakeholder buy-in.
- Activity 2: Designing an AI-Enhanced Communication Plan: Participants work in groups to create a communication plan to incorporate AI tools for a hypothetical scenario.

Day 3: Implementing AI in Change Initiatives

- Module 5: Case Studies on AI and Change Management: A presentation and discussion of real-world examples where AI facilitated successful change is given.
- Module 6: Overcoming Challenges in AI Integration A presentation and discussion is had on identifying common obstacles to AI implementation in CM and strategies to overcome them. Collectively, the participants discuss strategies for overcoming obstacles, such as worker resistance.
- Activity 3: AI Change Management Simulation: Using a simulation tool, participants apply AI concepts to manage a change scenario within an organization.

Day 4: Strategy and Future Trends

- Module 7: Building an AI-Ready Change Management Strategy Lecture on key considerations and steps for integrating AI into CM planning and execution is given.
- Module 8: Future Trends in AI and Organizational Change Discussion session on emerging AI technologies and their potential impact on future CM practices is conducted both within smaller assigned groups and the larger workshop group.
- Activity 4: AI in Change Management – Vision 2030: Participants share insights and predictions on the role of AI in shaping the future of organizational change.
- Wrap-Up Session: Key Takeaways and Action Plan Development: Participants reflect on learnings and develop an action plan for applying AI in their change management efforts.