



Beyond “great job”: Feedback among students on interprofessional teams



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ABSTRACT

Background: Interprofessional competencies state that health professional students should be prepared to provide and receive interprofessional feedback.

Purpose: To examine the content of interprofessional feedback among health professional students and their perceptions of giving and receiving such feedback.

Methods: We conducted a mixed methods prospective study among health professional students who gave each other feedback after an interprofessional exercise. We rated this feedback for content and specificity and clarified findings with 5 focus groups.

Results: Most of the 1520 feedback comments examined contained confirming statements; constructive and corrective statements were uncommon. Feedback on interviewing skills was more specific and constructive than feedback on teamwork skills ($P < .0001$). Qualitative analysis uncovered a variety of barriers students experience in feedback delivery.

Conclusions: Students in our study tended to avoid constructive and corrective comments when delivering interprofessional feedback, especially when addressing teamwork skills. Understanding the multifactorial causes for this can guide educational strategies.

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Introduction

Effective interprofessional teamwork is widely recognized as a key component of high quality patient care and increasingly, interprofessional education (IPE) is integrated in health professions education.^{1–4} A recent review pointed out that interprofessional education programs are quite variable, and often are not guided by predefined learning outcomes.⁴ With the formulation of core competencies in interprofessional collaboration, educators now have defined outcomes to use as a focus for IPE.⁵ One of these core competencies is “giving timely, sensitive, instructive feedback to others about their performance on the team [and] responding respectfully as a team member to feedback from others.” To our knowledge, few interprofessional education programs explicitly teach students about interprofessional feedback delivery and receipt. Prior work at our institution has shown that students rated

the interprofessional feedback they received from other students as useful and positive regardless of the professional school of the feedback provider.⁶ Yet, these same students found providing feedback across professional boundaries to be challenging. In our prior study, we did not explore why students found providing interprofessional feedback challenging, nor did we examine whether their perceptions of usefulness and positivity correlated with the actual content of the feedback. Feedback is essential for performance improvement^{7,8} and data suggest that intra-team feedback improves team performance.^{9–11} Thus, preparing students for the delivery and receipt of interprofessional feedback, in particular as it pertains to their performance on interprofessional teams, should be addressed during health professions education.

We conducted the current study to examine the content of interprofessional feedback provided by health professional students participating in an interprofessional team exercise and their perceptions of giving and receiving such feedback. As part of this educational activity, students are asked to provide each other with anonymous, written feedback on each other’s interviewing skills and teamwork skills. We postulated that students are able to give more detailed and useful feedback on interviewing skills, a

Abbreviation: ISPE, Interprofessional Standardized Patient Exercise.

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Table 1
Scoring rubric with examples.

Description	Examples
Keep statements <i>Statements about effective behaviors that should be continued</i>	"I like how you asked the patient to repeat the plan in her own words."
Start statements <i>Suggestions about effective behaviors that the student should start doing</i>	"You could try to set the agenda in the beginning of the encounter."
Stop statements <i>Suggestions about ineffective behaviors that the student should stop doing</i>	"Avoid using medical jargon like 'hyperlipidemia' with the patient."
Global usefulness score (1–4 scale) <i>Overall usefulness of the feedback comment</i>	
1. Not useful at all	"Great job."
2. Somewhat useful but not much detail/depth	"Empathetic to patient and good job thinking fast on your feet."
3. Useful, with reasonable detail	"Great balance educating other members of the group about dental concerns and being open to thoughts and feedback from the other group members at the same time."
4. Extremely useful with specific, detailed examples	"You did a great job summarizing what medications were dangerous together and coming up with a plan on the spot, I loved the pill box idea to increase medications. Try to keep in mind that the patient may be confused about medications and might not have clear mentation as ours did."

common domain of skills explicitly taught in each profession, than on teamwork skills, in which students receive limited explicit instruction. As a secondary outcome, we analyzed whether the quality of feedback varied according the professional school the students attended. In addition, we conducted focus groups among students participating in the exercise to gain an understanding of their perceptions regarding interprofessional feedback.

