RESEARCH

Impact of a Teamwork and Conflict Management Workshop on Growth Mindset and Team Communication

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Objective. Teamwork is a necessary pharmacist skill, but early pharmacy and interprofessional education frequently lack direct instruction on conflict management skills within team communication. Mindset may also impact team functioning. The purpose of this study was to determine the impact of a teamwork workshop on growth mindset and team communication.

Methods. A multi-week workshop was developed for first-year pharmacy students. The workshop included completion of StrengthFinders2.0, a session on identifying individual and team member strengths, a session on situational communication and conflict resolution models, and two pharmacy scenarios requiring conflict resolution. The workshop was delivered to two intervention groups (Fall2019 and Fall2018) and compared to a control group (Fall2017). A pre-post survey measured change in growth mindset and team communication utilizing the validated "Growth Mindset and Team Communication" (GMTC) tool. Data was analyzed using descriptive statistics, independent sample t-tests, and chi-square tests to compare difference and association. Focus groups were conducted in Fall2017 and Fall2018 to assess qualitative student views regarding teamwork.

Results. Comparing pre- and post-survey assessments, the team communication subscale increased significantly for the intervention group compared to the control group which had no significant change. Qualitative results of focus groups reflected overall positive views of team communication and collaboration, which was contextualized by discussions of advantages and challenges during teamwork.

Conclusion. The teamwork workshop affected team communication abilities. An early workshop may provide necessary teamwork skills for team improvement. Future work will focus on longitudinal measurement of self-views to determine the long-term impact of teamwork training interventions.

Keywords: growth mindset, StrengthsFinder, teamwork, workshop, interpersonal skills

INTRODUCTION

The multidisciplinary health care team is a complex social network requiring collaboration and communication among professionals to deliver effective and safe patient care.[1] Since ineffective collaboration can lead to errors and poor patient outcomes, teamwork is essential for successful high-quality care.[2] Pharmacy graduates are expected to be team-ready clinicians. Therefore, the Accreditation Council for Pharmacy Education 2016 Standards call for team-based interprofessional learning experiences.[3] Early implementation of interprofessional education (IPE) in the first professional year is an important phase in the preparation of team-ready professionals.[4] A typical element of IPE is understanding health care roles through forming interprofessional student teams. However, outcomes from this type of early interventions are mixed.[5,6] Placing students together on a team alone may not necessarily result in improved teamwork skills. One possibility for mixed outcomes with early IPE may be limited formal training on interpersonal skills required for teamwork. This hypothesis is supported by surveys suggesting new health professional graduates lack specific teamwork skills of communication, conflict management, and team functioning.[7]

A common pedagogy to teach teamwork in pharmacy education is utilizing groups for projects or team-based learning. Peer evaluation and peer feedback is often presented as a reflective opportunity to develop teamwork skills.[8] Students must then translate these experiences to their future work on patient care teams. Our observation is peer feedback is of limited value without a significant amount of explicit coaching and debriefing directing students to connect classroom to practice experiences. Additionally, unresolved conflict can result in unexpected peer feedback well after the optimum time for coaching teamwork skills.

In managing classroom teamwork, it is noted that some students hold a persistent belief they must be on a good team to succeed and the perception they lack any control over team effectiveness. The belief "I must be on a good team to succeed" is defined by Carol Dweck as a fixed self-view or fixed mindset.[9] A fixed mindset is the belief that abilities and skills are unchangeable. Research suggests fixed self-views undermine growth in the face of conflict.[10] In contrast, learners with a growth mindset believe ability is not limited. Thriving team members may believe "With hard work, I can succeed on any team". Growth mindset learners seek challenges and remain effective during conflict.[11] Previous research in student pharmacists shows a growth mindset is associated with favorable view of team learning.[12] However, changes in growth mindset over time and in the setting of team conflict lack study. An investigation into the relationship between students' beliefs and growth on teams is meaningful to provide guidance for development of teamwork pedagogies.

