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An outreach program to enhance high school students teamwork skills in an AI collaboration

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Abstract

This paper presents a case study of an outreach high school program designed to develop students' teamwork skills. During the program, students are trained to develop teamwork and leadership skills. This case provides the best practices in facilitating teamwork skill-building activities, such as puzzle assembly competitions. The case demonstrates the impact of teamwork training on students' performance.

Keywords: artificial intelligence (AI), teamwork, leadership, problem-solving, outreach, and high school students.

Introduction

Mastering strong teamwork and communication skills in an AI environment is crucial for both future supply chain management students and professionals, as the ability to work in groups enhances both academic success and professional readiness. Teams consist of two or more people who perform relevant tasks and have one or more goals in common (Kozlowski and Bell, 2013). According to Tripathy (2018) in today's rapidly changing business world, the abilities of individuals to engage in teamwork is vital. Indeed, teamwork has proven to be a crucial component in refining business processes (Mendibil Telleria, Little, McBride, 2002).

Part of teamwork involves socialization. Collaborating and working together, socialization is at the heart of accomplishing common goals. The COVID-19 pandemic and its related stay-at-home orders negatively impacted socialization, at least in the early stages of the pandemic (Budden, Budden, and Budden 2023). As Budden et al. (2022) posited, the isolation of college students during the pandemic is a concerning indicator of outcomes related to socialization, communication, health, and education. This translates into potential problems related to teamwork and even individual health, as socialization is crucial to overall health and well-being (Bergland, 2016). Social bonds can increase one's life expectancy (Bergland, 2016). Unfortunately, the pandemic has promoted social disconnection (Cohen, 2022).

Further, today's advances in technology have led to individuals feeling more isolated than ever before (Algashami et al., 2017). The constant use of technology leads to fewer face-to-face interactions and fewer opportunities for collaboration. A 2017 European study called attention to the fact that today's technology poses a serious risk to interpersonal relationships and team performance (Algashami et al., 2017). Despite the challenges, collaboration is essential, and it is vital that students are taught the soft skills necessary to navigate both academic and professional environments (Riebe, Girardi, and Whitsed, 2017).

A survey of Australian employers found that the majority believe teaching collaborative skills to college graduates is just as important as teaching technical skills (Riebe, Girardi, and Whitsed, 2017). While teamwork is paramount in both universities and organizations, collaboration often clashes with the individualistic nature of higher education. In other words, one cannot assume students will naturally know how to make group work successful (Fredrick, 2008). Due to the nature of higher education, it is beneficial for educators to be mindful of the roles that soft skills play in today's workplace and to develop creative and straightforward methods to introduce the concept of teamwork to students.

Methodology

This study employed both qualitative and quantitative methods to demonstrate to students the importance of teamwork and skill development in communication, while also helping them develop these skills. Furthermore, students' understanding of teamwork and their views on its importance were assessed using pre- and post-activity surveys. Ultimately, the study assesses the effectiveness of the activity in conveying the importance of teamwork to these students. To illustrate the importance of teamwork to future college students, an activity was conducted involving high school students, which encouraged them to communicate, assume various roles in a team setting, and work together as a team to achieve their goals. Before the activity began, students were administered a paper-and-pencil survey to gauge their knowledge about and appreciation for the use of teamwork in an organizational setting. The survey consisted of nine questions, using a 4-point Likert-type scale that ranged from "strongly agree" to "strongly disagree." The survey included statements such as, "A team can achieve far more than any individual working alone," and "Supply chain organizations look toward teamwork to improve organizational effectiveness." Participants were recruited through an educational program that allows students to earn a professional supply chain certificate while still in high school.

After completing the questionnaire, students were divided into groups of four and assigned the task of completing a jigsaw puzzle. Each student was assigned a unique role in their team. For instance, only one team member was allowed to assemble the puzzle, and only one team member was allowed to speak during the process of completing it. The other two group members were tasked with handing the puzzle pieces to their teammate, who was given the role of assembling the puzzle. The team member responsible for communication was tasked with explaining to the assembler how to complete the puzzle. Lastly, the team members in charge of putting the puzzle together had to do so while blindfolded. A competition ensued to determine which team could complete their puzzle the most quickly. All groups were allowed to finish their puzzles.