Methods

Design

This was a mixed-method prospective cohort study with a sequential explanatory design¹² using quantitative methods followed by qualitative methods to study a cross section of students participating in interprofessional education at our institution. The University of California, San Francisco Committee for Human Research deemed the study to be exempt from full review.

Participants and settings

Students from seven health professional education programs at two institutions in San Francisco participated in an Interprofessional Standardized Patient Exercise (ISPE) early during the clinical training component of their health professions education. These include students from six professional programs at the University of California, San Francisco (Dentistry, Dietetics, Medicine, Nursing, Pharmacy, and Physical Therapy), and from the San Francisco State University Social Work program. All 355 students who participated in the ISPE during the fall/winter of 2012 were eligible to participate in the first phase of this study, during which we collected quantitative data to study the content of feedback comments. In the second phase of the study, during which we collected qualitative data via focus groups, all University of California, San Francisco students who participated in the ISPE in the fall/winter of 2014 were eligible.

In the ISPE, detailed previously elsewhere,¹³ students work in small teams to plan, execute and summarize an encounter with a standardized patient actor who has a complex medical history. The half-day session starts with a team discussion in which the students review presenting information about the patient and create a plan for each team member's responsibilities in the patient encounter. Team members subsequently take turns conducting their part of the interview, examination, and information sharing with the patient while the rest of the team observes. After all members have

interacted with the patient, the team works together to generate and communicate a written assessment/plan for the patient. At the start of the exercise, all students are told they will be expected to provide anonymous feedback to all team members about their skills in two domains – 1) interviewing the patient and 2) teamwork. They receive explicit instructions that the feedback should be specific, balanced (should include both reinforcing and constructive elements) and should be targeted at behaviors. Immediately after the exercise, students complete a brief, online survey (deployed via the Qualtrics™ client) in which they provide separate feedback comments on each team member's interviewing skills and teamwork skills.

Instruments

Feedback rating grid

After careful review of the literature and consultation with a UCSF feedback expert with national standing (Dr. Calvin Chou), we were not able to identify a suitable validated instrument to rate the quality of feedback comments in a quantifiable manner. We did, however, identify a framework for evaluation of feedback that has received extensive use in various fields outside medicine, in particular the business world, and more recently also in higher education.^{14–16} This framework divides feedback into three categories, "Keep" (positive/reinforcing comment), "Start" (suggestion to start a certain behavior), or "Stop" (suggestion to stop a certain behavior). These three elements resonate with how students are encouraged to provide feedback (provide both reinforcing and constructive comments), and builds on how Chou and colleagues in a prior study categorized feedback comments.¹⁷ We adapted this framework to develop our own feedback rating instrument. To this end, we created a scoring grid to indicate whether the category of feedback was present and a global rating score to assess the overall usefulness of the feedback, based on the overall specificity and level of detail contained in the feedback (Table 1). Two study investigators (SV and MW) developed and tested the scoring grid on 60 randomly selected feedback comments (30 in each skill domain) and made adjustments until reasonable interrater agreement was achieved (>75% agreement).

Focus group guide

After reviewing the data obtained from the feedback ratings, we developed a focus group facilitator guide, comprised of open-ended questions designed to elicit discussion on topics including: participants' prior experiences working in interprofessional teams

Table 2

Students and comments included in the study by school of feedback provider and skill domain of feedback focus.

School	Students providing feedback comments enrolled in study (% of total)	Feedback comments on interviewing skills	Feedback comments on teamwork skills
Medicine	110 (33.4%)	125 ^a	124
Pharmacy	68 (20.7%)	244 ^a	242
Nursing	59 (17.9%)	147	147
Dentistry	49 (14.9%)	105	105
Physical therapy	43 (13.1%)	143 ^a	142
Total	329 (100%)	764 ^a	760

^a Some students provided one of their team members with a comment on interviewing skills only; we excluded such unpaired feedback comments from the analysis, thus a total of 760 comments on interviewing skills were included in the analysis.