Focused education on teamwork and conflict management early in the pharmacy curriculum may impact team readiness. From this hypothesis, a process-based approach to interpersonal relationships was developed into a pre-IPE intervention for first-year pharmacy students (PY1s). A continuous professional development (CPD) framework was used for the teamwork workshop utilizing personalized learning strategies to emphasize lifelong learning.[13] StrengthsFinder was selected as a basis for individualization because of preliminary work done with student pharmacists using this tool.[14,15] Growth mindset was promoted through situational teamwork training as trait identification alone may reinforce fixed mindsets. The teamwork workshop's learning goal was to equip early pharmacy students with fundamental interpersonal skills for conflict resolution. The objective of this study was to assess the impact of this newly developed workshop on growth mindset and team communication using the validated Growth Mindset and Team Communication (GMTC) tool.[16]

METHODS

Workshop Design:

A multi-week, five contact hour workshop was created and incorporated into a required fall semester PY1 lecture course ("Introduction to Pharmacy Practice") and laboratory course ("Clinical Skills Lab I"). Figure 1 provides an overview of the workshop's timeline. The multi-week series began during orientation with personalized learning about individual traits by completing the StrengthsFinder2.0 self-evaluation.[15] During week 1 of the semester, the course coordinator [CLB] collected the results of StrengthsFinder2.0 in an excel spreadsheet and used stratified sampling allocation technique to form groups for all planned course activities. Heterogenous groups were created by balancing strengths in the four StrengthsFinder domains[15], pharmacy work experience, educational experience, and student self-identification of certain traits such as tendency towards introvert or extrovert.

During week 3 of the semester, the workshop continued with a classroom session on recognizing individual and team members' strengths. This eighty-minute interactive didactic session focused on understanding personal strengths, professional teamwork relationships, and workplace needs was led by a pharmacist [JBC]. During week 4, students applied these concepts in the laboratory course where groups worked through two pharmacy team scenarios with a focus on diverse team member strength profiles. Student groups were tasked with identifying the characters' primary strengths and workplace needs.

A few weeks later in week 7, the workshop continued in the lecture course where an eighty-minute didactic lecture provided students tools to utilize when interacting in difficult team situations. Led by an expert in organizational communication [EJ], the session provided process-oriented communication models including situational communication tools and group conflict resolutions models. Weeks 8 and 9 in lab were devoted to applying these tools to two pharmacy scenarios which were presented earlier in the semester. In the activity, student groups assessed elements of the conflict process, contributing factors, and team members' workplace needs. Groups then wrote a conflict management note and narrative to suggest ways to resolve the conflict based on situational communication tools and group conflict resolution models. Student groups then acted out the narrative the following week in lab. This was followed by a short debriefing session conducted by a laboratory facilitator to engage in conversation on situational communication tools selected for each scenario.

In addition, a longitudinal element for CPD was included throughout the semester.[13] First, students were tasked with writing a personal statement that required them to reflect on their top 5 strengths and their educational and professional goals. Students completed a midpoint and final peer evaluation ranking their peers on specific performance characteristics and wrote feedback on each team member's top 5 strengths. The rubric utilized by students to evaluate each peer group member was developed by authors [CLB, SL] through modification of descriptors of professionalism defined by Hammer in 2000.[17] The midpoint evaluation did not contribute to the students' grades but served to identify potential areas of improvement. The final evaluation was worth 5% of the total course grade with students receiving an average of the peer evaluations.

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Beyond the described teamwork workshop, these assigned student groups were utilized for additional group activities throughout the semester in the two linked classes, Introduction to Pharmacy Practice and Clinical Skills Lab I. Specifically, students completed approximately one low-stakes graded group activity in the lecture course each week and the group completed various lab activities for approximately two to three hours each week. Although these activities did not incorporate the described teamwork workshop components, the same student groups were utilized for consistency in group learning. Beyond these two courses, students also interacted with different groups in other concurrent classes depending on the structure and needs of these other classes.

Data Analysis:

To evaluate the teamwork workshop, pre-post surveys were utilized to assess changes in self-views of growth mindset and team communication. PY1s enrolled in the two courses were invited to participate in the pre-post surveys. Exclusion criteria included refusal to provide consent, not completing both surveys, or repeating the first-year of the curriculum. The teamwork workshop was incorporated into the curriculum during the Fall2018 and Fall2019, but not in Fall2017. Therefore, the students enrolled during the Fall2017 semester served as the control group as they completed the surveys but did not receive the teamwork workshop. The students enrolled during the Fall2018 and Fall2019 semesters served as the intervention group completing the pre-post surveys and teamwork workshop. The teamwork workshop was the only substantial course difference between cohorts.

