
| RESEARCH ARTICLE

The Impact of Project-Based Learning on Leadership Skills: Perceptions of Moroccan Secondary School Students

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| ABSTRACT

Education has a crucial role in equipping students with skills needed for success in academic and professional contexts. Project-Based Learning (PBL) is an instructional approach that fosters such skills by engaging students in collaborative, real-world tasks that require negotiation, decision-making, and communication. The present study examines the impact of PBL on leadership skills, in particular, of high school students in Khouribga, Morocco. A mixed-method approach was employed to collect data through post-course questionnaires and semi-structured interviews from 45 students following a five-week PBL course. The findings revealed that students perceived strong improvements in their leadership skills, particularly in confidence, fluency and ability to organize ideas. Additionally, participants reported that collaboration and shared responsibilities in PBL enhanced their leadership abilities, enabling them to navigate and facilitate discussions more effectively. The findings support the implementation of methods such as PBL to promote strong educational experiences that prepare for success beyond the classroom.

| KEYWORDS

Project-based learning (PBL), leadership development, student-centered learning, Morocco

| ARTICLE INFORMATION

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1. Introduction

Project-based learning (PBL) has gained considerable attention for its potential to promote a variety of skills, including communication and leadership skills in the last decades (Migdad, 2016; Ghobrini, 2020; Rohm et al., 2021; Syahril et al., 2021; Zhang & Ma, 2023). PBL involves learners in authentic, real-world projects that requires their collaboration, decision-making, and problem-solving skills (Amamou & Belcadhi, 2018; Jalinus & Nabawi, 2018). While a good body of research has examined the impact of PBL in improving various skills (Kokotsaki et al., 2016; Migdad, 2016; Ghobrini, 2020), there is still a need to investigate more how students perceive their own growth after participating in PBL courses. Moreover, the rationale is based on the growing recognition of leadership skills as important skills in the 21st century. As workplace demands continue to evolve, research has emphasized the importance of such skills for success (Iordanoglou, 2018, Barthakur et al., 2022). This study aims to examine how students perceive their skill development after their participation in a five-week PBL course. To achieve this objective, the following research questions are developed:

1. How do students perceive their leadership development after engaging in a 5-week PBL course?
2. What specific aspects of the PBL experience do students believe to have contributed to the development of their leadership skills?
3. How do students compare their experiences in PBL with those in conventional classroom contexts?

2. LITERATURE REVIEW

Since its introduction to the educational setting during the 1970s, Project-Based Learning (PBL) has developed into a comprehensive, student-centered approach that fosters meaningful learning and life skills (Kokotsaki et al., 2016; Fini et al., 2017; Yuliani and Lengkanawati, 2017; Saenab et al., 2018; Ghobrini, 2020; Astaifi, 2024). PBL emphasizes collaboration and the application of real-world skills, and encourages active engagement (Almulla, 2020). Therefore, leadership skills, in particular, may be developed through a student-centered approach like PBL which fosters communication skills (Walters and Sirotiak, 2011; Migdad, 2016; Ghobrini, 2020).

Several studies have investigated the relationship between Leadership skills and PBL. For instance, Migdad (2016) conducted an experimental study. Seventy-six third-grade students at Al Zaitun Co-ed Elementary School in Gaza participated in this study. The findings supported the positive effect of PBL in fostering leadership skills and vocabulary acquisition. For instance, while participants worked on topics such as "jobs," "food," and "animals," they engaged in a process of research, planning, and presentation. This required them to take turns in leadership roles, which, according to Migdad's findings, helped improve their communication and decision-making skills. Therefore, Migdad (2016) recommended implementing PBL to teach English vocabulary and to promote learners' leadership skills. In the same regard, Walters and Sirotiak (2011) conducted a quantitative study exploring the effect of PBL on the development of soft skills, like leadership and communication skills. Analysis of the findings suggested that PBL positively influenced several leadership skills among the participants. They emphasized the importance of implementing PBL in educational settings to promote essential soft skills needed for success.

