

Mentors as Graders: Reconsidering the Power Dynamic in Student Assessment

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Abstract

This complete research paper details a study that examined the effects of grading on the power dynamic between near-peer mentors (NPM) and their mentee students. Traditional NPM models, such as Supplemental Instruction (SI) and Learning Assistants (LA), do not allow their mentors (SI Leaders or LAs, respectively) to grade student work to prevent a power dynamic from developing between the students and their mentor, as the mentors do not have any perceived control over student success. At Michigan Technological University, this model did not meet our instructional needs; we needed a role that encompassed both the role of student mentor and teaching assistant, which included a grading component. Our NPMs (called LEAP Leaders) act as an LA as they attend class and assist the students with questions on their in-class activities and assignments. They act as an SI Leader by planning and facilitating an additional help session outside of class. Additionally, they act as a TA by grading their students' assignments.

In surveying our LEAP Leaders, they have reported that having access to their grades increased their ability to help their students. They were better able to plan activities to meet the needs of their students, monitor student progress, and intervene when a student is struggling in the class. With the recommendation of these established programs not to combine grading with other mentoring responsibilities and our own leaders' perceived benefits, we proposed a study to address the research question: what impact does grading have on the relationship and power dynamic between the NPMs and their students?

In the Fall of 2022, we conducted a study to determine the impacts of grading on the perceived power dynamics between the LEAP Leaders and their students across 14 sections of our first-semester, first-year engineering course ($n \approx 240$ students). One group of seven LEAP Leaders performed all standard duties, including grading, while a second group of seven LEAP Leaders shared these same job responsibilities, but did not grade their students' work. Students and LEAP Leaders completed an end-of-semester survey where they were asked to identify the perceived power role of their LEAP Leader or themselves by using an adapted version of the Teacher Power Use Scale (TPUS). Additionally, each group of leaders participated in a focus group where we used a semi-structured interview protocol and deductive coding to identify themes associated with the power dynamics that emerged from each mentor/mentee relationship.

Results indicated no statistically significant difference in how students perceived their LEAP Leader's power, regardless of whether their LEAP Leader was responsible for grading. Students in both groups primarily identified their mentors as utilizing prosocial forms of power: expert power (knowledge), referent power (approachability), and reward power (positive reinforcement). Interestingly, the LEAP Leaders in the grading group reported an increased pressure to maintain professional boundaries and proactively amplified their referent power to counteract their evaluative role. These findings suggest that incorporating grading into NPM roles is a viable instructional model that can enhance a mentor's ability to intervene when students struggle without compromising the essential mentoring relationship.

Introduction/Background

With a shift toward active learning in undergraduate education, near-peer mentors (NPMs) are commonly used in classes to support students as they work through activities. Additionally, near-peer mentors can be more relatable to students and can provide alternative explanations that make more sense to a student than a professor's explanation. They can help to provide a safe and reliable place for students to ask questions or admit confusion, in a "lower stakes" environment than approaching a professor. NPMs serve as both instructional guides and professional role models. They help to create a supportive, psychologically safe space for learning to occur.

The shift toward near-peer supported learning is rooted in several well-established pedagogical models, Supplemental Instruction (SI), Peer-Led Team Learning (PLTL), and the Learning Assistant (LA) model, which all prioritize a non-hierarchical relationship by explicitly removing formal evaluative authority from the mentor's responsibilities. Supplemental Instruction began in the early 1970s at the University of Missouri-Kansas City and became widely used in the mid to late 1990s. In this model, NPMs who have already taken the course and excelled serve as model students, attending class, doing all the readings and assignments along with the students. They then facilitate optional collaborative study sessions where students work together to master difficult material and develop study skills. An important component of the SI program is that SI leaders remain neutral in the course they are leading; they do not grade student work, construct test items, create assignments, serve as a TA, or proctor exams [1].

The Peer-Led Team Learning (PLTL) model developed at the City College of New York in the early 1990s and the Learning Assistants (LA) model developed at the University of Colorado Boulder in the early 2000s incorporated peer mentors into the classroom. The PLTL model has Leaders facilitate workshops required as an integral part of the course where the course instructor develops the problems for the workshop. In many PLTL programs, leaders are not given answer keys in order for students to build confidence through authentic problem solving, allowing for a variety of valid approaches to be explored, and to use debate and discussion to reach conclusions [2]. The Learning Assistants (LA) model was developed in the early 2000s and was designed to support the transformation of large enrollment lectures into interactive environments. In the LA model, the primary role of the learning assistant is to facilitate active learning inside the classroom during the actual lecture or lab session by getting students to explain their thinking to one another during clicker questions or in-class activities [3].

In 2016, we developed a Near-Peer Mentoring program (LEarning with Academic Partners, LEAP) at Michigan Technological University to meet our instructional needs that these traditional models did not fully address. Our LEAP Leaders function as embedded Learning Assistants in our twice-weekly fully-flipped 100-minute studio sessions held in large (72 and 120 student-capacity) active learning classrooms. Our LEAP Leaders also act as SI Leaders, as they plan and facilitate once weekly 50-minute active and collaborative review sessions for their students. Unlike SI sessions, these review LEAP sessions are scheduled into the class meeting time, where attendance is required. Additionally, our LEAP Leaders serve as Teaching Assistants (TAs) and are responsible for grading assignments and reviewing in-class work for their assigned students [4]. While grading may help our LEAP Leaders understand what their students are struggling with, it also introduces a formal hierarchy into the mentoring relationship.