For both cohorts, the pre-survey was completed within the first week of the semester and the post-survey completed during the last week. The surveys were deployed using Qualtrics and questions included those from the previously validated GMTC tool.[16,18-19] To assess satisfaction with teamwork experiences, five additional questions were included that were modified with permission from questions assessing changes in attitude towards team learning by Persky in 2012.[20] Additional questions in the pre-survey assessed demographic information including self-identification of personality, leadership strengths, and work experience. Changes within a cohort between the pre- and post-surveys were analyzed using paired t-tests. Differences between the control and intervention groups were analyzed using independent samples t-tests. The effect size was calculated using the Cohen's d formula for the overall GMTC scale as well as the two subscales (ie, Growth Mindset and Team Communication subscales).

To evaluate the intervention cohort's StrengthsFinder2.0 results, the 34 Signature Themes were categorized into 4 Leadership Domains (Executing, Influencing, Relationship Building, and Strategic Thinking) as defined by Gallop.[15] The dominant domain, the occurrence of more than 3 Signature Themes within a single domain for an individual, was determined as defined by Janke and colleagues.[21] The dominant domain themes were categorized into a total of 5 domains (above mentioned 4 leadership domains and 1 "no dominant" category for those without a dominant domain). The GMTC score was compared with the dominant domain using a one-way analysis of variance (ANOVA). Multiple linear regression analysis was performed using difference in GMTC score as a dependent variable. Independent variables for this analysis included gender, work experience, StrengthsFinder dominant domain results, and course grade. These were chosen based on the prior literature and available parameters.[16]

Qualitative data was collected through focus groups conducted at the end of the Fall2017 (control group) and Fall2018 (intervention group) semesters to describe students' teamwork experiences. Volunteer participants were recruited from the two semesters via an email announcement at the end of the semester. Druing the focus groups, participants responded verbally to eight open-ended questions with four optional follow-up questions during audio-recorded sessions with researcher facilitation and observational field notes. Analysis was conducted on transcripts with field notes providing context for coding memos. Top-level coding themes of attitude and action were selected based on previous validation of the GMTC Tool with each distinct comment coded first at both attitude and action, then inductive thematic analysis was performed with each top-level theme to determine unique subthemes.[16,22-23] Attitudes were defined as the evaluation of pharmacy team experiences, while actions were defined as behaviors and communication used to explain the evaluation of those experiences. Responses were coded using NVivo11. The study was approved by the High Point University Institutional Review Board.

RESULTS

Of the 74 students enrolled in the Fall2017, 68 students (91.9%) were included in control group analysis. Of the 116 students enrolled in the Fall2018 and Fall2019, 106 students (91.4%) were included in intervention group analysis. Demographics were comparable between the two cohorts except the intervention group had more students self-identify as an extrovert compared to the control group (40.2% versus 22.5%).[16]

When the difference between the pre- and post-survey scale was compared between the intervention and control group, the cumulative GMTC scale showed a large effect size (Cohen's d of 0.94) between the groups. Based on the sum

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of the 14 growth mindset questions, the control group had a significant decrease in growth mindset between the pre- and post-survey versus the intervention group, which did not change significantly (Table 1). The standardized mean difference of an effect using Cohen's d formula yielded a large effect size of 0.83 for the Growth Mindset subscale between the groups. Overall, based on the sum of the 13 team communication questions, the intervention group had a significance increase in team communication compared to the control group, which did not change significantly (Table 2). The Team Communication subscale yielded a moderate effect size of Cohen's d of 0.63. Overall, based on the sum of the five teamwork satisfaction questions, the intervention group had a significant increase in teamwork experiences satisfaction but the control group did not change significantly (Table 3).

The StrengthFinder2.0 results revealed the top 5 Signature Themes were Achiever, Harmony, Restorative, Futuristic, and Responsibility. The dominant domain distribution was: Executing (n=23, 23.6%), Relationship (n=21, 19.8%), Strategic (n=11, 10.4%), Influencing (n=5, 4.7%), and No Dominant (n=44, 41.5%). For the GMTC score, students with Executing, Relationship, Strategic, and No Dominant dominant domains showed a trend of score improvement. This trend towards improvement was not evident in the Influencing category (Figure 2).

A multiple linear regression was run to predict difference in GMTC score based on gender, age, pharmacy-related work experience, number of Signature Themes belonging to each domain, and course grade. None of the variables showed statistical significance in predicting the GMTC score.