Additional research has highlighted the positive impact of PBL in promoting communication and teamwork skills. Astaifi (2024), for instance, conducted a study with 24 Moroccan EFL students to investigate the effect of PBL on critical thinking and soft skills, particularly during teamwork. Findings from focus group discussions and researcher observations indicated PBL's positive impact in enhancing students' engagement, critical thinking, and communication skills. However, while previous research supported the positive effect of PBL, there are a few limitations. Many studies focus on one educational context and a limited sample size, which can limit the generalisability of their findings. Moreover, some studies did not consider students' perceptions of their own learning experiences. Students' perceptions which can be explored through various methods (Rogiers et al., 2020), play a critical role in understanding their learning experiences and how an instructional approach can foster their skills (Pekrun, 2020). Exploring these perceptions can help guide teachers' decisions and practices in the classroom (Mamad & Vigh, 2021).

3. Methodology

3.1 Participants

The present study involved two common core classes at Youssef Ibn Tachefine High School, a public institution that is located in the center of Khouribga City. Each class consisted of 30 students, which resulted in a total of 60 participants. However, during the sampling phase for data collection, only 45 students were interested in participating in the study, with four students volunteering for the post-course interviews. This sample was diverse as it included participants from both classes. The majority of the students attending this school have basic knowledge of the English language. Moreover, the school's location contributes to a supportive educational environment due to its placement in a quiet neighborhood. Before their participation in the questionnaire and the semi-structured interviews, explicit oral consent was obtained from all participants, this ensured their voluntary engagement in the study.

3.2 Instruments

The questionnaire employed in the present study was designed to assess students' perceptions of their growth in leadership abilities after their engagement in the five-week PBL course. It consisted of ten Likert-scale items that were constructed based on three different measurement scales: leadership attainment, attitude toward group work, and self-confidence (see Appendix 1). These three scales were based on the work of Carter and Spontanski (1989). The selection of the three scales among the ten measurements proposed by Carter and Spontanski (1989) was based on their direct relevance to the objectives of the present study. Using Cronbach's alpha and the Statistical Package for the Social Sciences (SPSS), the level reliability of the questionnaire was satisfactory. Each scale was beyond the coefficient of .70. Additionally, the overall coefficient for the questionnaire reflected good reliability, which emphasized its effectiveness in assessing students' perceptions of leadership skills. Additionally, SPSS helped analyse quantitative data and gave descriptive statistics and visual representations.

In addition to the questionnaires, semi-structured interviews were conducted with four participants and included five open-ended questions (see Appendix 2). These interviews were conducted via text-based communication because of logistical reasons and the full timetable of students, which made it difficult to have in-person meetings. The selection of interview participants was based on their interest to volunteer and their availability to answer the questions online. The researcher then proceeded with taking their contact information and agree on suitable times for each interview. The primary objective of the interviews was to gather further insights into students' experiences and perceptions regarding their development of leadership skills in

the five-week PBL course. Additionally, the interviews explored the participants' perspectives on the differences between PBL and conventional classroom contexts. The qualitative data from the interviews were analyzed through a manual thematic process to detect the shared perceptions and have an overall understanding of participants' experiences.

3.3 Procedures

The present study was based on a sequential mixed-methods design to explore students' perceptions of the impact of PBL on their leadership abilities. Quantitative data were collected through post-course questionnaires. Subsequently, qualitative data were obtained by conducting semi-structured interviews. In the course of five weeks, the PBL approach was implemented following a planning for each week (see Table 1). Students first engaged in discussions about the units covered in their textbooks, then created a list of topics for the project work (see Table 2). In the next phase of PBL, participants formed groups where they explored a topic of their choice. During the following weeks, students engaged in a process of research, collaboration, and collective decision-making with their small groups. At the end of every session, learners were required to share their progress and to discuss any challenges they faced to receive feedback and suggestions from their peers as well as the instructor. At the end of the course, students presented their work in the form of oral presentations.

Table 1

The PBL course timeline

Week	Activity
Week 1	Introducing goals and objectives, discussing textbook units, creating a list of topics, forming groups, agreeing on tools of communication outside the classroom
Week 2	Finalizing project timeline, brainstorming ideas, project planning and individual task
Week 3	Research and data collection, sharing progress, feedback, collaborative work and discussions
Weeks 4-5	Rehearsing oral presentations, presentations, class discussions and feedback