The introduction of grading adds an element of power that may fundamentally alter the mentor-student dynamics. This study utilizes an adapted version of the Teacher Power Use Scale (TPUS) [5] to investigate these dynamics. The TPUS allows researchers to categorize instructional power into two primary dimensions:

- Prosocial Power: Power used to encourage student cooperation and affinity. This includes expert power (competence), referent power (relatability/role modeling), and reward power (positive reinforcement).
- Antisocial Power: Power that relies on pressure or the authority of the position. This includes legitimate power (the “official” title of authority) and coercive power (the ability to penalize).

The goal of this study is to characterize the relationship between LEAP Leaders and their students and how grading affects this perceived power dynamic. By comparing a control group of (non-graders) with an experimental group (graders), we hope to identify whether the responsibility of grading triggers a shift toward compliance-oriented power, or if the prosocial bond inherent in near-peer mentoring remains the dominant influence in the relationship.

Methods

In the Fall of 2022, we performed an approved IRB study in our first-semester engineering class ENG1101: Engineering Problem Solving and Analysis. During this semester, two instructors co-taught three classes (14 sections) of ENG1101 students ($n = 328$) as shown in Table 1. Our classes are taught in an active classroom with 4 or 5 sections meeting twice a week in a large studio session with the LEAP Leaders and instructors and once a week in an SI session with one LEAP Leader and their section of students. A total of 291 students (88.7%) and 14 LEAP Leaders consented to this study. Each section had an assigned LEAP Leader, who all consented to this study. Seven of the LEAP Leaders graded their students’ work in addition to their other job responsibilities (Grading Group), while another seven LEAP Leaders completed all aspects of their position except grading (Non-Grading Group). Separate graders were hired to complete the course grading for the non-grading LEAP Leaders. To reduce the number of confounding variables, these specific sections were chosen to remove differences in the results due to instructor bias. Additionally, we matched our LEAP Leaders in each group based on experience (2 leaders with 2+ years, 2 leaders with <1 year, and 3 new leaders) and gender (6 male and 1 female).

To gather feedback from our students, a survey was given at the end of the semester using an anonymous survey administered through Canvas, our Learning Management System. The survey contained questions from the Teacher Power Use Scale (TPUS) [5]. TPUS is a 30 question likert-type survey that assesses a variety of teaching behaviors and classifies them into five different subscales of power use: coercive power, legitimate power, expert power, referent power, and reward power. This survey focuses on how teacher power is communicated in the classroom and has proved to be a more valid instrument than other measures of teacher power [5]. This survey was adapted to refer to LEAP Leaders instead of teachers (as shown in Appendix 1). For this study, we used the definitions of these subscales shown in Table 2.

Table 1. Study Demographics

ENG1101 Class	Grading Group		Non-Grading Group	
	Sections / Leaders	Students	Sections / Leader	Students
1	3	71	2	47
2	2	46	2	46
3	2	46	3	72
TOTAL	7	163	7	165

Table 2. Teacher Power Subscale Definitions [5, 6]

Power Subscale	Definition	Student Response
Coercive Power	The power of the teacher is based on the student's desire to avoid punishment. The student expects that they will be punished by the teacher if they do not conform to what the teacher asks.	Students respond to what the teacher asks them to do because they want to avoid punishment.
Reward Power	The power of the teacher is based on the student's desire to obtain a reward. The students learn quickly that teachers can give them rewards. Such rewards may involve providing something positive.	Students respond to what the teacher asks them to do because they are motivated to get these rewards.
Legitimate Power	The power of the teacher stems from their assigned role as teacher in the classroom. The student perceives that the teacher has the right to make certain demands and requests as a function of their position as a teacher.	The students do what the teacher asks them because they expect the teacher to have authority over them to decide what they will do in the classroom.
Referent Power	The power of the teacher is based on the desire of the less powerful person (student) to identify with and please the more powerful person (teacher).	The students do what the teacher asks because they admire and identify with the teacher and have a positive regard for them.
Expert Power	The power of the teacher comes from their knowledge of content and expertise as an educator.	Students willingly do as the teacher says because they recognize that the teacher knows more than they do.

To gather feedback from each group of LEAP Leaders, we used both quantitative (survey) and qualitative (focus groups) methods. The survey for LEAP Leaders utilized another modified version of the Teacher Power Use Scale (TPUS) [5], but this version was modified to reflect the expected behaviors of LEAP Leaders (e.g., “How often **should** a LEAP Leader exhibit the following types of behaviors?” versus “How often **does** your LEAP Leader exhibit the following types of behaviors?”). See Appendix 2 for the complete survey.

We held a focus group for each group of LEAP Leaders (grading and non-grading). The focus groups were facilitated by a faculty member experienced in facilitating focus groups, but was not directly connected with our LEAP program. This faculty member recorded and transcribed the focus group audio, which we used in our analysis of this data. Our focus groups used a semi-structured interview protocol. We asked the LEAP Leaders to reflect on their experience preparing for their weekly LEAP sessions, how well they know their students (current knowledge, who needs help), what they would identify as their perceived power role (coercive power, reward power, legitimate power, referent power, and/or expert power), and how they think that this affects their relationships with their students.