Of Fall2017 cohort's 68 students, five (7.4%) volunteered for the one-hour focus group, resulting in 48 distinct comments for the control group. Of Fall2018 cohort's 57 students, three (5.3%) volunteered for the intervention focus group, resulting in 70 distinct comments. Although it was not a focus group recruitment requirement, participants from both cohort's focus groups consisted of students from all different teams. Attitudes were positive , mixed , or negative in the 118 total distinct comments. These results showed a difference between the control and intervention groups with intervention group responses that were balanced positive and mixed attitudes compared to the control group that provided more generally positive comments (Table 4). Corresponding action codes found value in team communication and collaboration, noting team experiences allowed students to share resources, learn from diverse perspectives, prepare for their future job/career, and build supportive relationships. These findings were similar between the control and intervention groups in preparing for their future profession and building supportive relationships themes. However, the control and intervention groups diverged in sharing resources versus learning from diverse perspectives with the control group speaking more about shared resources compared to the intervention group's discussion for learning from diverse perspectives. These differences extended to the content of comments with the control group valuing shared resources more for the purpose of collaborating to achieve a positive outcome versus the intervention group valuing the experience of learning from diverse perspectives, knowledge, or experience through the teamwork process (Table 4).

DISCUSSION

This study demonstrated the impact of a multi-week workshop on team communication as measured by the validated GMTC tool among student pharmacists. The intervention group showed a statistically significant increase in both Growth Mindset (+0.7,$p<$.05) and Team Communication (+2.4,$p<$.05) and thus suggest a positive impact on attitudes related to teamwork. This is consistent with a previous study by Hagemeier and colleagues which found an interprofessional communication course resulted in improved interprofessional communication self-efficacy beliefs.[24] Although the quantitative increase in the subscale values was small, the effect size findings support that the workshop may provide useful training for pharmacy students. Thus, early interventions aiming to improve self-awareness and self-evaluation in the context of direct instruction on team conflict models may be beneficial.

The GMTC tool captured data on two subscales: Growth Mindset and Team Communication. The growth mindset score showed a significant increase in the intervention group and a non-significant decrease in the control group which resulted in an overall significance difference between the two groups showing again that the intervention may have contributed to a small improvement in growth mindset. This is the first study to evaluate pre-post change in growth mindset in pharmacy education. In pharmacy students, it is possible the transition to a graduate program with high expectations could result in a decrease in growth mindset. This study explores this critical transition to professional school in the first semester. Notably the magnitude of change was larger in the team communication subscale. The growth mindset subscale may be less sensitive and reactive to external intervention, while the team communication subscale may more directly capture changes from the educational intervention that encourages an integrative teamwork environment.

Within the team communication subscale, two reverse scored items had no change: "I feel uncomfortable taking the lead in a group" and "I prefer group work with clear performance and accountability standards". Leadership and accountability skills were not emphasized in this workshop. Thus, this may represent a skill that could be emphasized in future iterations of the teamwork workshop. Clear performance and accountability standards is an interesting item because

practice standards are increasingly common and may be essential to quality care; yet in other instances, standards may limit team growth, flexibility, and innovation. Accountability standards represent emerging professional teamwork concepts not discussed in this introductory teamwork workshop.

The qualitative results reflected overall positive views of team communication and collaboration, which was contextualized by discussions of advantages and challenges faced during the teamwork process and primarily positive outcomes. Comparison between the four action subthemes for the control and intervention groups suggest the intervention group may have benefited from the workshop. The control group's overall positive evaluation reflected a perspective of positive outcomes related to the four subthemes with less discussion devoted to process or collaborative solutions to challenges. Whereas, the intervention group demonstrated self-awareness and reflection on the process of teamwork and openness to adapting and learning to overcome challenges. The intervention group resulted in more balance between positive and mixed attitudes as their comments suggested they were prepared, potentially by the intervention, to maximize the positive advantages and overcome negative challenges by managing the teamwork process to enhance learning, achieve positive outcomes, and prepare for the future through transferable teamwork and communication skills. The control group's more positive attitudes and comparable positive comments towards actions can suggest less awareness and critique of the team process compared to the reflection on and assessment of process expressed in the intervention group that they attributed to the skills practiced and lessons learned during the intervention's workshop series. Both the control and intervention groups discussed concern for collaborating within high-stakes assignments, which suggests future inclusion of accountability standards content could help reinforce responsibility in roles and tasks as the collaborative process is used in more difficult assignments.

