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Empowered to Lead: The Effect of Mentoring and Tutoring on Peer Tutor Leadership Development

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ABSTRACT

Peer tutoring is an essential service in higher education, requiring comprehensive training that transcends academic content to include leadership development. This study assessed the impact of a tutoring and mentoring intervention on the leadership skills of tutors. Seven medical students participated in a year-long program involving leadership workshops, peer tutor training, and mentoring. Pre- and post-test results showed a large effect on 12 of 30 leadership questions and a medium effect on 6, demonstrating significant leadership growth in peer tutors. This study highlights how mentoring and tutoring can significantly enhance tutors' leadership abilities, supporting their holistic growth and preparing them for future leadership roles.

1 | Introduction

Peer tutoring has become an increasingly significant component of health science education, particularly due to its positive impact on both theoretical knowledge and procedural skills proficiency for undergraduate students (Zhang et al. 2022; Al Yahyaei et al. 2024). Peer tutoring is an educational method where students teach their peers. It is often provided to students struggling to meet course objectives, serving as an adjunct to traditional teacher-led instruction (Alexander et al. 2022; Shenoy and Petersen 2020). The growing interest in peer tutoring can relate back to the many benefits for all parties involved. One of the major benefits for universities is the alleviation of lecturers' workload, in view of the ever-increasing numbers of healthcare students (Al Yahyaei et al. 2024). The simultaneous increase in student numbers and a corresponding decline in resources result in a relapse to larger groups and less interactive teaching and learning (Khapre et al. 2021; Zhang et al. 2022), which can be alleviated by employing peer tutors.

In addition to offering academic support, peer tutoring fosters the ability to develop essential leadership skills of the tutors, benefiting both tutors and tutees (Wankiiri-Hale et al. 2020). The development of peer tutors into effective educators and leaders is

also crucial to achieving the desired outcomes of peer tutoring programs (Whitmill et al. 2020). However, formalized training programs and curricula for peer tutor development are under-researched and poorly documented in the literature (Whitmill et al. 2020). Despite this, certain attributes of successful peer tutors have been identified, including self-motivation, openness to change, the ability to recognize knowledge gaps, and active engagement with tutees (Alexander et al. 2022). Additional key attributes include social connectedness, self-development, and strong communication skills (Bailey 2021). These attributes not only enhance peer tutors' effectiveness but also align closely with key leadership competencies, as outlined by Yukl and Gardner (2020).

Peer tutoring programs that emphasize leadership development contribute to the holistic growth of peer tutors, equipping them with lifelong skills (Sabelo et al. 2023). Peer tutors with well-developed leadership skills enhance the tutee experience by forming stronger collaborative bonds, communicating more effectively, and empowering tutees to take ownership of their learning (Malik et al. 2021). Acting as leaders in an undergraduate capacity allows peer tutors to develop skills that extend beyond graduation (Van Diggele et al. 2020). These leadership skills enable peer tutors to work autonomously with accountability,

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collaborate across interdisciplinary and transdisciplinary teams, and contribute effectively within healthcare teams (Van Diggele et al. 2020). This aligns with the CanMEDS Professional Framework, which identifies leadership as one of the abilities required by physicians to effectively meet the healthcare needs of the people they serve (Frank et al. 2015).

Leadership is an influential process through which groups of individuals work collaboratively toward the achievement of shared goals (Kouzes and Posner 2017). Leaders possess the ability to shape and influence the values, attitudes, and behaviors of their followers, consequently, they are capable of garnering and enlisting the support of others to accomplish shared goals (Kouzes and Posner 2017, Malik et al. 2021). Effective leadership is a multifaceted and highly prized component of healthcare education, increasingly recognized as essential for delivering high-quality education, research, and clinical practice (Van Diggele et al. 2020). To address the needs of healthcare in the 21st century, competent leaders will be increasingly vital across all health professions. Accordingly, the inclusion of leadership training and development should be integrated into all health professional curricula. Given these identified gaps and opportunities, this study aimed to determine the impact of mentoring and tutoring on the development of leadership skills in peer tutors.