Analysis

To analyze the survey results, scores were calculated for each TPUS subscale: coercive power, reward power, legitimate power, referent power, and expert power. If there was missing data for a question within a subscale, that subscale score was not calculated for that student or leader. An independent samples t-test was used to compare LEAP Leader and survey results between LEAP Leader groups (grading vs. non-grading) for students and for leaders. Since there was a small sample size ($n=6$) for each LEAP Leader group, these tests were supplemented with a Bayesian Independent-Samples Normal procedure to generate 95% credible intervals for the differences between the LEAP Leader groups.

The LEAP Leaders were interviewed at the end of the semester using a semi-structured interview format and questioning techniques. The same topics and questions were asked in both the Grading and Non-Grading Focus Groups and the interview responses from these guiding questions for each of the focus groups were recorded and transcribed, in order to streamline the analysis process. While all 14 LEAP Leaders were invited to participate in the focus groups, only two leaders participated in the non-grading focus group (1 leader with 2+ years and 1 new leader) and three LEAP Leaders participated in the grading focus group (1 leader with 2+ years, 1 leader with < 1 year, 1 new leader).

The results were analyzed using inductive, open coding to identify and develop themes identified from the focus groups [7, 8]. The first step in our process was to try to norm our coding techniques. We used a sample interview transcript from the supplemental resources available on the Sage website for Saldaña’s qualitative coding text [8] as a way to compare our initial identification and description of themes. After comparing our initial themes generated by this unrelated sample, it was clear we had similar styles and turned to analyzing our focus group data. Once we were satisfied that we understood the coding process, we independently coded the non-grading focus group transcript and generated our initial codebook, shown in Figure 1. To create this codebook, we wrote out all the initial themes we found and grouped them into four

primary categories (relationship, preparation, being a leader, and grading) - shown in the left column in Figure 1. Some primary categories had additional themes that were related and these became our initial secondary codes (middle column). At this point, we also noticed several themes were emerging beyond the secondary codes and these became our tertiary codes (right column). For example, for our primary theme of preparation, several leaders commented on the resources they used and distinguished if these resources were provided by faculty or other leaders.

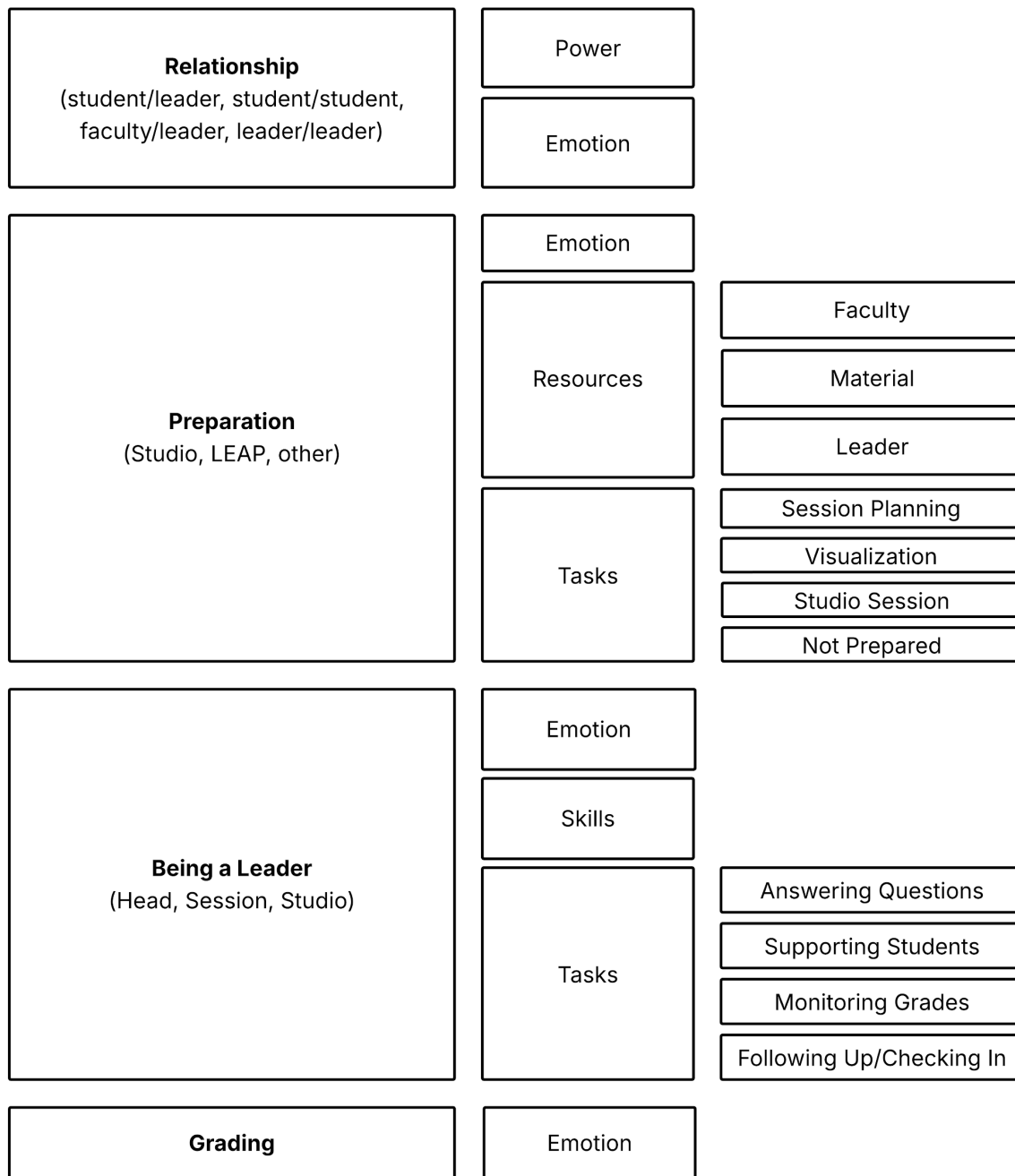


Figure 1. Initial Codebook (Primary codes, Secondary codes, Tertiary codes)