The satisfaction with teamwork experiences as assessed by five questions in the survey provided a general positive view of teamwork experiences from the student perspective. Interestingly, both the control and intervention groups had many students in agreement with the question assessing contribution: "In most of the teams that I have been on, I generally contribute more than other team members". This could represent a bias of overestimating one's abilities and an opportunity to communicate expectations of group members in future groupwork. A major limitation of these survey questions is that the tool included general questions related to teamwork satisfaction without particular focus on this workshop or the team utilized in these two particular classes. Thus past experiences and current experiences on different teams may have impacted the results related to these specific questions.

Using the results of StrengthsFinder2.0 for the intervention cohort, within each dominant domain category, the growth mindset subscale did not change before and after the intervention; however, the team communication subscale showed significant improvement in all dominant domains, except Influencing (Figure 2). According to the Gallup's CliftonStrengths assessment, people with Influencing dominant domain share expertise in communication by "taking charge, speaking up and making sure others are heard".[15] It is interesting to see people who perceive themselves as 'communicators' (ie, Influencing) may be less likely to have an impactful change in team communication subscale; however, this finding is limited by a small number in this domain. When compared with findings from the study conducted by Janke and colleagues, our pharmacy students had similar trends in Signature Themes compared to those found in pharmacy schools located in the Midwest.[21]

This study is not without limitations, including a single-institution and single-professional design. Although the single-professional design was planned so students could learn necessary teamwork skills before entering IPE experiences, it may be valuable to conduct early teamwork training among multiple health care disciplines. The study was limited by the low participation rate in and number of focus groups, which can be improved with data from additional focus groups.[25] As mentioned above, the lack of specific questions to assess current teamwork pedagogy satisfaction is a limitation to the teamwork satisfaction section of the survey. Furthermore, this study assessed students' self-views of their skills related to teamwork communication without objective skill assessment by faculty. Although teamwork skills are difficult for faculty to evaluate when not present for individual team meetings, future work may consider objective measurements of individual students' team communication skills.

Finally, an additional limitation is the nature of teamwork as a complex skill, often contextual based on teamwork experiences and requiring development over years of experience. Although this teamwork workshop and concurrent course work provided student groups the opportunity to spend a considerable amount of time working in their teams, there is always the possibility that teams were in different stages of team formation variably impacting pre- and post-survey results. Additionally, it is possible the multi-week workshop in one semester was not a sufficient amount of time to make lasting affective domain changes related to teamwork or growth mindset. Furthermore, an additional limitation is the difficulty in using a psychometric test such as the GMTC as there is not yet a threshold established in the literature defining a meaningful difference to demonstrate effect. The minimal clinically important difference (MCID) of GMTC score improvement of 6 points was calculated based on a large effect size difference of 0.8 using Cohen's d formula by

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utilizing the observed sample size, mean, and standard deviation values. Both the growth mindset subscale and the team communication subscale were calculated to have MCID of 3 points to reflect a large effect size. Therefore, although our findings do not demonstrate clinical significance, future studies involving a higher sample size could refine the MCID. Nonetheless, this study demonstrates that a teamwork workshop early in the pharmacy curriculum has the potential to contribute to student learning of teamwork concepts. This exploration of early formative professional teamwork experiences and change over time expands our knowledge of strengths and teamwork across the pharmacy curriculum.[12,14]

CONCLUSION

A teamwork workshop focused on maximizing strengths and resolving conflict resulted in a small but improved self-views of team communication abilities for first-year students. An early workshop may provide necessary teamwork and conflict management skills to set students on a path to future team success. Future work will focus on longitudinal measurement of self-views to determine the long-term impact of teamwork training interventions and if this could result in success on future health care teams.

ACKNOWLEDGMENTS

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Table 1. Growth Self-evaluation Questions from the "Growth Mindset and Team Communication Tool" from Pre and Post Surveys