2 | Methods

2.1 | Design and Population

A single-group pre-test-post-test experimental study design was employed to determine the effects of tutoring and mentorship provided to peer tutors during the course of one academic year. Peer tutors at the institution where the study was conducted were appointed to the peer tutoring position as per the policy of the institution. In total, 24 peer tutors were employed in the Faculty of Health Sciences. Peer-tutors were eligible for participation if they were undergraduate students, participated in the leadership workshop and the tutor training, and completed the pre-test-post-test questionnaires fully. Twelve of the peer tutors provided voluntary informed consent for participation, of which three had to be excluded as they were post-graduate students. Two students did not complete the questionnaires fully, resulting in seven students ultimately being included in the study. The study obtained ethical clearance from the institution's Research and Ethics Committee.

2.2 | Instrument

According to Kouzes and Posner (2017), "...leadership is a relationship between those who aspire to lead and those who choose to follow." The leadership model of Kouzes and Posner (2017) was used as a theoretical framework for this study and it underpins five practices of exemplary leaders as follows: Model the Way: leaders clarify their values and then set the example for others to follow, Inspire a Shared Vision: leaders envision the future and enlist others in a common vision by appealing to their shared aspirations, Challenge the Process: leaders search for opportunities and experiment and take risks, Enable Others to Act: leaders foster collaboration and strengthen others to

act, Encourage the Heart: leaders recognize contribution and celebrate values and victories.

The leadership practices inventory (LPI) is the self-assessment questionnaire developed to measure these five practices (Kouzes and Posner 2017; Posner 2016). It was developed through the integration of qualitative and quantitative research methodologies and studies (Posner 2016). Comprehensive interviews and written case studies, derived from individuals' most effective leadership experiences, informed the conceptual foundation. The actions comprising these practices were then translated into behavioral statements and underwent rigorous, iterative psychometric testing and refinement (Posner 2016). The LPI consists of 30 statements, each associated with one of the six essential behaviors that characterize the five practices of exemplary leadership. Respondents were instructed to rate themselves on a Likert scale from 1 (almost never) to 10 (almost always) for each statement, based on how frequently they engaged in the corresponding behavior. The subscale scores, calculated by summing the relevant items, have a potential range of 6 to 60, generating interval data suitable for analysis.

2.3 | Data Collection Procedure

The data were collected using a pre-test-post-test design. All respondents were asked to complete the LPI self-report questionnaire (Kouzes and Posner 2013) prior to the onset of the intervention. The questionnaire was selected as it is a validated measure to determine the effectiveness of leaders, their level of commitment and engagement, and the satisfaction of those who follow the leaders (Posner 2016). After completion of the questionnaire, respondents were subjected to the following training and tutoring programs.

2.4 | Leadership Development Workshop

A leadership workshop, adapted from the Sigma Theta Tau International Leadership Program, was attended by all respondents. The Sigma Theta Tau International Honor Society of Nursing (Sigma) is a global organization with the vision of connected, empowered nurse leaders transforming global healthcare (<https://www.sigmanursing.org/>). Their mission is to develop nurse leaders anywhere to improve healthcare everywhere. The leadership program is focused on the development of the five practices of exemplary leaders, as described by Kouzes and Posner (2017). The workshop provided an interactive, face-to-face platform for tutors to explore their potential and discuss strategies for developing their leadership skills. It was facilitated by an independent presenter who is well-versed in both the Kouzes and Posner leadership model and the Sigma Theta Tau International Leadership Program.

2.5 | Peer Tutor Training

A 1-day formal tutoring course, offered by the academic institution, was conducted with the respondents to ensure they were well-versed in the general principles of teaching, learning, and tutoring. A second day of training was conducted to ensure that

the peer tutors were proficient in the specific academic and clinical skills content for the particular modules being tutored.