(if any), the particular challenges and benefits of giving and receiving feedback within an interprofessional team, and differences between giving feedback on interviewing skills versus teamwork skills.

Study procedures

Phase I

We collated all de-identified written feedback comments and assigned each comment a unique study ID, without any identification of the professional background of the feedback provider. Two authors (SV and JM) independently scored all feedback comments, and met intermittently to compare scores. Since the purpose of this study was not to validate the instrument but rather to detect differences between groups we reconciled differences between raters through discussion before assigning a final score. In addition to the scoring grid for feedback quality, we performed a word count on feedback comments as a proxy for the level of detail included in each feedback comment. Only a small number of ISPE teams had students from Dietetics and Social Work and the overall number of students in these groups was relatively small. We therefore excluded their data from statistical analyses and did not include them in phase II of the study.

Phase II

We conducted five one-hour, single profession focus groups with ISPE participants from dentistry, medicine, nursing, pharmacy, and physical therapy over the course of a three-month period. We recruited subjects via email utilizing the respective student email lists. To incentivize participation, we provided \$25 gift cards to all participants and a low cost meal during the session. At least one member of the investigational team (JM and/or KA) facilitated each session and we recorded all sessions digitally.

Analysis

Quantitative analysis

We calculated the percentage of feedback comments on interviewing skills that contained Keep, Start, and Stop statements. We calculated Cohen's Kappa to establish interrater agreement for assignment of comments to Keep, Start and Stop categories and scoring on the global usefulness scale. We then performed the same analysis for the comments on teamwork skills. To compare the presence of Keep, Start, Stop comments between the two skill domains, interviewing and teamwork skills, we performed chi-squared analyses, adjusting the level of significance to account for multiple analyses. In separate chi-squared analyses, we compared

the percentage of statements in each category between comments from students from different professional schools.

To further analyze feedback ratings and examine the presence of any interactions, we performed mixed-design two-way Analysis of Variance (ANOVA) separately for the following dependent variables: global usefulness scores and word count, using feedback domain as within-subjects variable and professional school of feedback provider as a between-subjects variable. For statistically significant findings, we identified differences between individual groups using S-N-K and Tukey post-hoc analyses. We set the level of significance at $P = .05$ and used Bonferroni correction in case of multiple comparisons.

Qualitative analysis

Digital recordings from the focus groups sessions were transcribed verbatim. Two members of the investigational team (MW and KA) coded the transcripts independently using an inductive, constructivist approach to identify patterns in the data. They each created an initial code list, met to compare their coding and reconciled coding if differences existed to create a unified code list. Next, two additional team members (SV and TB) verified the codes against the original transcripts and made modifications to the code list. Finally, we performed thematic analysis to describe, attribute, and provide examples of key themes throughout the data. In performing the thematic analysis, we combined a deductive approach, paying attention to our initial questions originating from the quantitative data, with an inductive review to allow for generation of themes newly generated from the focus group transcripts. For each of the themes, we noted similarities and differences between the different professional groups. We took an iterative approach to this process of theme generation, in which two members of the team (MW and KA) generated the initial theme list, which was then reviewed and modified by the two other team members (SV and TB) in a consecutive fashion. The final theme list was reviewed and approved by all team members.

Results

During the first phase of the study, the evaluation of feedback content, 355 students participated in the ISPE, divided over 103 groups of three or four students each. Because of small numbers, we excluded the data from social work ($n = 16$) and dietetics ($n = 10$) students and therefore the number of students included in this phase of the study totaled 329. Table 2 summarizes study participants by school. During the second phase of the study, examining students' perceptions of feedback delivery in the inter-professional context, 533 students participated in the ISPE and 26 participated in 5 focus groups (range of 4–10 per group).