| Question Stem | Control Group (Fall 2017) N= 68 | | | | Intervention Group (Fall 2018 and Fall 2019) N = 106 | | | | Difference in Change |
	Pre[a] M (SD)	Post[a] M (SD)	Change	*p* value[b]	Pre[a] M (SD)	Post[a] M (SD)	Change	*p* value[b]	*p* value[c]
1. You can always substantially change how intelligent you are.	3.3 (0.7)	3.0 (0.7)	-0.3	**.005**	3.1 (0.6)	3.2 (0.7)	+0.1	.124	**.002**
2. I thrive when given a challenge to overcome.	3.3 (0.5)	3.1 (0.4)	-0.2	**.024**	3.2 (0.6)	3.3 (0.6)	+0.1	**.047**	**.004**
3. I overcome setbacks or other obstacles that arise.	3.4 (0.5)	3.2 (0.5)	-0.2	**.004**	3.3 (0.6)	3.4 (0.5)	+0.1	**.019**	**.000**
4. Hard work is needed to master skills.	3.8 (0.4)	3.6 (0.6)	-0.2	**.006**	3.6 (0.5)	3.5 (0.6)	-0.1	.207	.262
5. Criticism is helpful and motivates me to improve.	3.4 (0.6)	3.2 (0.5)	-0.2	**.033**	3.3 (0.5)	3.3 (0.6)	0.0	.642	.167

6. Other people's successes are inspiring. I can learn by their example.	3.5 (0.5)	3.3 (0.5)	-0.2	**.006**	3.4 (0.6)	3.4 (0.6)	0.0	.140	**.002**
7. Knowing my strengths and weakness helps me develop and improve.	3.6 (0.5)	3.5 (0.5)	-0.1	**.002**	3.5 (0.5)	3.5 (0.6)	0.0	.549	.097
8. You have a certain amount of intelligence, and you can't really do much to change it. *(reverse scored)*	3.2 (0.7)	3.2 (0.8)	0.0	.605	3.2 (0.6)	3.2 (0.7)	0.0	.425	.911
9. I lose interest and enjoyment in a task when it is difficult. *(reverse scored)*	3.0 (0.5)	3.0 (0.7)	0.0	.254	2.9 (0.7)	3.0 (0.7)	+0.1	.320	.167
10. I give up when faced with setbacks or other obstacles. *(reverse scored)*	3.4 (0.5)	3.2 (0.5)	-0.2	**.003**	3.3 (0.6)	3.3 (0.7)	0.0	.365	**.008**
11. I'm drawn to tasks where I already have the skills to succeed. *(reverse scored)*	1.9 (0.5)	1.9 (0.5)	0.0	.568	1.8 (0.6)	1.9 (0.6)	+0.1	.218	.222
12. I ignore criticism of my work. *(reverse scored)*	3.4 (0.5)	3.2 (0.6)	-0.2	**.004**	3.3 (0.5)	3.3 (0.6)	0.0	.482	**.005**
13. I feel threatened by the success of others. *(reverse scored)*	3.3 (0.6)	3.1 (0.6)	-0.2	**.002**	3.1 (0.7)	3.2 (0.7)	+0.1	.080	**.001**
14. I'm perfect the way I am. *(reverse scored)*	3.0 (0.9)	2.9 (0.8)	-0.1	.645	2.8 (0.9)	2.9 (0.9)	+0.1	.525	.444
Growth Mindset Total	45.5 (3.74)	43.4 (4.38)	-2.1	**.000**	43.7 (4.4)	44.4 (4.8)	+0.7	0.081	**.000**

[a]Scale 1-4 Likert
Standard Score: Strongly Agree=4, Agree=3, Disagree=2, Strongly Disagree=1
Reverse Score: Strongly Disagree=4, Disagree=3, Agree=2, Strongly Agree=1
[b]Based on paired t-test
[c]Based on independent sample t-test
M=Mean; SD=Standard Deviation

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Table 2. Team Communication Self-evaluation Questions from the "Growth Mindset and Team Communication Tool" from Pre and Post Surveys