With this initial codebook generated, we used convergent coding to revise and develop our final coding scheme. Two of the authors started to code the grading leader focus group comments using this codebook to test the reliability. Each comment from the focus group was transferred to a spreadsheet and given a distinct number designation (e.g., Comment 1, Comment 2). In total, there were 101 comments made by the LEAP Leaders in the grading focus group. After coding the sample, the reviewers met and talked through 10% of the data and realized that several additional secondary and tertiary codes were needed to describe the data fully. For example, “motivating students” and “running a session” were added as tertiary codes to Being a Leader - Tasks. Additionally, “observational” was added as a tertiary code to Being a Leader - Skills.

We then independently recoded the remaining comments in the focus group. This cycle was repeated with the next 20% of the data where additional items were identified as tertiary codes for “Being a Leader - Skills”: time management and technical skills. Finally, the remaining comments were reviewed and discussed. It was agreed that some of the tertiary codes could be combined. For example, we removed the tertiary codes “answering questions”, “checking in”, “monitoring students”, and “running a session” from Being a Leader - Tasks and combined those with the tertiary code “supporting students.”

To measure the inter-rater reliability between coders, we calculated Cohen’s kappa for each of the codes. Using the guidelines for interpreting Cohen’s kappa recommended by Laerd Statistics [9], all of the primary codes and a majority of the secondary code values demonstrated very good strength of agreement between the two raters (0.81 - 1.000) [9] with the exception of the secondary codes “Being a Leader - Emotion”, “Being a Leader - Tasks”, and “Grading - Ethics” which demonstrated good strength of agreement (0.61 - 0.80) [9]. All of the tertiary codes fell within one of these two categories as well which is to be expected as the codes were developed through the repeating cycles of convergent coding and evaluation. This final codebook along with the inter-rater reliability measures are shown in Figure 2 below.

This final codebook was then used to complete the analysis of both focus group transcripts. The final codebook is organized into the four primary themes: Relationship, Preparation, Being a Leader, and Grading. These codes can then be more specifically classified depending on the context in which it is used. For example, for the relationship theme, LEAP Leaders discussed the relationship between students and LEAP Leaders, students and other students, faculty and LEAP Leaders, and LEAP Leaders and other LEAP Leaders. For this paper, we focused primarily on the first theme (relationship) with respect to the power dynamic that emerged between LEAP Leaders who graded their students' work and those that did not.

