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Analysis of Instructor Comments on Student Performance on Selected Assessment Activities in a Patient/Client Management Course

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Abstract

Purpose: Studies have shown that specific instructor feedback on student performance enhances student learning. Supervised practice opportunities such as pro-bono clinics during didactic portions of the curriculum allow faculty supervisors to provide specific comments on skill, decision-making, communication, efficiency, safety of practice and clinical reasoning. Use of learning management systems (LMS) can facilitate the feedback process by providing a simple and easily accessible repository of information for both faculty supervisors and students. The purpose of the study was to organize and analyze faculty comments on selected assessment activities to generate trends that can inform student performance and suggest course changes to improve course learning outcomes.

Method: Pairs of students provided pro-bono physical therapy sessions for six weeks as part of a patient/client management class in neurological physical therapy. Faculty supervisors contemporaneously provided comments on student performance using a pre-determined grading rubric for each pro-bono session. The comments were coded and analyzed to generate trends related to student performance and to inform the faculty on the frequency and nature of the comments provided.

Results: Eighteen (18) pairs of students performed 108 physical therapy sessions on 18 volunteer participants over a six-week period. There were 830 comments from the six faculty supervisors, averaging 38 comments per supervisor and eight comments per student pair per session. There was an equal number of comments on areas of strength as there were on areas of improvement. Very few comments were made that encouraged the student to reflect on their performance. Comments related to improvement on safety significantly decreased as the sessions progressed. In terms of clinical reasoning strategy, majority of comments were about procedural reasoning.

Discussion/Conclusion: Review of faculty supervisor comments appear to add value to the overall course assessment and student learning. There is a need to provide more comments that guide the students to self-assess their performance. Continued close monitoring and feedback by the faculty supervisors may have resulted in better student performance as reflected in the decline of the number of comments related to areas needing improvement as the sessions progressed. Having the faculty provide more written comments will further deepen the value of the feedback provided to the students.

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1. Introduction

There is strong evidence to support the use of instructor feedback on student performance in enhancing student learning.^{1–4} Best practice in education also supports the use of student self-assessment of performance through critical self-reflection to enhance learning in the health professions.^{5–8} Self-reflection assignments and instructor feedback are common assessment methods employed by instructors in health care professions, both in didactic and clinical education. In the didactic portion of a student's education, these evaluative methods can be administered during practical examinations or in patient-practitioner (student-patient) clinical encounters in pro bono clinics.⁹ In these settings, the ultimate goal of the learning activities is to develop students who will be competent, confident, safe and effective clinicians.¹⁰ Specific comments on performance, clinical reasoning, decision-making, communication, efficiency and safety of practice are expected to guide the students in improving performance in the practical (“hands-on”) portions of the course, and ultimately to be practice-ready in the clinical setting.^{11,12} Allowing the students opportunities to reflect on their own performance also supports self-efficacy to constantly improve their practice.¹³

Healthcare educators must then find opportunities to provide these comments and allow the students to reflect in a manner and format that will facilitate efficient and effective learning within time constraints. Feedback given face-to-face is always ideal but requires significant time commitment from all parties, which may not always be feasible. The use of learning management systems (LMS) could make this task easier for both students and faculty, as this environment provides a structured, efficient and accessible repository of information that can be accessed by both parties asynchronously. In this setting, the faculty member is able to contemporaneously grade the students' performance using a pre-created rubric, in addition to providing written or recorded verbal comments, related either to the specific assessment areas, or in any other pertinent assessment themes. From the perspective of the students, allowing them to comment on their performance within the LMS also provides them the opportunity to reflect on their decisions and actions to identify strong areas, and areas needing improvement. When used in conjunction with abbreviated face-to-face sessions, faculty comments allow for a more structured discussion of strong points and opportunities for further growth. This is of particular

importance in the current educational environment where in-person contact may be limited.

Another advantage is that faculty could also control when the feedback is released. Students are better able to better assess their performance when they are given some time to reflect before the comments are made available.

When analyzed carefully, these comments and reflective pieces can also be used for the scholarship of teaching and learning¹⁴ as they can inform the faculty on student performance, and important aspects of the course that need to be retained and areas needing future improvement.