Question Stem	Control Group (Fall 2017) N= 68				Intervention Group (Fall 2018 and Fall 2019) N = 106				Difference in Change
	Pre[a] M (SD)	Post[a] M (SD)	Change	*p* value[b]	Pre[a] M (SD)	Post[a] M (SD)	Change	*p* value[b]	*p* value[c]
1. I feel comfortable justifying recommendations / advice face-to-face with more senior people.	3.2 (0.5)	3.3 (0.6)	+0.1	**.049**	3.0 (0.7)	3.3 (0.6)	+0.3	**0.000**	.211
2. I feel comfortable explaining an issue to people who are unfamiliar with the topic.	3.4 (0.5)	3.4 (0.5)	0.0	1.000	3.2 (0.6)	3.4 (0.5)	+0.2	**0.002**	**.048**
3. I have difficulty in adapting my communication style (oral and written) to particular situations and audiences. *(reverse scored)*	3.0 (0.6)	2.8 (0.7)	-0.2	.090	2.8 (0.6)	3.0 (0.7)	+0.2	**0.007**	**.002**
4. I prefer to stay quiet when other people in a group express opinions that I don't agree with. *(reverse scored)*	2.7 (0.7)	2.7 (0.7)	0.0	.859	2.7 (0.7)	2.8 (0.7)	+0.1	0.058	.186
5. I feel comfortable working in a group.	3.3 (0.6)	3.5 (0.5)	+0.2	**.027**	3.3 (0.6)	3.5 (0.6)	+0.2	**0.004**	.949
6. I feel uncomfortable putting forward my personal opinions in a group. *(reverse scored)*	3.0 (0.7)	2.8 (0.8)	-0.2	**.042**	2.8 (0.9)	2.9 (1.0)	+0.1	0.255	**.037**
7. I feel uncomfortable taking the lead in a group. *(reverse scored)*	2.8 (0.7)	2.8 (0.8)	0.0	.892	2.8 (0.8)	2.8 (0.9)	0.0	0.570	.638
8. I am able to become quickly involved in new teams and groups.	3.1 (0.6)	3.2 (0.5)	+0.1	.254	3.1 (0.7)	3.3 (0.7)	+0.2	**0.030**	.520
9. I am comfortable expressing my own opinions in a group, even when I know that other people don't agree with them.	2.9 (0.7)	3.0 (0.6)	-0.1	.146	3.1 (0.6)	3.4 (0.7)	+0.3	**0.000**	.075
10. I am comfortable assessing the skills and abilities of group members, including myself.	3.2 (0.5)	3.2 (0.5)	0.0	1.000	3.2 (0.5)	3.5 (0.5)	+0.3	**0.000**	**.003**
11. I prefer group work with clear performance and accountability standards. *(reverse scored)*	1.6 (0.5)	1.7 (0.6)	+0.1	.509	1.5 (0.5)	1.5 (0.6)	0.0	0.867	.621
12. I am comfortable managing conflict in group work.	2.9 (0.6)	3.0 (0.6)	-0.1	.616	3.0 (0.6)	3.3 (0.6)	+0.3	**0.000**	**.024**
13. I am comfortable giving and receiving	3.2 (0.6)	3.2 (0.5)	0.0	.708	3.2 (0.5)	3.5 (0.6)	+0.3	**0.000**	**.040**

constructive criticism
during group work.

Team Communication

Total	38.2 (3.86)	38.4 (3.56)	+0.2	.595	37.7 (4.4)	40.1 (4.7)	+2.4	**0.000**	**0.000**

[a]Scale 1-4 Likert
Standard Score: Strongly Agree=4, Agree=3, Disagree=2, Strongly Disagree=1
Reverse Score: Strongly Disagree=4, Disagree=3, Agree=2, Strongly Agree=1
[b]Based on paired t-test
[c]Based on independent sample t-test
M=Mean; SD=Standard Deviation

Table 3. Satisfaction with Teamwork Experiences Questions from Pre and Post Surveys

	Control Group (Fall 2017) N= 68				Intervention Group (Fall 2018 and Fall 2019) N = 106				Difference in Change
Question Stem	**Pre[a] M (SD)**	**Post[a] M (SD)**	**Change**	**p value[b]**	**Pre[a] M (SD)**	**Post[a] M (SD)**	**Change**	**p value[b]**	**p value[c]**
1. I have found working as part of a team in my classes to be a valuable experience.	3.3 (0.6)	3.2 (0.6)	-0.1	.373	3.2 (0.6)	3.3 (0.7)	+0.0	.649	.324
2. In most teams I have been on, the team has worked well together.	3.0 (0.6)	3.2 (0.5)	+0.2	.086	3.1 (0.6)	3.3 (0.7)	+0.2	**.010**	.879
3. In most of the teams I have been on, I felt the other team members respected me.	3.3 (0.5)	3.3 (0.5)	0.0	1.000	3.2 (0.6)	3.4 (0.6)	+0.2	**.024**	.113
4. In most of the teams I have been on, I generally contribute more than other team members.	2.9 (0.7)	2.7 (0.7)	-0.3	**.001**	2.9 (0.6)	2.8 (0.7)	-0.2	**.032**	.229
5. I have found that working with a team helps me develop skills in working with others.	3.4 (0.5)	3.2 (0.5)	-0.2	**.006**	3.4 (0.6)	3.4 (0.6)	0.0	.863	**.022**
Team Satisfaction Total	15.9 (1.8)	15.6 (1.7)	-0.4	.068	15.8 (2.0)	16.1 (2.1)	+0.2	.197	**.026**