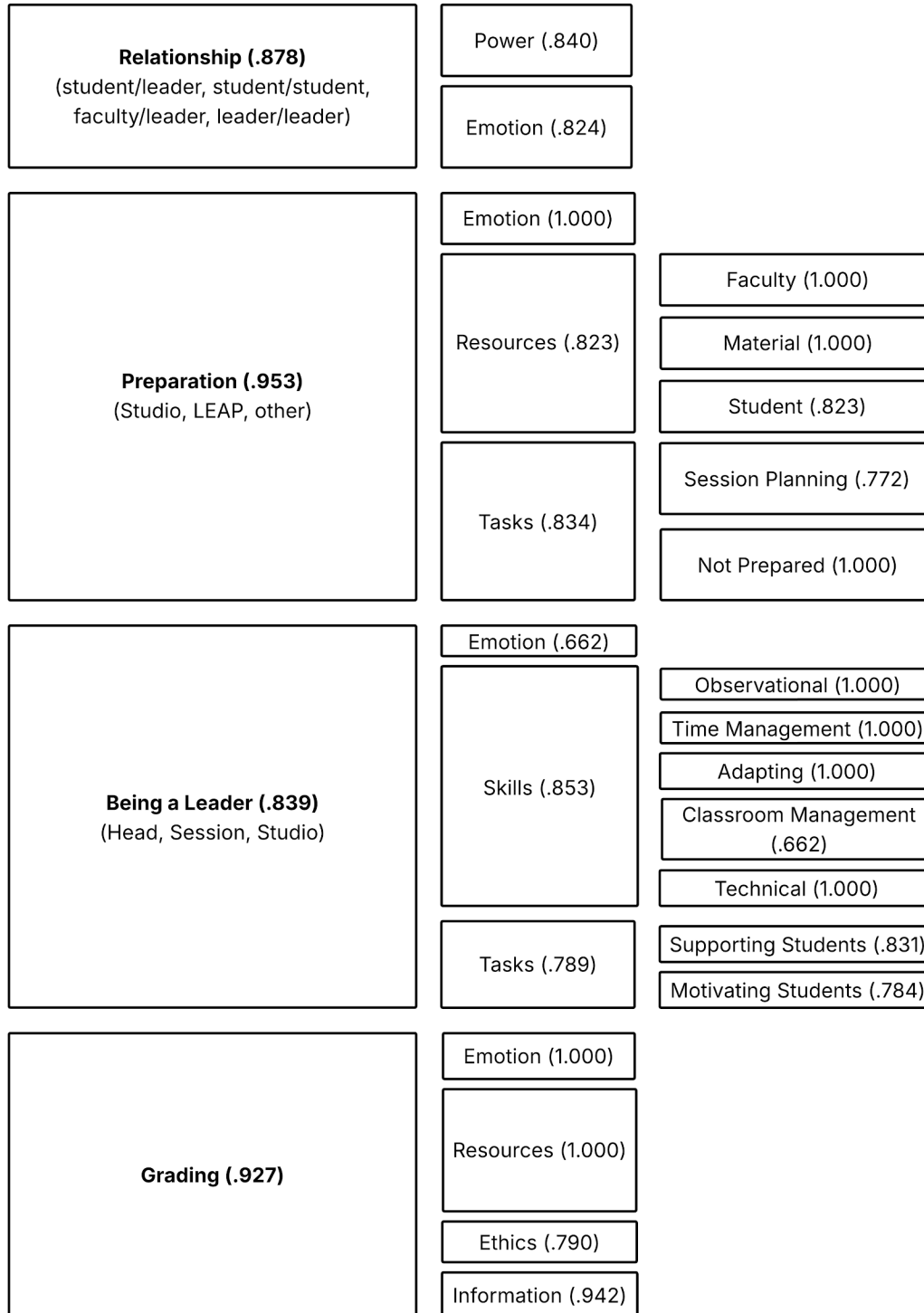


Figure 2. Final Codebook with Inter-Rater Reliability

Results

As stated previously, an independent samples t-test was used to compare LEAP Leader and student survey results between LEAP Leader groups (grading vs. non-grading). The descriptive statistics (average $\pm$ standard deviation) and p values for the first-year engineering students is shown below in Table 3, and for the LEAP Leaders in Table 4. There were no statistically significant differences between the student groups, however, we are able to see a ranking of how the students perceived how the LEAP Leaders demonstrated their power in the classroom by which subscales the students scored the highest. The most common type of instructional power used by both groups was expert power, then referent power, and then reward power. This makes sense as the LEAP Leaders are hired partially because they were successful in the first-year engineering courses, so the students would perceive them as experts of this material. Referent Power also makes sense as the LEAP Leaders are approachable and commonly express interest in their students' well-being and learning. Reward power also makes sense as the LEAP Leaders provide a positive learning environment, feedback, and extrinsic motivation for the students in the SI sessions.

Table 3. TPUS survey t-test results for First-Year Engineering Students

Survey Subscale	Grading Group		Non - Grading Group		p value
	n	Average $\pm$ SD	n	Average $\pm$ SD	
Coercive Power	144	7.056 $\pm$ 2.01	144	7.21 $\pm$ 1.91	0.254
Reward Power	142	23.13 $\pm$ 8.57	142	23.06 $\pm$ 9.06	0.473
Legitimate Power	142	11.54 $\pm$ 5.63	146	11.76 $\pm$ 5.64	0.368
Referent Power	141	32.57 $\pm$ 6.26	144	31.75 $\pm$ 7.14	0.151
Expert Power	141	33.50 $\pm$ 7.07	146	34.25 $\pm$ 5.82	0.163

The analysis of the survey responses completed by the LEAP Leaders indicated a difference in how the grading and non-grading groups prioritized referent power. The leaders in the grading group rated referent power behaviors at a statistically significant higher level than those leaders in the non-grading group. This finding is supported by a 95% Bayesian credible interval of (0.22, 10.78). Because the interval is positive and does not contain zero, there is a high probability that grading mentors intentionally emphasize building a relationship with their students. Perhaps the LEAP Leaders in the grading group felt they needed to work harder to demonstrate their approachability and concern for the student's wellbeing while grading their work or they felt that they did these things at a higher level because they were in the grading role. With the small number of LEAP Leaders in this sample, it is difficult to draw concrete conclusions on these results, but looking at the focus group results may shed additional light on this subject.

Table 4. TPUS survey t-test results for LEAP Leaders

Survey Subscale	Grading Group (n = 6)	Non-Grading Group (n = 6)	p value	95% credible interval
Coercive Power	7.17 ± 1.60	8.33 ± 1.51	0.223	(-3.17, 0.83)
Reward Power	23.67 ± 3.78	20.67 ± 5.89	0.318	(-3.36, 9.36)
Legitimate Power	13.33 ± 2.34	12.00 ± 2.65 ^a	0.398	(-2.06, 4.73)
Referent Power	37.33 ± 3.83	31.83 ± 4.36	0.043	(0.22, 10.78)
Expert Power	29.83 ± 3.19	26.80 ± 1.30 ^a	0.079	(-0.43, 6.50)

^a Only 5 LEAP Leaders responded to all questions in this subscale

We had only intended to compare quantitative results between the students in each group and the leaders in each group. However, after the semester was completed we did complete an ex-post facto independent samples t-test analysis to compare the TPUS subscale results between the students and LEAP leaders. We did find a significant difference in the results on the Expert Power subscale ($p = 0.006$). In general, the students (33.89 ± 6.46) felt that their LEAP Leaders demonstrated this power scale more strongly than the LEAP Leaders felt they should (28.45 ± 2.88). There could be several reasons for this. The students could genuinely see the LEAP Leaders as experts as they were successful in the class, whereas the LEAP Leaders may realize what they still are learning and what they don't know. Another reason could be the timing of the survey. This survey was completed at the end of the semester after an entire semester of the students and mentors working together. At that time, the students were particularly aware of all the help they received from their LEAP Leader throughout the semester.