The purpose of the study is to organize and analyze the faculty comments on selected assessment activities to generate trends that can additionally inform the faculty on student performance and suggest course changes to improve student outcomes.

This qualitative analysis was expected to uncover valuable information that will not otherwise be generated by only assessing the generated grades for each of the assessment activities. If found successful, this study could provide a template for other healthcare educators of an additional assessment strategy that could be examined to support the goal of educating competent healthcare practitioners.

The study aims to generate trends in the instructor comments of student performance during a six-week supervised pro bono clinic. The following specific aspects were analyzed: (1) The proportion of comments that call for improvement compared to comments that praise the student for doing something well; (2) The proportion of comments pertaining to patient overall management compared to those specific to the evaluation procedures performed; (3) Proportion of comments related to efficiency of practice, reasoning, skill, communication, safety, body mechanics and others; and (4) Proportion of comments related to each of the clinical reasoning strategies (5) The nature and type of feedback provided in the comments.

The selected assessment areas are important in effective patient/client management. A future clinician must have good diagnostic skills to identify and prioritize the most important patient problems that will guide the development of negotiated goals and plan of care. Highly developed psychomotor skills are important in professions such as physical therapy, so close mentoring of the students during their developmental stage of acquiring these skills will set them for success in the clinical environment. Effective communication and safety are also hallmarks of effective patient encounters and feedback regarding those areas are

important to strengthen the foundations of clinical practice. Efficiency in practice is important in optimizing quality care while considering limitations in time and resources.

Clinical reasoning is defined as the processes related to thinking and decision-making in clinical settings.¹⁵ In the context of evidence-based practice, clinical reasoning occurs when the clinician-practitioner interacts with the patient and their caregivers, then collaboratively develop goals and plans of care based on the available data and evidence, the clinician's knowledge and expertise and the patient's values and preferences.¹⁵ The use of clinical reasoning strategies in pedagogy allows for the faculty and student to have a consistent language by which they could assess performance, thereby enhancing understanding and communication. Table 1 shows the summary of clinical reasoning strategies used in the course.

2. Methods

2.1. Setting

This study was conducted in a physical therapy program in a private university with a mission and focus on educating future healthcare practitioners. The program accepts 36 students in a three-year program leading to a Doctor of Physical Therapy degree. The students involved in the study were in their second year of the program, and were enrolled in a class on the management of patients and clients with neurological conditions. They have completed two orthopedic

patient management courses in the previous year. The students have used clinical reasoning strategies to self-assess their performance in the previous three semesters prior to this course.

Part of the current course requirements was a six-week pro-bono clinic where community volunteers with neurological disorders undergo six physical therapy sessions with the students providing the physical therapy examinations and interventions, under the supervision of program faculty.

2.2. Design

The study was primarily a review and an analysis of de-identified comments of the faculty instructors on student performance during the six-week pro-bono clinics. These comments were typed contemporaneously while students were performing the patient encounter, using a pre-established grading rubric uploaded on the course's LMS.

2.3. Participants and procedures

The participants were thirty-six second year doctor of physical therapy students who provided pro-bono physical therapy clinic services as part of a neurologic patient/client management course, and six faculty members who served as supervisors for this clinic. Students were assigned in pairs to provide these sessions, under the supervision of licensed physical therapists who were faculty members of the program (supervisors). The six-week sessions were configured

Table 1
Clinical reasoning strategies employed in the course.