Quantitative results

All 329 students included in the first phase of the study provided feedback comments for at least one of their team members. In four instances, a student provided one of their team members with a comment on interviewing skills only; we excluded such unpaired feedback comments from the analysis. Thus, a total of 1520 feedback comments were included in the analysis (760 comments about interviewing skills, and 760 comments about teamwork skills). Interrater agreement was overall good to excellent; Cohen's Kappa was .98 [95% confidence interval .97–.99] for identification of comments as Keep, Start or Stop statements and .65 [.61–.68] for global usefulness scores. Of all feedback comments, 98% contained a "Keep Statement" (positive/reinforcing), while 29.3% included a "Start Statement" and only 4.9% contained a "Stop Statement." We found all three categories of statements more

Table 3
Feedback comments containing a Keep/Start/Stop statement.

Domain	Keep statements	Start statements	Stop statements
Interviewing skills	758 (99.7%)	280 (36.8%)	59 (7.8%)
Teamwork skills	732 (96.3%)	166 (21.8%)	16 (2.1%)
All	1490 (98%)	446 (29.3%)	75 (4.9%)

Data represent total number of feedback comments (% of total feedback comments in the domain).

Chi-square comparison revealed statistically significant proportions of comments containing each of the different statements among comments focused on interviewing skills as compared to those focused on teamwork skills: Keep statements $\chi^2(1) = 22.9$; start statements $\chi^2(1) = 41.2$; stop statements $\chi^2(1) = 25.9$; all P -values $<.0001$.

frequently in feedback comments on interviewing skills than on teamwork skills ($P < .0001$ for all analyses). These data are shown in Table 3. We did not find any statistically significant differences in the percentages of Keep/Start/Stop statements between feedback comments from students from different professional schools (data not shown).

Overall, average global usefulness scores were moderate across domains and schools, ranging from 2.44 to 3.53 (on a 4-point scale; Table 4). We did not find a significant interaction between the domain of skills on which feedback was provided (interviewing vs. teamwork) and the professional school of feedback provider for either global usefulness score ($F_{4, 755} .51, P.73$) or word count ($F_{4, 755} 1.17, P.32$). We did, however, find a significant main effect of skill domain on usefulness scores ($F_{1, 755} 165.2, P < .001$) and on word count ($F_{1, 755} 244.1, P < .001$): usefulness scores and word count of feedback on interviewing skills were both significantly higher (mean [95% confidence interval]: 3.08[3.00–3.06] for usefulness scores and 44.4[42.3–46.4] for word count) than those of feedback on teamwork skills (2.53[2.44–2.61] and 30.1[28.7–31.5], respectively). We also observed a significant main effect of professional school of feedback provider on usefulness score ($F_{4, 755} 2.52, P.04$). Post-hoc analysis revealed that global usefulness ratings of feedback by dentistry students were significantly higher (2.88 [2.77–2.99]) than ratings of feedback by physical therapy students (2.66 [2.54–2.78]). We did not note a significant main effect of professional school on word count ($F_{4, 755} .99, P.41$).

Qualitative results

We identified eight major themes through the thematic analysis of focus group transcripts which we grouped into three main

Table 4
Global usefulness scores and word count by feedback domain and school of provider.

	Global usefulness score (4-point scale)		Word count	
	Interview skills	Teamwork skills	Interview skills	Teamwork skills
Medicine	2.94 (.76)	2.51 (.79)	44 (27)	28 (20)
Pharmacy	3.05 (.81)	2.57 (.82)	45 (30)	29 (18)
Nursing	2.95 (.76)	2.44 (.85)	45 (26)	29 (16)
Dentistry	3.11 (.75)	2.62 (.73)	46 (28)	35 (22)
Physical therapy	2.85 (.90)	2.48 (.68)	43 (27)	30 (18)
All	2.98 (.79)	2.53 (.77)	44 (27)	30 (19)

We found no significant interactions between the domain of skills on which feedback was provided and the professional school of feedback provider for either global usefulness score or word count, but we did find a significant main effect of skill domain on usefulness scores and on word count as well as a significant main effect of professional school of provider on usefulness scores – see text for detailed statistics.

categories: 1) prior experience and training; 2) general challenges with feedback, and 3) challenges specific to interprofessional feedback during the ISPE. Table 5 summarizes the themes in each category, with representative quotes for each.