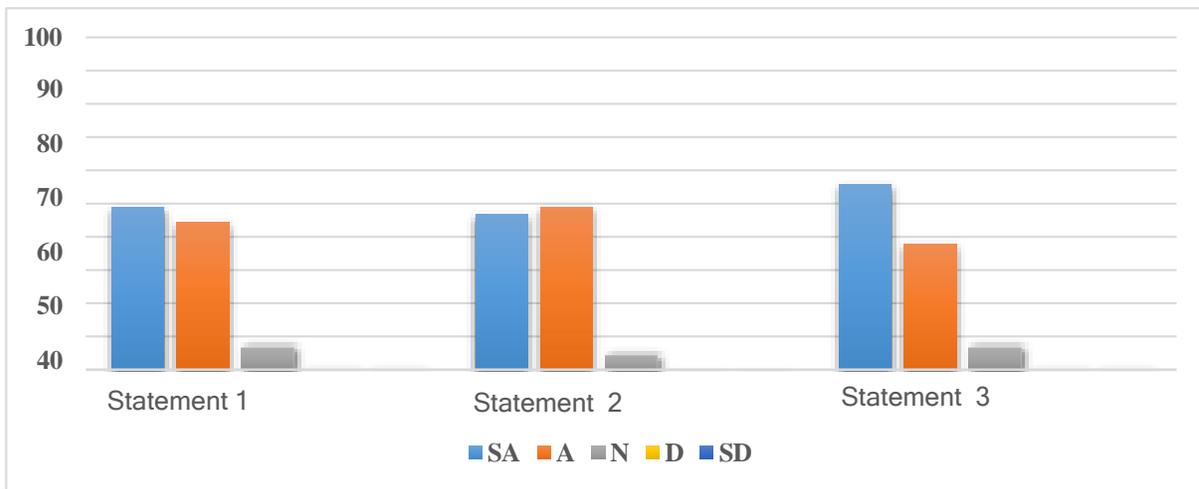
Table 2
List of topics

Topic	Driving question
A restaurant concept	What type of restaurants would succeed in our city?
A shopping store concept	What type of shopping destination would succeed in our area?
Movie creation	What kind of a movie would appeal to 16-years-old audience?
Community change	What change do you want to bring in your city?
A health-care campaign	What initiatives can address common mental, or physical, health issues among students in our school?
A school club	What type of club would benefit our school community?

4. Results

The following section presents the main findings of the study. These findings are obtained from the questionnaires and interviews. The quantitative data were analyzed using frequency analysis, while the qualitative data was investigated with thematic analysis to explore the common themes from the interview responses. Figure 1 shows the participants’ responses regarding the first measurement scale, which assesses the degree of attainment of leadership skills. This scale has three key questions that focus on showing leadership in a group, confidence in motivating peers, and managing leadership situations. Generally, students perceived significant development in their leadership skills during the PBL course. The majority of participants expressed agreement or strong agreement with the statements. This highlights that they believe the PBL course effectively improved their leadership skills, including group collaboration, peer motivation, and managing challenging situations. The responses indicate that students felt encouraged to step out of their comfort zone and develop leadership skills during the PBL course.

Figure 1.
Degree of attainment of leadership

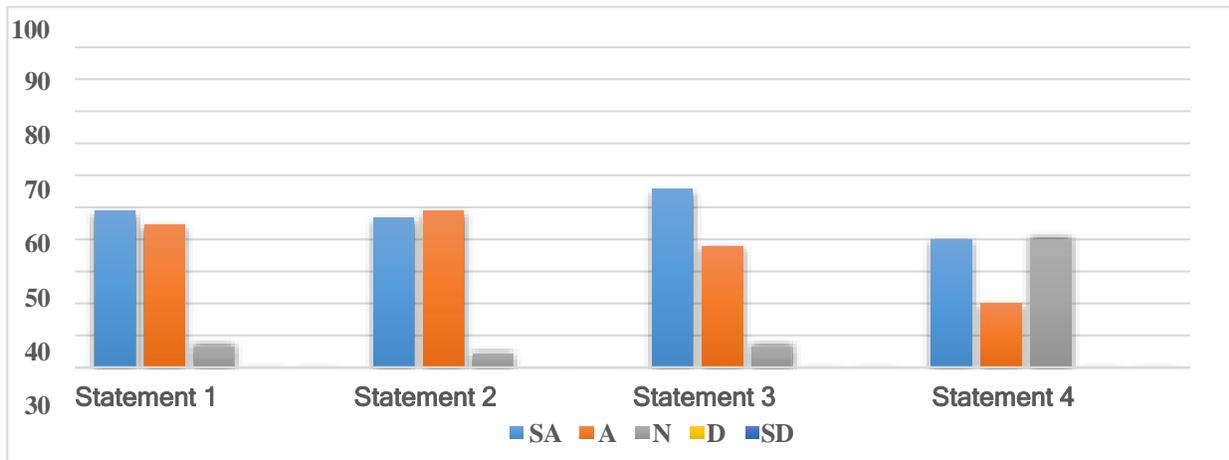


Note. SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, SD = Strongly Disagree

