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TEAM SKILLS: COMPARING PEDAGOGY IN A GRADUATE BUSINESS SCHOOL TO THAT OF A COLLEGE OF PHARMACY PROFESSIONAL PROGRAM

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ABSTRACT

Aim/Purpose	To measure the change in perceived team skills resulting from team projects in professional and graduate school courses, a pilot study was conducted among students in two courses in a graduate school of business and one in the pharmacy school of the same institution of higher learning. This pilot study (a) evaluated whether students receiving training and practice in working as part of a classroom team were able to translate the formal training into the belief they had improved routine team interactions and experienced benefits from the intervention, and (b) sought to determine whether changes in perceived team skills acquired by graduate business students differed from those of pharmacy school students.
Background	This pilot study examined the usefulness of adding a teamwork skills module imported from a graduate school of business to increasing team skills in a pharmacy curriculum.
Methodology	Thirty-five students (22 in a graduate school of business and 13 in a school of pharmacy) took a survey comprised of 15 questions designed on a 5-point scale to self-evaluate their level of skill in working in a team. They were then exposed to a seminar on team skills, which included solving a case that required teamwork. After this intervention the students repeated the survey.
Contribution	As the pharmacy profession moves to be more integrated as part of inter-professional healthcare teams, pharmacy schools are finding it necessary to

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Team Skills

	teach students how to perform on teams where many disciplines are represented equally. The core of the pharmacy profession is shifting from dependence on the scientific method to one where team skills are also important.
Findings	The small size of the pilot sample limited significance except in the greater importance of positive personal interaction for business students. Directional findings supported the hypothesis that the business culture allows risk-taking on more limited information and more emphasis on creating a positive environment than the pharmacy culture, given its dependence on the scientific method. It remains moot as to whether directly applying a teaching intervention from a business curriculum can effectively advance the team skills of pharmacy students.
Recommendations for Practitioners	Educators in professional schools such as pharmacy and medicine may find curricular guidance to increase teamwork skills.
Impact on Society	Researchers are encouraged to explore cross-disciplinary exchanges of teaching core business skills.
Future Research	A full study is planned with the same design and larger sample sizes and expansion to include students in medical, as well as pharmacy classes.
Keywords	team skills, pharmacy education, business education, multi-disciplinary collaboration

INTRODUCTION AND LITERATURE REVIEW

Teamwork and team skills have been cited as increasingly important in many professions (Dixon, Belnap, Albrecht, & Lee, 2010; Kelton, 2015; Riebe, Reopen, Santarelli, & Marchioro, 2010). Educators have been attempting to increase teamwork competency as part of preparation for a successful career (Ellis, Bell, Ployhart, Hollenbeck, & Ilgen, 2005; Henry, 2002; Kennedy & Dull, 2008; Lingard, 2010; Lotrecchino, 2013; Prichard, Stratford, & Bizo, 2006; Stainbank, 2009; Thacker & Yost, 2002). The popular teamwork definition is the “work done by several associates with each doing a part but all subordinating personal prominence to the efficiency of the whole” (“Teamwork,” 2016)

The advantages of team skills show in that a high-performing team demonstrates (Lencioni, 2003):

- Trust, which increases courage to take risks,
- Healthy conflict, which encourages candid debate,
- Commitment, which follows from healthy conflict,
- Accountability, which requires commitment, and
- Focus on delivering measurable results, which is based on collective and individual accountability and feedback.

In pharmacy careers, teamwork and inter-professional relationships are now recognized as central to enhanced patient care and patient safety (Brock, Boone, & Anderson, 2016; Miller, Freeman, & Ross, 2001; Weller et al., 2011). Several countries, including the United States and Canada, are embarking on creating improvements to primary healthcare through multi-disciplinary team development and practice associations (Sargeant, Loney, & Murphy, 2008). The driving forces include the increased complexity of primary healthcare and the broad focus on health promotion and illness prevention.

A team requires the interdependent and collaborative efforts of its members. Although healthcare workers may have considered themselves as a team historically, in actuality they were a population of individuals that worked alongside each other, but not necessarily functioning as a team (Grumbach & Bodenheimer, 2004). Further barriers to effective teamwork have emerged as Team Science promotes diversity of team membership both in discipline and other diversities (Bennett, Gadlin, & Levine-

Finley, 2010; Disis & Slattery, 2010). Frame et al. (2016) showed that team-based learning can be effective in building confidence, and MacDonnell, George, Nimmagadda, Brown, and Gremel (2016) and Rotz, Duenas, Zañoni, and Grover (2016) used cross-discipline classroom teams to increase comfort in working in cross-profession workplace teams.

Studies to measure teamwork skills range from validation of a nursing teamwork skills instrument in Iceland (Bragadóttir, Kalisch, Smáradóttir, & Jónsdóttir, 2016), undergraduate student perceptions of the value of teamwork skills in Australia (Volkov & Volkov, 2015), measurement of teamwork skills among midwives in Australia (Hastie, Fahy, & Parratt, 2014), in surgical teams in England (Symons et al., 2012), and among managers in an Indian energy company (Brock, McIlhenny, Ma, & Sen, 2017).