The focus group data adds additional insight on the LEAP Leader's perceptions of the power dynamic in the classroom. As mentioned previously, for this paper, we focused on the first theme (relationship) with respect to the power dynamic that emerged between LEAP Leaders who graded their students' work and those that did not. Table 5 shows some select quotes from the focus group transcripts from each LEAP Leader group that demonstrate these perceived power dynamics. While both groups mainly focus on expert, referent, and reward power, certain themes are emphasized more intensely depending on the group.

Particularly in the Grading Group, relationship-building situations described by the LEAP Leaders consistently alluded to referent power. Multiple instances in the grading group expressed explicit desire to not be perceived as an authoritarian figure to their students, as they strive to remain as approachable as possible while providing assistance. Additional actions demonstrated by the LEAP Leaders in this group further show referent power as they take personal interest in the well-being of their students, even outside of the classroom and in the following semesters. In the Non-Grading Group, LEAP Leaders have more minimal regard to referent power and more often describe instances of expert power. They often reference their past experiences and knowledge when assisting their students and this aspect is mentioned as a key factor in the relationship between student and LEAP Leader.

Table 5. Selected Focus Group Comments (Coded as Relationship - Power)

Main Power Types	Grading Group (n = 3)	Non-Grading Group (n = 2)
Expert Power	“...I think that that <u>relationship with them first should always be professional.</u> ”	“I viewed my [LEAP Leaders] <u>as my friends</u> , but also they <u>were like a mentor</u> . Both of mine were like fourth or fifth years. They had a lot of experience under the belt, so I trusted them a lot.
	“But like during class, I try not to get... too close of a relationship with them just because like, <u>I do need to keep that professional relationship going and not just have the friendship going.</u> ”	“I had the knowledge and they knew that, but I think it was because we were closer in age that they wanted to be my friend and they wanted me to view them positively... so <u>there wasn't like the I'm above you</u> , but they still respected that I was like making the decisions in that sense.”
Referent Power	“I was explaining the activity they were gonna do and I made a big mistake and it confused a lot of people... The biggest thing is I admitted I was wrong. <u>I don't want to try to be like an authoritative figure.</u> ”	“I was like the, the TA for the group, but we're still like friends and <u>this isn't like a I'm above you</u> , like I'm here to help you sort of thing.”
	“ <u>It's a very fine line in between friendship and an instructor point of view.</u> And one of the first things I preface... at the beginning of the year was... I am not your friend, now on our last Friday [LEAP] session... it is a completely different thing because now I have no longer control over anything that happens.”	“I'm close enough to them that they can still like rib into me and be normal college students and <u>not be worried about being professional.</u> ”

Discussion

The results of this study suggest that incorporating grading responsibilities into the NPM role does not negatively impact the student to NPM relationship, challenging the traditional grading

restrictions recommended by SI and LA models. The lack of statistical difference in student perception across all five power subscales indicates that students do not view their LEAP Leaders as more authoritative or punitive simply because they grade assignments.

Students in both the grading and non-grading groups primarily identified their LEAP Leaders as utilizing expert and referent power, followed by reward power. This is significant as these prosocial forms of power are associated with positive educational outcomes and high student satisfaction [5]. The data suggests that students perceive their LEAP Leaders primarily as “mentors”, regardless of whether those LEAP Leaders also hold the title of “grader”. By leaning into their personal rapport (referent power) and positive reinforcement (reward power), LEAP Leaders effectively create a “low-stakes” and psychologically safe environment for their students. This confirms that the instructional need for graders at our university does not inherently force mentors to rely on the antisocial (coercive or legitimate power) that the SI and LA models seek to avoid.

Interestingly, LEAP Leaders also rated the prosocial forms of power more highly than the antisocial forms. While both study groups prioritized referent power, the grading LEAP Leaders rated referent power statistically higher than the non-grading group. This suggests the grading LEAP Leaders likely feel increased pressure to be approachable and liked to counterbalance the formal authority of their grading role. By proactively putting in extra effort to build rapport with their students, the grading LEAP Leaders prevent coercive or legitimate power dynamics from dominating the relationship.

Another interesting finding is that the student ratings of expert power are much higher than the LEAP Leaders' ratings. While the LEAP Leaders in the focus groups expressed humility or even “imposter syndrome” regarding their content knowledge, students trust in their leader’s knowledge as their LEAP Leader was successful in the course.

While student perceptions remained consistent regardless of whether the LEAP Leader was grading or not grading, the focus group data reveals the LEAP Leaders’ personal experiences were shaped by their specific roles, with the mentors essentially performing two different versions of the same job. For example, a leader in the grading group described their relationship with their students as needing to “always be professional,” whereas a leader in the non-grading group details “not be[ing] worried about being professional” when engaging with their students.