2.6 | Peer Tutor Mentoring

Throughout the course of the study, regular contact between researchers and study respondents was maintained. The aim of the mentoring was to support the peer tutors' development as leaders, communicators, and educators. Leadership development discussions with the peer tutors were conducted on a needs basis and included the provision of feedback, reflection on the peer tutoring experiences, and promotion of leadership development.

2.7 | Peer Tutoring

The peer tutors were employed to assist in the training of undergraduate students from various healthcare disciplines as part of the tutoring program. They were engaged to enhance the learning experience of the tutees and to mitigate the workload of the lecturers. Over the course of one academic year, the peer tutors facilitated numerous sessions for clinical skills and assisted in enhancing the academic performance of the students.

Upon completion of the intervention and multiple peer tutoring sessions throughout the year, all respondents were asked to complete the LPI questionnaire (Kouzes and Posner 2013) again. Results were compared before and after the intervention using descriptive statistics. Cohen's *d* analysis was used to determine the effect sizes of the intervention, per question on the LPI.

3 | Results

Of the seven respondents in the study, five were between the ages of 18–22 years old (71%), and two respondents were older than 22 (29%). The respondents were of varied races and genders, and all students were enrolled in the Bachelor of Medicine and Surgery degree program. Four respondents (57%) were third-year students and three (43%) were fourth-year students during the conduct of the study. Four students indicated that they had previous tutor experience, and three indicated that they were novices. The demographic data of the respondents can be viewed in Table 1.

The LPI questionnaire consisted of 30 questions that were subdivided into the following categories: Model the Way, Inspire a Shared Vision, Challenge the Process, Enable Others to Act, and Encourage the Heart. The questions were analyzed according to the subdivisions of the questionnaire. To determine the effect size of the intervention on the outcome, Cohen's *d* was calculated per question. To determine statistical significance, the *p* value was also calculated per question. The results are displayed in Table 2, and it is evident that mentoring and tutoring for peer-tutors have the largest effect on sub-scale 2 (Inspire a Shared Vision) and sub-scale 3 (Challenge the Process).

4 | Discussion

This study aimed to explore the impact of a mentoring and tutoring intervention on the leadership skills of peer tutors

TABLE 1 | Respondent's Demographic Data.

Characteristics	Variables	Frequency (N = 7)
Age	18–22 years old	5 (71%)
	Older than 22 years	2 (29%)
Race	Black	3 (43%)
	White	4 (57%)
Gender	Female	5 (71%)
	Male	2 (29%)
Nationality	South African	6 (86%)
	Other	1 (14%)
Degree enrolled in	MBChB	7 (100%)
Year of studies	Third year	4 (57%)
	Fourth year	3 (43%)
Experience in previous peer tutoring programs	Yes	4 (57%)
	No	3 (43%)
How many hours per month do you tutor?	Less than 5 h	2 (29%)
	5–10 h	5 (71%)

within a health sciences faculty. The results revealed significant improvements in various leadership competencies, particularly in the sub-areas “Inspire a Shared Vision” and “Challenge the Process” of the LPI questionnaire. These findings align with the broader literature on peer tutoring, which underscores the potential of such programs to foster leadership development alongside academic support (Malik et al. 2021; Sabelo et al. 2023).

One of the most notable findings was the large effect on the sub-scale “Inspire a Shared Vision,” which speaks to leadership competencies such as integrity and ethical leadership, and innovation and change management. The peer tutors demonstrated significant progress in articulating a compelling vision for the future and speaking with conviction about the meaning of their work. These competencies are essential for leaders, as they help to motivate and engage others toward shared goals (Kouzes and Posner 2017; Spangenberg and Roberts 2020; Klingberg et al. 2023). The success of this aspect of leadership development may be attributed to the interactive nature of the leadership workshop, which was specifically designed to foster visionary and future-oriented thinking. The large effect observed in this area suggests that peer tutors who are exposed to leadership development programs that emphasize vision setting and motivation can more effectively inspire their peers and tutees, thus enhancing the overall tutoring experience (Van Diggele et al. 2020).