The first category, prior experience and training, contains two themes. The first theme describes participants' prior experiences with interprofessional practice, which were quite variable. Students from all schools except the school of nursing reported some formal interprofessional didactics, including lectures and other didactics on interprofessional collaboration, role definitions and teamwork. The second theme in this category describes participants experience with feedback delivery. Students from all schools except pharmacy reported receiving formal training in effective feedback delivery. Students did not report much experience with feedback across professional boundaries and had not received any formal training in this prior to the ISPE.

The second category, general challenges with feedback, contains three themes. The first theme in this category describes tensions around giving and receiving constructive feedback. Students often equated constructive feedback with negative feedback and worried about seeming harsh. They expressed hesitance to provide such feedback and found it difficult to do so, despite their own desire to receive constructive feedback. In particular, physical therapy students who perceived themselves as having provided constructive feedback, expressed irritation with receiving “fluffy,” positive feedback. Of note, dentistry students described a culture in their training that emphasized critical, constructive feedback over positive reinforcement, which they attributed to the detail-oriented nature of their profession. While they acknowledged that giving constructive feedback is hard, they reported emulating behaviors they observed in their professors in their own feedback delivery, but mentioned “fluffing it up” for the purpose of the ISPE. The second theme in this category describes students' preference for face-to-face feedback as a more productive way to discuss feedback. At the same time, students acknowledged that anonymous feedback might lead to greater honesty, and higher likelihood to actually provide constructive feedback. The third theme summarizes students' beliefs about the importance of adequate training in feedback delivery.

The third category, challenges specific to interprofessional feedback during the ISPE, contains three themes. The first theme describes the perceived importance of a relationship in order to give meaningful feedback. Students felt that the ISPE exercise was too short and did not create an opportunity for longitudinal relations, which constrained their ability to give useful feedback. The second theme discusses the relative difficulty of giving feedback on interviewing skills versus teamwork skills. Students in the focus group were divided on this topic, some expressed that not knowing what they could expect from trainees in other professions hampered their ability to give feedback on interviewing skills, whereas others mentioned that interviewing skills were more recognizable to them than teamwork skills. Across the board, students did not appear to have a clear concept of teamwork skills and spoke about teamwork more in terms of personality traits (for example, being nice or being polite) than in terms of skills. The third theme about feedback in the context of the ISPE centers around lack of time and energy to provide good feedback. Students mentioned “feedback fatigue” and feeling too rushed to provide adequate feedback to all of their team members at the end of the ISPE exercise.

Discussion

In our study of interprofessional feedback among healthcare professional students we found that students were much more

Table 5
Summary of key themes arising from focus groups.