These opposing descriptions provide an interesting insight into the perceived power dynamics between student and mentor from a leader perspective. It is evident that leaders in the grading group recognized this additional layer to the relationship and power dynamic, thus drawing attention to the need to maintain a mainly professional relationship. On the other hand, perhaps leaders in the non-grading group felt that they were closer to the same status as their students when not given the power over a student’s grade, which would allow them to pursue a more personal and friendly day-to-day relationship, rather than emphasizing professionalism. Regardless of these oppositions, the lack of statistically significant differences in how the students in the grading and non-grading groups viewed their leader’s power suggests that having a mentor involved with the grading process does not harm nor interfere with the mentoring

relationship, which directly counters the recommendations of other near-peer mentoring programs like SI and LA.

Limitations

While this study provides valuable insight into the role of NPMs grading, several limitations should be considered. First, the qualitative findings are based on a relatively small sample size with only five of the 14 LEAP Leaders participating in the focus group. While their experiences provided insight, they may not represent the perspective of all our LEAP Leaders. Second, the LEAP Leader version of the TPUS was modified to reflect the expected behaviors of LEAP Leaders (e.g., “How often **should** a LEAP Leader exhibit the following types of behaviors?” versus “How often **does** your LEAP Leader exhibit the following types of behaviors?”). This may change the predictive validity of the modified survey. Confirmatory factor analysis should be completed with this new wording to determine if this changes the model or its predictive ability.

Conclusions

This study examined the effects of grading on the power dynamic between near-peer mentors (LEAP Leaders) and their mentee students. By separating the grading role from the leader role, we were able to compare the results of the power dynamic and the relationship between the mentor and mentee in a first-year engineering course. The lack of statistical difference in student perceptions across all five power subscales indicates that students do not view their LEAP Leaders as more authoritative or punitive simply because they grade.

Students in both the grading and non-grading groups identified three main types of power exhibited by the LEAP Leaders in their classroom: expert power, referent power, and reward power. These prosocial forms of power are all appropriate for a student mentor, as you would expect a mentor to be knowledgeable about the course topics, build a positive relationship with the students, and motivate the students to complete the course content. This suggests that students see their LEAP Leaders primarily as “mentors” regardless of whether their LEAP Leader also had some control over their grade.

This matches the leader’s impressions from the focus groups. The leaders in both groups felt they were positively perceived as a friend, an older sibling, or as a mentor by their students and as knowledgeable about the course content. All of these are helpful in building a positive learning environment for the first-year engineering students. There was some pressure from the students in the grading groups on the leaders to potentially adjust their grades to benefit the students, which the leaders did note, and we need to acknowledge. This adds a layer of pressure on leaders who grade to maintain their professionalism and academic integrity. Based on these results, it seems that having our LEAP Leaders grade as well as mentor these students does not result in any perceived statistically significant differences in the power dynamic between the students and mentors.

References

- [1] University of Missouri-Kansas City, "Supplemental Instruction (SI) Faculty & Staff Resources," Academic Support and Mentoring. [Online]. Available: <https://www.umkc.edu/asm/supplemental-instruction/si-faculty-staff-resources.html>. Accessed: Jan. 21, 2026.
- [2] A.E. Dreyfuss, Ed. "A short guide to the practice of peer-led team learning." The Peer-Led Team Learning International Society. June 2021. [Online]. Available: <https://pltlis.org/wp-content/uploads/2021/05/Short-Guide-to-Practice-PLTL-2021.pdf>. Accessed: January 21, 2026.
- [3] V. Otero, S. Pollock, and N. Finkelstein, "A physics department's role in preparing physics teachers: The Colorado learning assistant model," *Am. J. Phys.*, vol. 78, no. 11, pp. 1218–1224, Nov. 2010.
- [4] A. Kemppainen, A. Hamlin, and N. Manser. "Supplemental Instruction in a First-Year Engineering Course: A study from the Learning with Academic Partners (LEAP) Program." In 2018 IEEE Frontiers in Education Conference (FIE), pp. 1-6. IEEE, 2018.
- [5] P. Schrodtt, P. L. Witt, and P. D. Turman. "Reconsidering the measurement of teacher power use in the college classroom." *Communication Education* 56, no. 3 (2007): 308-332.
- [6] L. Magwa. "Power in the Classroom and Pupil's Achievement in Secondary Schools: the Case of Masvingo District, Zimbabwe." *International Journal of English and Education* vol. 5, no. 2. April 16.
- [7] Merriam, S. B., & Tisdell, E. J. *Qualitative research: A guide to design and implementation*. John Wiley & Sons. 2015.
- [8] J. Saldaña. *The Coding Manual for Qualitative Researchers*. 4th ed. London, England: SAGE Publications. 2023.
- [9] Laerd Statistics. Cohen's kappa using SPSS Statistics. Statistical tutorials and software guides. Retrieved from <https://statistics.laerd.com/>. 2026

Appendix 1. Adapted Teacher Power Use Scale (TPUS) (for students) [5]

The following questions are multiple choice questions with the following response options:
 1 = Never, 2 = Rarely, less than 10% of the time, 3 = Occasionally, in about 30% of the time,
 4 = Sometimes, about 50% of the time, 5 = Frequently, about 70% of the time, 6 = Usually, about
 90% of the time, 7 = Always