Figure 2 presents the participants’ responses regarding the second measurement scale, which investigates their attitudes towards the group work during the PBL course. This scale has four statements that focus on motivation, enjoyment, effectiveness of collaboration, and willingness to work in groups. Overall, students exhibited positive perceptions which is reflected in the highest percentages of agreement or strong agreement across all statements. For example, 77.8% expressed strong agreement with the statement “I felt motivated and engaged when working with my peers in the PBL project”. However, there was also a small percentage of participants that expressed neutrality or disagreement with some statements. For example, while the majority agreed

that “the PBL approach encouraged a positive attitude toward group work, making it an enjoyable and productive experience,” a good percentage (i.e., 20%) remained neutral. Similarly, for the statement “The collaborative nature of the PBL approach improved my attitude toward group work in general,” 15.6% expressed disagreement. This contrasts with the results of the first scale, where the percentages of disagreement or neutrality were small.

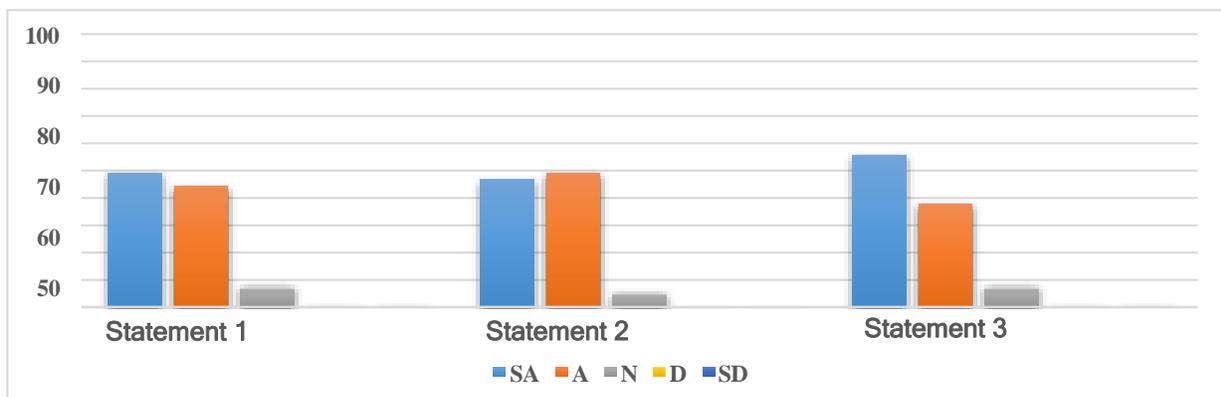
Figure 2.
Attitude toward group work



Note. SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, SD = Strongly Disagree

The third measurement scale in the questionnaire is concerned with participants’ self- confidence after the PBL course. It has three statements that follow students’ perspectives regarding their confidence in managing challenges, learning, adapting, and making decisions after the PBL experience. As shown in Figure 3, students responded positively regarding their self-confidence following the PBL course. The majority of participants agreed with all three statements. Moreover, a small percentage of participants expressed disagreement with the statements. This indicates that while most of the students agreed on the positive effect of PBL on their self-confidence, there were some students who had a different perspective.

Figure 3.
Self-confidence



Note. SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, SD = Strongly Disagree

Students’ responses to the interview questions shed light on their different experiences in the PBL course, particularly regarding their roles. Overall, the participants all described the PBL course as a positive and enjoyable experience. One participant, for example, expressed satisfaction with the PBL course by saying: “Honestly, it was a very beautiful experience; it was fun, and I was very happy”. While most participants found the experience satisfying, they also faced challenges related to communication within a group. For example, one participant expressed difficulty of balancing group work, stating, “It was difficult to please all the members of the group and communicate the idea nicely.” Such statements indicate the complexity of group work and the pressure to ensure the active engagement of each individual.