| Clinical Reasoning Strategy ¹⁵ | Definition |
|---|---|
| Diagnostic reasoning | The student's ability to generate a physical therapy diagnosis by identifying the presenting impairments, activity limitations and participation restrictions, and the effect of contextual factors (personal and environmental) in the development of this diagnosis |
| Procedural reasoning | The student's ability to generate, develop and execute the treatment procedures leading to optimal outcomes |
| Narrative reasoning | The student's ability to articulate and understand the patient's perspective regarding his/her condition; understanding the "patient's story" |
| Ethical reasoning | The student's ability to consider ethical and practical dilemmas that affect the plan of care |
| Interactive reasoning | The student's ability to establish rapport with the patient and his/her caregivers to optimize care |
| Collaborative reasoning | The student's ability to work with the patient and his/her caregivers to develop negotiated goals and plan of care, including progression of interventions |
| Predictive reasoning | The student's ability to actively envision and evaluate future scenarios and the results and consequences of the negotiated choices |
| Teaching as reasoning | The student's ability to develop and implement interventions related to patient education and assessing the outcomes of these interventions |

as follows: week 1: examination; weeks 2–5: intervention; week 6: re-examination and development of a home program. Grading rubrics were developed for each session and integrated within the LMS environment. The supervisors were expected to type written comments for each of the assessment areas. There is another box for “overall comments” at the end of each grading session, where the supervisors can comment on any other areas related to clinical performance.

Prior to the start of the clinic, faculty members met as a team to discuss the grading rubrics with the intent of being as consistent as possible with grading. At the end of each session, faculty members debriefed about the session, resolved any issues related to student performance and grading, and updated their grading and comments as needed.

A research assistant (RA) was assigned to this study. This person was given access to the course in the LMS site. The RA generated a master list of the students with assigned student codes, and the names of the supervisors and their supervisor codes. This master list was kept separate from the other data collection materials.

The RA compiled all the completed grading rubrics, copied, and pasted each supervisor comment for each student for each activity throughout the duration of the pro-bono clinic, using a comments collection form. This form contained the following coded information: (1) assessment activity (Session 1–6), (2) student code, (3) supervisor code and (4) supervisor comment.

Whenever appropriate, the RA redacted specific names or identities that were found in the comments.

The lead researcher was not part of the faculty pro-bono clinic supervisors but was the instructor of record for the course. Each de-identified comment was reviewed by the lead researcher, and then coded according to the following:

1. Nature of the comment: area or strength versus area of improvement
2. Feedback type: guiding or comment intended for the student to reflect on performance versus direct, specific comment
3. Feedback area: efficiency; reasoning; skill; communication; safety; body mechanics; others
4. Clinical reasoning strategy: diagnostic; narrative; procedural; interactive; collaborative; teaching; predictive; ethical

2.4. Ethics

Ethical approval for this study was obtained from the Institutional Review Board of the host institution.

2.5. Data analysis

Tables and graphs which reflected actual counts or percentages were generated based on the categories. Cross-tabulations were also performed to elicit trends as necessary. For example, comments related to areas of improvement were cross-tabulated according to

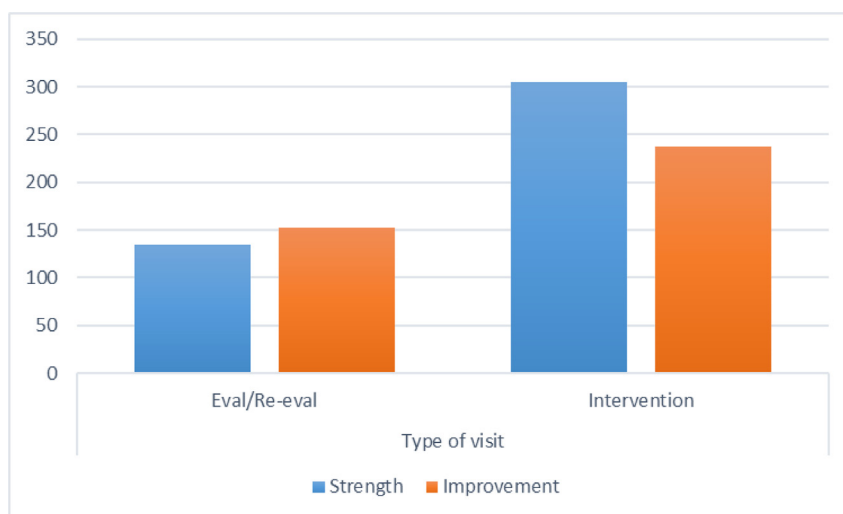


Fig. 1. Types of comments according to visits.

clinical reasoning strategies to identify the proportion of positive and negative comments in relation to each strategy.