Similarly, the “Challenge the Process” category showed a substantial effect after the intervention, with peer tutors displaying greater initiative in seeking out challenging opportunities and finding innovative ways to improve their practices. This finding aligns with the work of Musagwa (2023), who emphasizes the importance of leaders actively seeking and managing change. The peer tutors in this study were encouraged to reflect on their practices, try new approaches, and continuously improve, which

TABLE 2 | Effect sizes per question on the leadership practices inventory ($n = 7$).

Question	Post-mean	Pre-mean	Mean standard deviation	Cohen's d	Comment on effect size	CI lower	CI upper	p value
Sub-scale 1: Model the way								
Q1	8.43	8.14	1.07	0.31	Small effect	-0.02	0.64	0.5862
Q6	8.00	7.57	1.13	0.38	Small effect	0.05	0.71	0.3447
Q11	8.29	8.43	0.79	-0.12	No effect	-0.45	0.21	0.8241
Q16	6.86	5.00	2.31	0.79	Medium effect	0.46	1.12	0.2034
Q21	6.71	6.57	1.13	0.11	Negligible effect	-0.22	0.44	0.8501
Q26	7.29	5.71	2.56	0.77	Medium effect	0.44	1.10	0.2807
Sub-scale 2: Inspire a shared vision								
Q2	6.71	4.71	2.29	0.90 ^a	Large effect	0.57	1.23	0.035*
Q7	7.29	5.00	2.45	1.23 ^a	Large effect	0.90	1.56	0.0498*
Q12	6.57	6.43	2.76	0.06	Negligible effect	-0.27	0.39	1
Q17	7.29	5.00	1.91	1.37 ^a	Large effect	1.04	1.70	0.0585
Q22	7.43	7.29	1.38	0.09	Negligible effect	-0.24	0.42	1
Q27	8.57	7.29	1.70	0.92 ^a	Large effect	0.59	1.25	0.0568
Sub-scale 3: Challenge the process								
Q3	8.29	7.57	0.98	0.52	Medium effect	0.19	0.85	0.4982
Q8	7.86	5.43	2.37	1.36 ^a	Large effect	1.03	1.69	0.0498*
Q13	7.00	5.00	1.53	1.27 ^a	Large effect	0.94	1.60	0.0498*
Q18	7.57	6.14	1.21	1.05 ^a	Large effect	0.72	1.38	0.089
Q23	7.71	6.43	1.27	0.97 ^a	Large effect	0.64	1.30	0.1464
Q28	8.43	6.14	2.34	1.28 ^a	Large effect	0.95	1.61	0.0418*
Sub-scale 4: Enable others to act								
Q4	8.86	8.14	1.35	0.67	Medium effect	0.34	1.00	0.4615
Q9	8.71	8.43	0.98	0.32	Small effect	-0.01	0.65	0.5887
Q14	9.00	9.29	0.76	-0.37	Small negative effect	-0.70	-0.04	0.7103
Q19	8.29	7.29	0.76	0.67	Medium effect	0.34	1.00	0.2878
Q24	8.00	8.00	0.58	0.00	No effect	-0.33	0.33	1
Q29	7.71	6.57	2.57	0.60	Medium effect	0.27	0.93	0.3964
Sub-scale 5: Encourage the heart								
Q5	8.71	8.43	1.72	0.20	Small effect	-0.13	0.53	1
Q10	8.00	6.71	1.25	1.14 ^a	Large effect	0.81	1.47	0.0708
Q15	7.43	6.57	2.37	0.43	Small effect	0.10	0.76	0.7981
Q20	6.57	6.57	1.27	0.00	No effect	-0.33	0.33	1
Q25	8.29	5.57	2.07	1.69 ^a	Large effect	1.36	2.02	0.035*
Q30	7.86	6.29	1.89	0.90 ^a	Large effect	0.57	1.23	0.14

Abbreviation: CI, confidence interval.