Themes	Representative quotes
Category I – prior experience and training	
1. Variable experiences with interprofessional practice, but all have had some interactions with other professions prior to the ISPE	<p>“(…) we have, I guess rounding, and we have the nurse, the doctor, the pharmacist, the social worker, nutritionist collaborating on what we want to do for the patient's future care.” (N)</p> <p>“I had to call a physician to ask about a patient's cardiac health, and other than that, you know, small reaching out here and there and that's about it.” (D)</p> <p>“(…)we also go on clinical rotations (…) I did one in in-patient where I worked a lot with nursing and some of the doctors, and also case workers.” (PT)</p> <p>“I guess for my work, though phone interaction is the most I get with other healthcare providers such as medical assistants and doctors.”(P)</p>
2. Frequent experience with feedback delivery and some formal training, but limited experience with feedback across professional boundaries	<p>“I think we do that a lot (…) where we've seen our classmates interview patients, and then we're also supposed to be giving feedback to our peers, and also receiving feedback (…).” (M)</p> <p>“I've definitely had classes, where the professor, like, start the first day like, just talking about appropriate ways to give feedback.” (N)</p> <p>“I don't think so we ever had to evaluate other professionals, though. Like the only thing we had to evaluate was our activities that we had (...); not criticizing or critiquing other health professions.” (P)</p> <p>“I think the only thing we gave actual feedback to other professions was through our guest lecturers who happen to be from other professions.” (PT)</p>
Category II – general challenges with feedback	
3. Tension between hesitation to provide constructive feedback and desire to receive constructive feedback.	<p>“Most people don't want to hurt each other's feeling. (…) I think we've like, self-identified as people that want to be nurturing for other people, so the idea of hurting somebody's feelings can weigh upon us.” (PT)</p> <p>“Yeah, it was harder for me to give constructive feedback just because ... I mean, I just feel bad that I have to say anything bad.” (D)</p> <p>“I didn't have the language to express it in a way that was professional and not personal.” (M)</p> <p>“I definitely did like fluff it up a bit. You know, if they did this thing well, I told them and I'd make it seem better than it actually was.” (D)</p> <p>“I feel like I gave constructive feedback, and then I read the feedback I got and (...) they were all so fluffy.” (PT)</p> <p>“(…) if I got the “stop” feedback from somebody it might be more valuable to me, in a sense, and stick with me more.” (N)</p>
4. Preference for face-to-face delivery of feedback but acknowledgment that anonymous feedback may lead to greater honesty	<p>“Like they could ask you like, “Why do you say that?” or like “Can you expand upon it?” whereas sometimes you're not able to do that in writing. And it comes across sometimes the wrong way when you write something unless you explain it.”(P)</p> <p>“The written stuff may be even more valuable because we were able to do it anonymously and there were things that were said in that context that were, I hope, easier for people to say.” (N)</p> <p>“I think giving feedback online is definitely easier and more convenient, but I think giving feedback in person is more meaningful. It makes you think more about what you're going to say, and it's more immediate.” (M)</p>
5. Need for training in feedback delivery	<p>“(…) provide some education to provide that feedback and being able to do it in a face-to-face way would be really important, yeah. Because it's a tough thing to be able to do and to do it in a way that doesn't put anybody else on the defensive.” (N)</p>
Category III – challenges specific to interprofessional feedback during the ISPE	
6. Importance of relationship for giving meaningful feedback	<p>“If you work with the same team, I think you'd get to know them better and you'd be more comfortable to lay on the negative comments.” (D)</p> <p>“(…) trying to give meaningful feedback after such a relatively brief interaction. (...) I did not feel comfortable giving kind of strong, constructive criticism in that context.” (M)</p> <p>“... for me it was that I did not feel comfortable providing harsh criticism to somebody I didn't know very well.” (M)</p>
7. Relative difficulty of giving feedback on interviewing skills versus teamwork skills	<p>“I think I am not as familiar with that field than I am my own field, so it's hard to say like what they're supposed to do or like how they're supposed to act.” (D)</p> <p>“I feel like with, with interview skills, like there's just a lot of data points, like that I can easily be like, “Okay, yeah, you had a great HPI.” (N)</p> <p>“And so, like if you had someone on your team that didn't work well as a team player, and you're giving feedback about that, it kind of feels like you're saying that they were a jerk.” (M)</p> <p>“With teamwork, I feel like there is ... People have different personalities. People are passive, some people are really aggressive, so it's hard to comment on that. (...) It doesn't mean that they're necessarily bad doing their job, that's just their personality.” (P)</p> <p>“Giving feedback on teamwork kind of sounds like another way of giving feedback about personality, and feels more personal.” (M)</p> <p>“Like they don't really teach each other like teamwork that much. Like they teach us how to interview so, there's more places to critique, I guess ...” (D)</p>
8. Lack of time, feedback fatigue	<p>“I faded out when I realized that I was giving feedback to everybody on the team. The feedback that I gave at the end was a little less thorough than the feedback I gave at the beginning.” (M)</p>