3. Results

There were 18 pairs of students who performed a total 108 physical therapy sessions on 18 volunteer participants over six weeks. There were 830 comments from six faculty supervisors, averaging 138 comments (range: 68–188) per supervisor per session, and eight comments per student pair per session. Regarding the comments provided, 440 (53%) were related to strong performance of the students, while 390 (47%) of the comments were on areas of improvement. There were very few comments (47 comments or 6%) that were written to guide the students or to encourage self-reflection compared to the majority of the comments written based on direct observation of performance (783 comments or 94%).

There were more documented comments on intervention activities (543 comments or 65.4%) compared to examination/re-examination (287 comments or 34.6%). The proportion of comments pertaining to improvement needed was higher in the sessions that involved examination or re-examination of participants (53%). In contrast, there was a higher proportion of comments indicating strength of performance during intervention sessions (56%) (Fig. 1).

In terms of the feedback areas, majority of the comments (both positive and negative) were on communication (29%), skill (24%) and efficiency (25%). There was a higher proportion of positive comments given on efficiency (61%), communication (71%) and body mechanics (57%), while there was a higher proportion of comments on areas of improvement in reasoning (61%), skill (56%) and safety (68%) (Fig. 2).

In relation to clinical reasoning strategies, there were significantly more comments on both strengths and weakness related to procedural reasoning (76%). A higher proportion of positive comments was noted on collaborative reasoning (68%), teaching as reasoning (61%) and procedural reasoning (51%). There was a higher proportion of comments related to improvements needed in diagnostic reasoning (69%) than any other clinical reasoning strategy (Fig. 3). There were no comments given on narrative reasoning and ethical reasoning.

In terms of the amount of feedback related to the sessions, there were more comments provided during Session 1 (Examination) (22.7%). The total number of comments per session steadily decreased as the sessions progressed, from 19.2% (of all comments) in Session 2–12.5% in Session 6. There was a higher proportion of comments on areas of improvement compared to strong performance in Sessions 1 (62%) and 2 (50.3%). The proportion of positive feedback

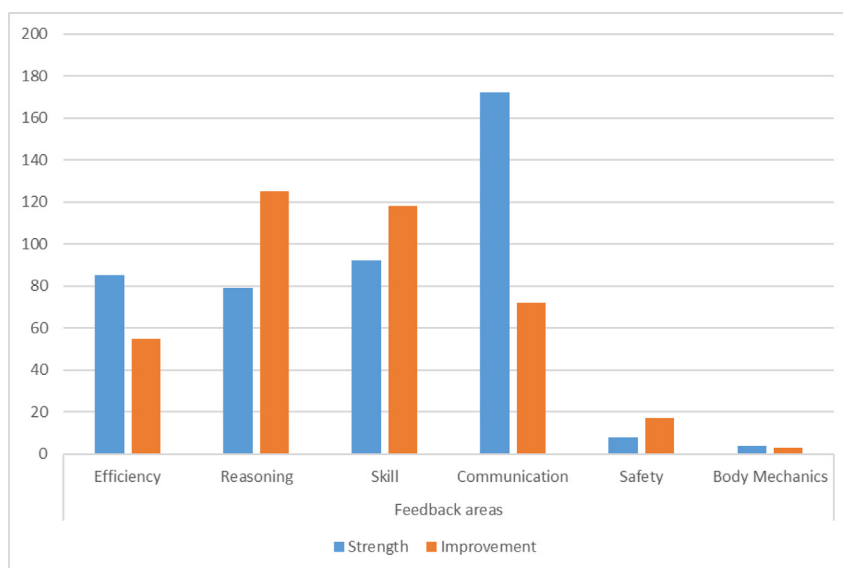


Fig. 2. Number of comments according to the feedback areas.

was greater compared to areas of improvement in Session 3 (61%), Session 4 (54%), Session 5 (62%) and Session 6 (64%) (Fig. 4).