^a $d \geq 0.8$ indicates Cohen's term d large effect size.

* $p \leq 0.05$ indicating statistical significance.

likely contributed to the observed gains. These leadership behaviors are critical in health sciences education, where innovation and adaptability are vital in addressing complex, evolving patient care challenges (Van Diggele et al. 2020; Bailey 2021; Fagerdal et al. 2022).

In contrast, the intervention showed a more modest effect on the “Model the Way” sub-scale. This could be an indication that the respondents rated themselves highly for setting examples and clarifying beliefs and values, even before the leadership workshop was held and before the tutoring sessions commenced. This is consistent with a previous investigation conducted by Foli et al. (2014), which examined the leadership development of nursing students, with one plausible explanation for the results being that the students had already exhibited a certain level of proficiency in these leadership behaviors.

The intervention also showed a more modest effect on the sub-scale “Enable Others to Act.” Although peer tutors developed cooperative relationships and demonstrated a willingness to listen to diverse points of view, the effect sizes in this area were smaller compared to the other sub-sections. This may suggest that while leadership skills related to motivating others and fostering collaboration are critical, they may require additional focused attention and reinforcement. Future iterations of mentoring and tutoring programs could benefit from incorporating more targeted strategies to enhance communication and collaboration skills, particularly in team-based environments like healthcare (Sabelo et al. 2023; Scandiffio et al. 2024).

The intervention showed a moderate to large impact on the “Encourage the Heart” sub-scale. This last subscale considers the respondent’s tendency to acknowledge the efforts of people and teams and to celebrate values and victories by creating a spirit of community (Kouzes and Posner 2017). The peer tutors made sure to incorporate stories of encouragement about the good work of others and personally recognizing people, and ensuring accomplishments are celebrated. Leaders inspire people to reach their full potential. They value everyone’s contributions, fostering a sense of community by celebrating the team’s accomplishments (Posner 2016).

The study also revealed areas where no significant effects were observed, such as in the items related to “treating people with dignity and respect” and “involving people in decisions that impact their performance.” These results may indicate that some leadership attributes, particularly those related to emotional intelligence and participatory leadership, require more sustained engagement and practice to manifest in peer tutors. It is possible that additional, more intensive mentorship or longer intervention periods may be necessary to elicit changes in these competencies (Shenoy and Petersen 2020; Coronado-Maldonado and Benitez-Marquez 2023; Prummer et al. 2024).

Although the results of this study are promising, it is important to acknowledge certain limitations. The small sample size ($n = 7$) limits the generalizability of the findings, and the study’s design as a pre-test-post-test without a control group introduces potential biases in the measurement of leadership development. Further research with larger, more diverse samples and a more rigorous control design would be beneficial to validate the effects

of mentoring and tutoring intervention on peer tutor leadership development.

5 | Conclusion

This study demonstrated how mentoring and tutoring interventions can significantly enhance the leadership skills of peer tutors, particularly in areas such as Inspiring a Shared Vision and Challenging the Process. These findings suggest that incorporating leadership development into peer tutoring programs can contribute to the holistic growth of peer tutors, preparing them for future roles as leaders within healthcare teams. By continuing to explore and refine strategies for developing leadership in peer tutors, educational institutions can ensure that their tutoring programs not only support academic achievement but also foster the leadership competencies needed for success in dynamic, collaborative healthcare environments.

To optimize leadership training, institutions should consider embedding structured leadership modules within tutoring programs, incorporating reflective practice, and providing continuous mentorship beyond a single academic year. Future research should explore longitudinal effects of leadership training, comparative studies with control groups, and the impact of diverse mentoring styles on leadership development. Additionally, institutions should consider policy revisions that recognize peer tutoring as a formalized leadership pathway, integrating leadership competencies into academic credit frameworks or professional development portfolios. By institutionalizing leadership development within tutoring programs, higher education can better equip future healthcare professionals with the essential leadership skills needed in dynamic, interdisciplinary environments.

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