(D) = Dentistry, (M) = Medicine (N) = Nursing, (P) = Pharmacy, (PT) = Physical therapy.

likely to provide each other with feedback containing “keep” statements, encouraging continuation of a particular behavior, than “stop” or “start” statements, suggesting discontinuation of a behavior or trying something different. They wrote more specific, longer and more useful feedback comments about interviewing skills than about teamwork skills. This was true regardless of what school the students came from, although comments from dentistry students received higher usefulness ratings from study investigators than comments from physical therapy students. The qualitative data provided some insights into the reasons behind these findings, although some important questions remain.

Students' reluctance to provide “start” and “stop” comments appeared to be grounded in reluctance to come across as negative or harsh. Although the feedback was delivered anonymously, the small group setting may have led to loss of anonymity (or fear thereof), which may have contributed to this reluctance. Students also mentioned not having much to say after such a brief encounter, and felt that having longer interactions and/or longitudinal relationships would have enabled them to provide more constructive comments. However, several studies have found that even when such relationships do exist, medical trainees are hesitant to provide feedback that may be perceived as negative because they fear it may impact future interactions.^{18,19} In general, the literature suggests that the culture in health care is not primed for provision of critical feedback and a tendency toward so-called leniency bias exists,^{20–23} which may be exaggerated in peer-to-peer feedback.^{24,25} In addition, the interprofessional context may create a situation analogous to interracial contexts, where “positive feedback bias” has been described. Positive feedback bias refers to the tendency of members of the majority racial group (the “in-group”) to rate members of the minority group (the “out-group”) more highly, presumably to maintain a certain self-image (not wanting to seem racist).²⁶ With the increasing emphasis on interprofessional collaboration in health professions education, similar motivations may create a tendency to provide positive feedback across professional boundaries, as students may not want to be perceived as discriminating or prejudiced against other professions. Since only a few ISPE groups contained multiple students from the same professional background we were not able to compare feedback provided for “in-group” students (from the same professional school) with that provided for “out-group” students (from a different professional school) to test the presence of positive feedback bias.

Another factor that seemed to play a role in the scarce provision of constructive feedback was that students felt this was difficult to do well. A prior study of family medicine residents identified lack of training in how to provide constructive feedback as a barrier to performing this “learned skill.”²⁴ While students from all schools except pharmacy reported some degree of formal training in as well as prior experience with feedback delivery, inadequacy of skills to provide effective constructive feedback was mentioned in all focus groups. Some students related this to the limited nature of their own expertise or their lack of familiarity with training requirements and expectations in other schools, but others explicitly stated “not having the words.” This was especially true for feedback on teamwork skills, and may further explain their reluctance to provide constructive, more detailed feedback in this domain. It was striking how frequently students seemed to conflate teamwork skills with personality traits. The feedback literature suggests that feedback is most effective when it is about performance on tasks and specific behaviors rather than personality traits.^{8,27} Without a framework to conceptualize teamwork in terms of skills that can be learned and improved upon, students are likely limited in their ability to provide meaningful feedback. We did not ask students directly about their formal training in teamwork, but from review of curricular content we know that despite abundance of team-based

learning opportunities, none of the professional schools explicitly addressed characteristics of effective teamwork and the associated skills as part of the formal curriculum during the study period. Studies have shown how working on teams increases team members' appreciation for teamwork,^{13,28} but whether working on teams leads to improved teamwork skills has undergone limited empirical testing.²⁹ It can be argued that what students learn about teamwork may vary by what they experience on a team, as shown in a study in which students were assigned to observe a variety of different health care teams.³⁰