An important area of practice is safety. In terms of feedback related to this area, Sessions 1 and 2 showed a greater proportion of comments related to improvement needed compared to strong performance. During Session 1, one-third (33%) of the pairs required a comment related to improvement in their performance. However there were no comments pertaining to improvement needed related to safety from Sessions 4–6 (Fig. 5).

Efficiency is another important area of practice. The students in general had more documented comments related to efficiency during Sessions 1 (63%) and 2 (60%) but this significantly improved beginning in Session 3 (72%) up to Session 6 (71%) (Fig. 6).

4. Discussion

This study analyzed instructor comments on selected clinical-based activities in a neurologic patient/client management course. Results of the study can provide insights that can further strengthen the use of instructor feedback to facilitate student learning.

Contemporaneous feedback is valuable to student learning when: (1) it is a product of direct observation (supervision of students); (2) presented in a supportive and timely manner; (3) configured to facilitate critical self-reflection and problem solving; (4) presented in a

timely and supportive manner; and (5) focused on the performance and not the person.^{16,17} A direct, face-to-face debrief of performance may be a better way of facilitating this learning process, but this may not always be feasible due to lack of time or logistical challenges. Therefore, having the students reflect on their performance via a written feedback mechanism could be a good alternative for providing these critical learning points. The timing of release of the written feedback may also help in the learning process. There is value for the students to review the comments after some time had passed, as opposed to “in the moment” that happens with an immediate face-to-face debrief with the supervisor. Giving the students some time to perform reflection on action will allow them to assess their performance more objectively. This may be preferable to discussing the clinical encounter immediately after it had occurred, because students are typically focused on things that they did poorly when thinking about their performance immediately after the encounter. However, the challenge of providing delayed verbal feedback is that it may not capture important opportunities to ask the students some guiding questions to facilitate their reflection of their own performance. It is therefore important for the supervisors to include in their feedback comments that were written to further stimulate self-reflection. This study showed the supervisors gave more feedback that were more directed on the performance of the students (“do this, don’t do that”), with a very small proportion

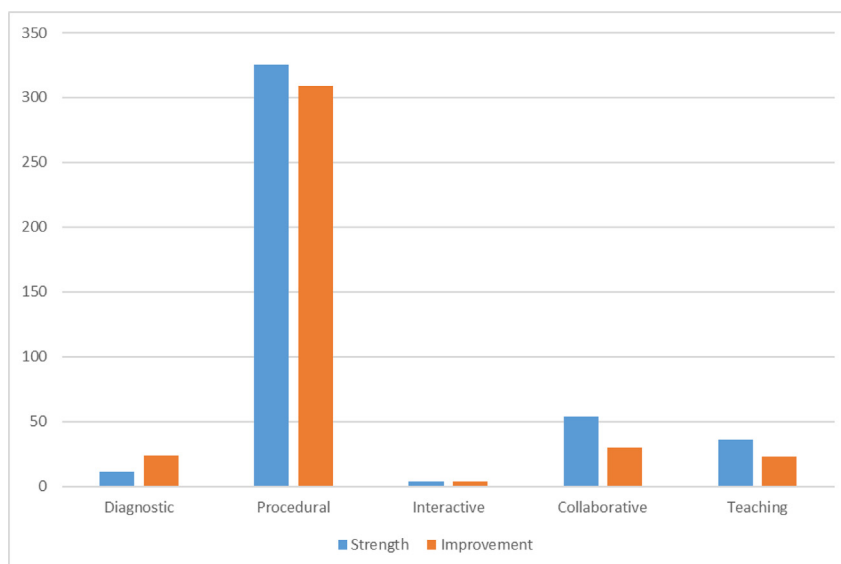


Fig. 3. Feedback related to clinical reasoning strategies.

of the comments being configured as guided questions that force the students to reflect and self-assess (how did you think you did in ...”). That was a missed opportunity that would have further enhanced learning.