Despite their various perceptions, all participants appreciated the collaborative nature of the PBL course. They believed the project work positively influenced their confidence and sense of responsibility. Participant B emphasized this point by saying “The course made me more confident; I was the one with the idea, I felt like the leader guiding the group.” The contrast between the PBL format and conventional classrooms also emerged as a key theme. Participants appreciated the interactive nature of PBL, with one student saying, “In the projects, we work in a group, and I felt responsible. In normal classes, the teacher talks and we listen and participate.” This perception highlighted the opportunities for communication within the PBL environment, contrasting with traditional teaching methods, where students typically are less autonomous. Despite the limited sample size, the qualitative data provided valuable insights into participants’ perceptions of PBL and its impact.

5. Discussion

The findings of the current study suggest that Project-Based Learning (PBL) positively influences the development of leadership-related skills among common core students, particularly in areas of communication, collaboration, and decision-making. Specifically, participants reported self-confidence in their ability to manage challenges, make decisions, and contribute meaningfully to group tasks following the course. This supports the findings of previous studies that emphasize PBL’s ability to foster meaningful learning and promote life skills (Kokotsaki et al., 2016; Ghobrini, 2020).

Regarding the second research question, which investigated the aspects of PBL that contributed to students’ leadership development, the results highlight the importance of collaboration and decision-making. Students expressed that group-based activities allowed them to take initiatives, communicate, express their ideas and assume leadership roles, which they felt was not as present in conventional classroom settings. This finding offers further support for the growing body of research that highlights the positive impact of Project-Based Learning on the development of leadership skills in educational settings. Participants in this study, similarly to those of earlier studies (Walters & Sirotiak, 2011; Migdad, 2016; Kovalyova et al., 2016), perceived significant improvements in their leadership abilities following their participation in PBL activities. PBL’s emphasis on collaboration appears to be a key aspect on why it is favored among participants of the present study, particularly when compared to conventional classroom activities. Contrary to conventional learning environments, where students often engage in individual tasks and are primarily passive recipients of information, PBL creates an environment of hands-on learning and group work (Ghobrini, 2020). As noted by previous research (e.g., Migdad, 2016; Saenab et al., 2018), PBL’s collaborative, real-world tasks help students assume responsibility and take initiatives. These aspects of PBL align with Kolb’s (1984) experiential learning model, where active, hands-on engagement is a vital of the learning process.

In addition to fostering leadership skills, the present study also highlights PBL’s positive impact on students’ self-confidence. Based on data obtained through the questionnaires, the majority of participants reported a greater sense of self-confidence following the PBL course. These findings align with those of Walters and Sirotiak (2011), who stated that PBL not only improves self-confidence but also enhances students’ sense of responsibility, adaptability and their ability to cope with stress. However, while the majority of participants expressed positive perceptions of their PBL experiences, the current study also identified some variability in attitudes towards group work and leadership roles. A number of participants either disagreed with or remained neutral on statements that highlighted the benefits of group collaboration. This finding could be attributed to individual preference as some students may not be comfortable with group work depending on their learning styles. As Kokotsaki et al. (2016) note, group work can present many challenges related to student interactions. Some learners may feel more comfortable working independently rather than in a group, where they may have less control over the task process and decision-making. This can lead to various perceptions towards the PBL experience. Learners who prefer independent work may find it challenging to adapt to the group-based nature of PBL. This conclusion highlights the need to account for individual differences when designing and implementing PBL activities.

In summary, while the current study reveals the positive impact of PBL on students’ perceived skill development, the limited sample size (n=45) can affect the generalisability of the findings. Future research with a larger and more diverse group of participants would help further confirm the reliability of these results. Moreover, the study was based on self-reported data, which, while valuable, may be influenced by many factors. To enhance the accuracy of future studies, multiple data sources should be implemented, such as tests, instructor observations, which can provide a more comprehensible view of students’ leadership growth.

6. Conclusion

The present study has explored Moroccan high school students’ perceptions of their leadership growth following a five-week project-based learning (PBL) course. The findings indicate that the majority of participants perceived significant development in their leadership skills. The findings also shed light on an increased self-confidence, and a stronger sense of shared responsibility following the project work. These results provide strong support for previous research on the benefits of student-centered approaches (Kokotsaki et al., 2016; Ghobrini, 2020). The implications of these findings contribute to both the theoretical understanding of PBL’s impact and to practical considerations for curriculum design. The study highlights the potential of PBL to equip students with essential skills for future success in both academic and professional contexts. The present study recommends that educators and policymakers consider integrating PBL into high school curricula, and also in higher education, particularly in Morocco, to better prepare students for the challenges of the future workforce.

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