In a prior publication focused on the same set of feedback comments we reported on students' perceptions of the feedback comments they received during the ISPE and found that overall, students perceived the feedback as useful and positive.⁶ While researchers' ratings of feedback comments in the current study revealed a clear difference between the global usefulness scores of feedback on interviewing skills and feedback on teamwork skills, the student recipients of these same feedback comments did not distinguish between the two domains in their ratings. The raters in the current study were not blinded to the domain and could have been biased in their ratings; however, the objective measure of word count also points in the direction of less detailed feedback in the teamwork domain. A more likely explanation for this discrepancy in rating of feedback is the lack of a clear conceptual framework of teamwork skills among students receiving the feedback. As a result, they were not able to distinguish useful from less useful feedback. Since students' overall attitude towards the ISPE and towards their peers appears to be positive, this will likely have translated in a relative overrating of the usefulness of feedback.^{6,13} This is of potential concern since it may create the false belief that the teamwork they experienced and their contributions to the team were of high value, whereas in fact there may have been much on which to improve.

Of interest in the current study, feedback comments from dentistry students received the highest usefulness ratings. In our report of students' perceptions of interprofessional feedback, we found that dentistry students were less likely to access their feedback and they rated the perceived positivity of feedback they received lower than other student groups.⁶ We postulated that perhaps dentistry students were overall less engaged with the ISPE than other students, which resonates with a prior study looking at readiness for interprofessional education demonstrating lower scores among dentistry students as compared to other students.²⁹ However, the higher global usefulness scores for feedback provided by dentistry students in the current study suggest this may not be the correct explanation. In the focus group, dentistry students explained how they are trained in a detailed-oriented culture in which frequent constructive feedback is common, and this experience may alter their own provision of feedback as well as their perceptions of feedback.

There are several limitations to our study. First, the scoring rubric used to rate the content of the feedback comments was created for the purpose of this study and while grounded in a pre-existing framework the instrument did not undergo validity testing. Thus, our results have to be interpreted with caution, although our qualitative data did support the observations made based on ratings and we also incorporated the objective measure of word count as an indirect measure of level of detail of feedback provided. This indicates promise for our feedback rating tool as a potential useful tool in future research, but will require validity testing by examining feedback from more experienced feedback providers and possibly further refinement of the categories. Second, due to the sequential design of our study the students who participated in the focus groups were part of a different cohort than the students who wrote the feedback comments. However, all

students participated in the ISPE and the exercise did not undergo any major changes in the interim. Lastly, as pointed out by the students in our focus group, the limited duration of the interprofessional exercise may have inhibited generation of more specific and constructive feedback, in particular in the domain of teamwork skills, and therefore extrapolation to other educational contexts may not be possible. The brevity of this team encounter is however not entirely unrealistic, as many clinical settings (such as the operating room, Code Blue teams) involve frequently rotating casts of practitioners that may or may not have worked together before. Moreover, our findings emphasize that explicit education in teamwork skills may be beneficial for students to develop an adequate mental framework that helps them recognize these skills in themselves and each other. Others have found that prior experience with peer-learning and peer feedback enhances students' ability to provide each other with specific, constructive feedback on communication skills.³⁰ Whether such feedback is best delivered in person, written and/or anonymously (as was the case in our study) remains to be studied. If we subscribe to the idea that providing and receiving feedback from other professionals is essential for effective interprofessional collaboration,⁵ integrating this successfully in interprofessional education programs seems imperative, and evidence-based best practices will need to be developed.

Conclusion

In providing feedback to teammates across professional schools, health professional students tend to avoid constructive and corrective feedback, especially when asked to give feedback on teamwork skills. This likely is in part due to lack of experience and expertise, but in part related to the culture in healthcare in which provision of critical feedback is not the norm. Teaching students about teamwork skills may lead to more meaningful feedback in this domain. This should include explicit education in and practice with the provision of constructive feedback across all professional schools.

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