The study revealed that there were almost equal proportions of feedback pertaining to “strengths” and “weaknesses”. It is very important that faculty provide with both positive and negative comments to provide the students the clearest picture of their performance in a way that motivates them to continue to be better. The study revealed that the supervisors provided an average of eight comments for each pair of students in a single session. It would seem that there was room for the preceptors to provide more feedback. Additional approaches may need to be explored to allow this to occur, including possibly using several shortcut codes to document usual behaviors or performance indicators, so the supervisors could more easily copy and paste these comments. This will decrease the time it would have taken for the supervisors to type in their comments. There was the opportunity to provide audio or videorecorded feedback, but the supervisors did not exercise that option due to time restraints.

There was a higher proportion of comments related to improvements needed during examination/re-examination compared to intervention activities. With regard to clinical reasoning strategies, there was also a higher proportion of comments on improvements needed in diagnostic reasoning compared to other clinical reasoning strategies. This may indicate that the students were better prepared to provide appropriate

patient interventions and needed more guidance in performing assessments and analyzing results of patient examinations. Evaluating other data sources such as results of written or practical examinations, performance during clinical rotations could confirm this possible thematic weakness in the program. Changes to the curricular content to strengthen the students' knowledge and skills in patient evaluation could be a reasonable action following this result.

The supervisors provided more comments during the first session. The succeeding sessions showed a slow decline in the number of comments. There were a greater proportion of comments related to areas needing improvement during the first two sessions. From Sessions 3–6, the supervisors provided a higher proportion of comments related to strong performance. This may indicate that the students were able to use the feedback appropriately to improve their performance as they progressed through the probono experience. In terms of feedback areas, the results showed that the students demonstrated stronger skills in efficiency, communication and body mechanics, but needed more guidance on reasoning, skill and safety. In terms of continuous quality improvement, the findings could guide the faculty to further assess curricular content related to reasoning, skill and safety to determine if changes are needed in these areas. In terms of efficiency, the study found more comments related to this area during the first two sessions but this significantly improved as the sessions progressed. This may be another example that showed that the students were

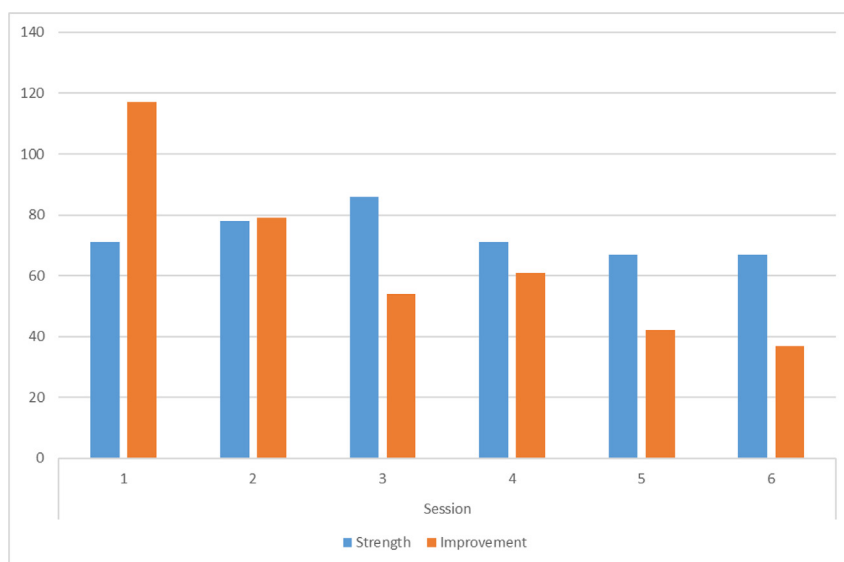


Fig. 4. Number of positive/negative comments according to sessions.