[a]Scale 1-4 Likert: Strongly Agree=4, Agree=3, Disagree=2, Strongly Disagree=1
[b]Based on paired t-test
[c]Based on independent sample t-test
M=Mean; SD=Standard Deviation

Table 4. Focus Group Qualitative Results

Categories and Subcategories	Control Focus Group (Fall 2017) n=48 distinct comments		Intervention Focus Group (Fall 2018) n=70 distinct comments		Total n=118 distinct comments[a]	
	n	**%**	**n**	**%**	**n**	**%**
Attitudes (defined as evaluation of pharmacy team experience)						
Positive	42	87.5	38	54.3	80	67.8
Mixed	6	12.5	31	44.3	37	31.4
Negative	0	0	1	1.4	1	.8

Actions (defined as behavior and communication used to explain the evaluation)

Shared resources
(pooling resources – like labor and knowledge – through collaboration)

	22	**45.8**	**19**	**27.2**	**41**	**34.8**

Sample comment: When we work in a group, not everybody's gonna be good at everything. So that might be your strong point but then there might be someone in your group, whatever your weak point is might be their strong point. You guys can work together to come up with the best outcome.

Diverse perspectives
(bringing unique perspectives, knowledge, or experience)

	11	**22.9**	**26**	**37.1**	**37**	**31.4**

Sample comment: Our group, we have completely different backgrounds, but we are really good for each other, help each other, and learn a lot from each other. Now, we sit down, look at the problem, and are like we got this. We work well together. It definitely has its benefits.

Professional preparation
(gaining skills and knowledge for a successful job/career)

	8	**16.7**	**12**	**17.1**	**20**	**16.9**

Sample comment: I've been placed in groups here (in school) where I've never talked to my group members. But in those groups, we're able to build that connection and grow and use that as a key foundation in the real world. When you're working for a company or whatever, you're being placed in different groups, you have different group assignments, and you need to know how to work together and this (school) is just practice.

Relational support
(building relationships, network, and community that help with challenges of school and career)

	7	**14.6**	**13**	**18.6**	**20**	**16.9**

Sample comment: I like groups. I want to work with everyone, get to know everyone. We migrate to the people we know, and we are stressed. I mean good stress, but it is comforting making friends. My (class) group, we get together on Friday nights for – um – adult beverages and play games to relax and decompress because this (school) is stressful.

[a]Each of the n=118 distinct comments were coded into the two top-level codes of attitude and action

Figure 1. Teamwork and Conflict Management Workshop Components

Orientation	• StrengthsFinder assessment completed by each student.
Week 1	• Pre-survey • Use of pre-survey results to create diverse student groups
Week 3	• Classroom lecture on recognizing individual and team members' strengths (~80 minutes)
Week 4	• Laboratory session where groups completed two pharmacy scenarios by identifying characters' primary strengths and workplace needs (~60 minutes)
Week 7	• Classroom lecture on process-oriented communication models and situational communication and group conflict resolution tools (~80 minutes)
Week 8	• Laboratory session identifying conflict process elements, contributing factors, workplace needs, and development of a conflict management note and narrative. (~60 minutes)
Week 9	• Laboratory session where groups acted out their narrative. This was followed by a short debriefing session conducted by the faculty facilitator (~30 minutes)
Week 15	• Post-Survey

Figure 1 Legend: Outline for the multi-week teamwork and conflict management workshop. Provides timeline for when lecture and laboratory sessions were completed along with when the pre- and post-surveys were disseminated to participants.

Figure 2. Growth Mindset (2A) and Team Communication (2B) Score Trend in Relation to Dominant Domain Category for the Intervention Group (N-106)

Figure 2 Legend: Of the 106 participants, the following number of students were categorized into each dominant domain: Executing (n=23, 23.6%), Relationship (n=21, 19.8%), Strategic (n=11, 10.4%), Influencing (n=5, 4.7%), and No Dominant (n=44, 41.5%). Due to the variability in distribution of number of students in each domain, the trends of score change have been reported without statistical significance in score change between the pre and the post survey results.