Scale	Items
Coercive Power	How often does your LEAP Leader exhibit the following types of behaviors? • When students do not perform at an acceptable level, my LEAP Leader embarrasses them in front of the class • My LEAP Leader belittles or puts down students if they do not perform up to expectations • If students question or challenge course policy, my LEAP Leader responds by acting dominant or dictatorial • My LEAP Leader punishes students who do not follow his/her instructions • My LEAP Leader glares at students who misbehave in class • When students turn in assignments late, my LEAP Leader puts them on a guilt trip
Reward Power	How often does your LEAP Leader exhibit the following types of behaviors? • My LEAP Leader rewards the class for complying with his/her requests • When a student demonstrates mastery of the course material, my LEAP Leader commends and affirms the student • When a student performs well in the course, my LEAP Leader gives him/her recognition in class • My LEAP Leader publicly recognizes students who exceed expectations in course performance • When a student follows my LEAP Leader's instructions, he/she receives compliments or praise from the LEAP Leader • When students perform well, my LEAP Leader becomes more flexible and willing to negotiate details like assignment deadlines
Referent Power	How often does your LEAP Leader exhibit the following types of behaviors? • My LEAP Leader demonstrates commitment to the class by being authentic and genuine when interacting with students • I find myself identifying with my LEAP Leader because we have a lot in common • My LEAP Leader builds rapport with the class by relating to students in an open and approachable manner

	• I feel that my LEAP Leader and I are "on the same page" • I see things from my LEAP Leader's perspective • I feel that I can relate to my LEAP Leader as a person because of the personal stories and illustrations he/she shares with the class
Legitimate Power	How often does your LEAP Leader exhibit the following types of behaviors? • My LEAP Leader demonstrates that he/she considers the position of LEAP Leader to be superior to that of a student • My LEAP Leader acts as though students ought never to disobey a LEAP Leader or fail to comply with LEAP Leader requests • My LEAP Leader uses his/her position as LEAP Leader to maintain complete and total control of the classroom • My LEAP Leader relates to students in ways that are formal and distant • My LEAP Leader says things like, "If you don't like the course policies, you can always drop this class and take a different one" • My LEAP Leader makes it clear that his/her decisions and policies will be backed by the course instructor.
Expert Power	How often does your LEAP Leader exhibit the following types of behaviors? • My LEAP Leader's lectures are clearly organized and well delivered • My LEAP Leader discusses current theory and research in class • I can tell my LEAP Leader really knows how to teach this course by the way he/she organizes the class and delivers instruction • When my LEAP Leader discusses course information, I can tell he/she is a credible source in the content area • I can tell by the way my LEAP Leader speaks with the class that he/she is an expert in the content area of the course • My LEAP Leader communicates in ways that demonstrate advanced knowledge/expertise in the content area of the course

Appendix 2. Adapted Teacher Power Use Scale (TPUS) (for leaders) [5]

The following questions are multiple choice questions with the following response options:

1 = Never, 2 = Rarely, less than 10% of the time, 3 = Occasionally, in about 30% of the time,

4 = Sometimes, about 50% of the time, 5 = Frequently, about 70% of the time, 6 = Usually, about 90% of the time, 7 = Always

Scale	Items
Coercive Power	How often should a LEAP Leader exhibit the following types of behaviors? • When students do not perform at an acceptable level, the LEAP Leader embarrasses them in front of the class • The LEAP Leader belittles or puts down students if they do not perform up to expectations • If students question or challenge course policy, the LEAP Leader responds by acting dominant or dictatorial • The LEAP Leader punishes students who do not follow their instructions • The LEAP Leader glares at students who misbehave in class • When students turn in assignments late, the LEAP Leader puts them on a guilt trip
Reward Power	How often should a LEAP Leader exhibit the following types of behaviors? • The LEAP Leader rewards the class for complying with their requests • When a student demonstrates mastery of the course material, the LEAP Leader commends and affirms the student • When a student performs well in the course, the LEAP Leader gives them recognition in class • The LEAP Leader publicly recognizes students who exceed expectations in course performance • When a student follows the LEAP Leader's instructions, they receive compliments or praise from the LEAP Leader • When students perform well, the LEAP Leader becomes more flexible and willing to negotiate details like assignment deadlines
Referent Power	How often should a LEAP Leader exhibit the following types of behaviors? • The LEAP Leader demonstrates commitment to the class by being authentic and genuine when interacting with students • The LEAP Leader finds common ground with students • The LEAP Leader builds rapport with the class by relating to students in an open and approachable manner • The LEAP Leader explains their perspective.

	• The LEAP Leader shares personal stories and illustrations with the class
Legitimate Power	How often should a LEAP Leader exhibit the following types of behaviors? • The LEAP Leader demonstrates that they considers the position of LEAP Leader to be superior to that of a student • The LEAP Leader acts as though students ought never to disobey a LEAP Leader or fail to comply with LEAP Leader requests • The LEAP Leader uses their position as LEAP Leader to maintain complete and total control of the classroom • The LEAP Leader relates to students in ways that are formal and distant • The LEAP Leader says things like, "If you don't like the course policies, you can always drop this class and take a different one" • The LEAP Leader makes it clear that their decisions and policies will be backed by the course instructor.
Expert Power	How often should a LEAP Leader exhibit the following types of behaviors? • The LEAP Leader's lectures are clearly organized and well delivered • The LEAP Leader discusses current theory and research in class • The LEAP Leader demonstrates that they are a credible source of information • The LEAP Leader is an expert in the content area of the course • The LEAP Leader communicates in ways that demonstrate advanced knowledge/expertise in the content area of the course