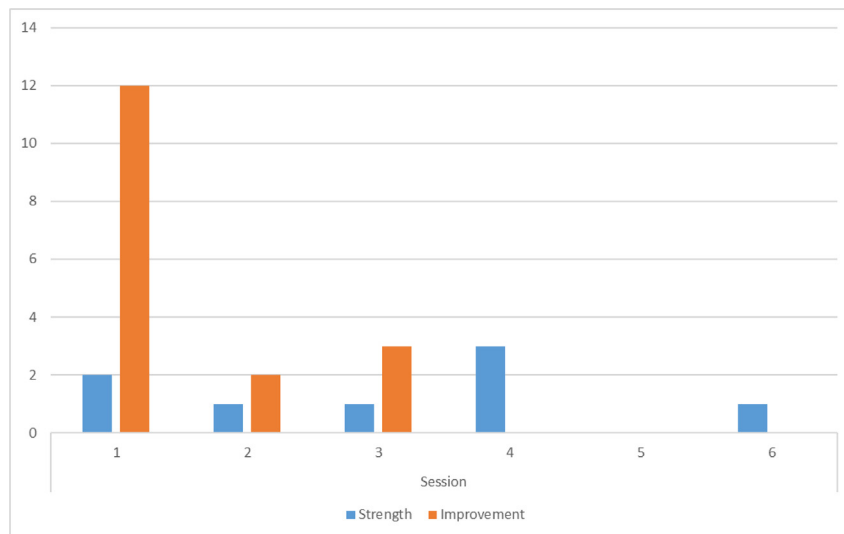


Fig. 5. Comments related to safety according to sessions.

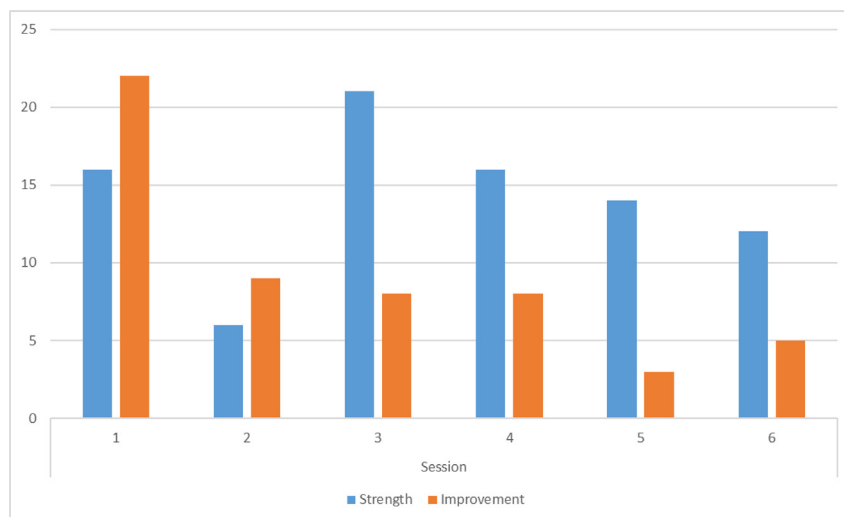


Fig. 6. Comments related to efficiency according to sessions.

able to make the necessary changes to improve their efficiency to reflect improvement in their performance as the sessions progressed.

In terms of clinical reasoning strategies, majority of the comments were on procedural reasoning, which may be expected as a significant amount of the patient encounter was devoted to providing patient treatment. There were no comments given on narrative reasoning and ethical reasoning. The clinical practice environment would have been a good opportunity for the students to have been given feedback on their ability to understand the patient's perspective on their condition,

and on ethical issues that may have played out during the entire episode of care. Comments related to these clinical reasoning strategies could have been presented as guiding questions to encourage the students to self assess their performance.

Patient safety is an important performance area to monitor. This study showed a much greater proportion of safety issues during Session 1, but drastically declined as the sessions progressed. There were no comments related to needed improvements in safety from Session 4 to the end of the probono clinic duration. It was possible that once the students were

provided this feedback they became attuned to issues related to safety as they performed the subsequent patient encounters.

In the future, it would be worthwhile to investigate the perceptions of both the faculty supervisors and the students on the delivery of the comments in this format, to assess the ability of the approach in facilitating student learning. It would also be interesting to determine if the students' self-assessment matched how the supervisors evaluation of their performance.

5. Conclusion

The findings of the study reveal that comments related to student performance by faculty supervisors are important tools in enhancing student learning. Reviewing the type and nature of the comments allows faculty the opportunity to further improve their comments to those that will better support student learning and clinical performance. Results of the study could be used to improve the course.

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None.

Declaration of competing interest

None.

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