Following the puzzle activity, the professor led the class in a discussion about the importance of working together as a team. The importance of each of the diverse roles assigned to each student was also discussed, and it was noted how each member played an essential role in completing the task. The importance of communication and working together was emphasized. The professor ended the activity with a lecture on the significance of teamwork in the field of supply chain management.

This activity illustrated the importance of teamwork and the fact that team members contribute unique skills and abilities to the overall group. The pre-activity questionnaire was administered again to students as a post-activity survey to determine whether the activity and follow-up discussion advanced the students' understanding of what teamwork entails and its significance to the supply chain.

Results

When examining the results from both the pre- and post-activity surveys (Figure 1), it was found that students who had previously disagreed with several statements regarding the importance of teamwork now agreed with that fact. The percentage of students strongly agreeing with the statement, “a team can achieve far more than any individual working alone,” increased from approximately 60% of the respondents to 80%. Further, the percentage of students strongly agreeing with the statement, “supply chain organizations look towards teamwork to improve organizational effectiveness,” also increased from 60% of respondents to 70%. The results suggest that the activity was an effective way to signify the importance of teamwork in supply chain management.

Pre-Survey VS Post-Survey : Questions 10 - 18

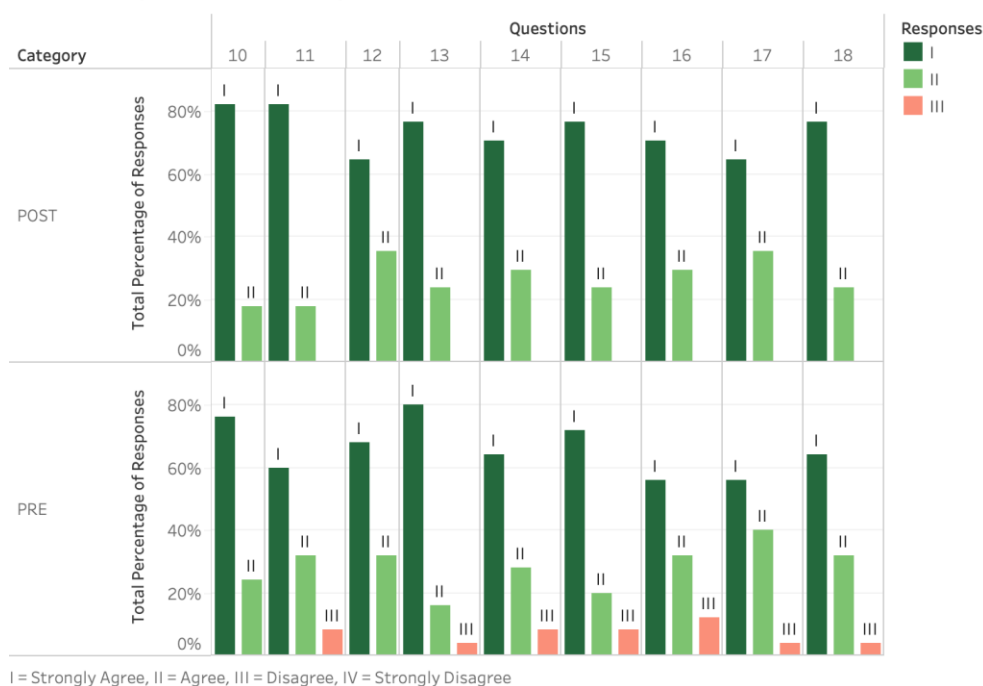


Figure 1. Pre and Post-Survey

Discussion

Teamwork is a crucial skill essential in the college classroom and beyond, enabling individuals and organizations to achieve their goals. The ability to work in a team setting is a valuable soft skill that helps students and professionals succeed in their endeavors. This study employed engaging activities, a discussion, and a lecture to provide insight into the importance of teamwork in supply chain management. In addition, getting high school students who expressed an interest in supply chain to the campus to participate in this activity was viewed as a significant recruiting success. It will be seen whether these students will enter the sponsoring university in the future and if they remain committed to supply chain management as their major. The authors viewed the excitement and smiles of the participants as a victory in itself.

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