Effective teams use clear communication, understand each other's functions, and demonstrate mutual respect. Effective communication requires skill. Poor communication can adversely affect team function. Previous studies examining interactions between pharmacy students as well as between practicing pharmacists identified instances of poor communication (Parkhurst, 1994). The Accreditation Council for Pharmacy Education (ACPE) Standards 2016 state that pharmacy graduates must be able to communicate and collaborate with patients, care givers, physicians, nurses, and support personnel (The Accreditation Council for Pharmacy Education, 2015). Currently, there exists significant interest in incorporating communication skills education into pharmacy curricula and efforts are emerging where communications skills are being taught to pharmacy students (Hess et al., 2016).

Skill in working on a team is frequently required by employers (Dixon et al., 2010; Riebe et al., 2010). In the business world, training resources are being applied to enable the development of team skills and by extension a more productive workforce (Lencioni, 2003). The concept of teams and creating a positive working environment has been a part of the business milieu for decades (Stewart & Roth, 2001), but is relatively new in pharmacy schools and the pharmacy practice (Hasler, 1992). Laverty, Hanna, Haughey, and Hughes (2015) emphasized the need for entrepreneurial skills in pharmacy education, particularly business management, peer assessment, and innovation. In Canada, Slavecev, Whaite, and Jennings (2016) highlighted the need for business skills among pharmacists because of the increasing complexity of the healthcare system.

That team skills can, and need to be taught, was shown by Prichard et al. (2006). Converting a classroom to team-based learning has been found to require clear instructor-developed objectives, advanced preparation assignments, and student readiness assessment (Ofstad & Brunner, 2013). As many as one third of United States Schools and Colleges of Pharmacy have implemented team-based training (Allen et al., 2013). The literature on how team skills can be taught in the classroom concentrates largely on practice in small groups (Opatrny, McCord, & Michaelsen, 2014).

This pilot study tested whether two populations of students, graduate business students and professional pharmacy students, receiving training and practice in working on a team experienced benefits from the training, and attempted to determine whether team skills taught to the two different populations generated different results.

OBJECTIVE

A pilot study was conducted (a) to evaluate whether students receiving training and practice in working as part of a classroom team were able to translate the formal training into the belief they had improved routine team interactions and experienced benefits from the intervention, and (b) to determine whether changes in perceived team skills acquired by graduate business students differed from those of pharmacy school students. These objectives were reinforced by the college's emphasis on Inter-Professional Education and the belief that sharing training across disciplines would be beneficial to preparation for a workplace where teams are becoming increasingly important.

The research questions addressed were in the self-rating of the frequency of practicing team skills:

- (1) Were there significant changes from the overall pre measurement of team skills to the overall post intervention measurement of team skills in either the pharmacy students or the business students?
- (2) Were there significant differences between students in graduate business school courses compared to pharmacy school students in changes from levels pre and post intervention on the 15 dimensions of teamwork skills? If so, which ones?

The expectation was that spending several hours of class time focusing on teamwork skills, sharing information about the skills that lead to higher performance teams, and thinking about how these skills were reflected in class exercises would lead to increased confidence in displaying teamwork skills. The possibility existed that because team skills are a newer concept in pharmacy those students may have a different pre-post performance than would business students, who were more familiar with the value of teamwork skills.

DESIGN

Thirty-seven students took a survey comprised of 15 questions designed on a 5-point scale. For each of 15 teamwork skills, participants self-evaluated their level of skill in working in a team at a metropolitan New York City College.

Twenty-two students were in a course in Change Management at the College's Graduate School of Business and thirteen students were members of a laboratory course at the college's School of Pharmacy. The team output in the graduate business class was a presentation, which was evaluated by peers. There were 5 teams, 3 in a course given fall 2012 and 2 in a course given summer 2013. Membership was based on self-selection. Teamwork accounted for 15% of each student's final course grade.

In the School of Pharmacy, there were 13 students, 5 teams of 2-3 in a course given in the summer 2013. The pharmacy groups were formed by random number assignment at the beginning of the semester. In final grading for the course these students were evaluated on group participation (70%), quizzes (10%), and the final (20%).

A teamwork skills section of one hour was presented to each course by the same business school professor, but in the business classes it was spread out into 15-minute segments in 4 classes. It included an in-class case and covered the "forming, storming, norming, performing" stages (Tuckman, 1965), and the 5 dysfunctions of a team (Lencioni, 2003), described as "absence of trust," "fear of conflict," "lack of commitment," "avoidance of accountability," and "inattention to results." The metaphor of sports teams was used and the skills required in those situations were elicited. Most students had participated in a sports team. Students were encouraged to bring forward any problems in teamwork for discussion. Issues of communication and free ridership were covered.

At the end of the respective courses, students again evaluated themselves on their team skills using the same questionnaire. The instrument had been sourced from the Internet and had been developed for evaluating classroom teams in Australia (University of South Australia, 2011). The attributes on the survey were the frequency of:

1. Offering information and opinions
2. Summarizing what is happening in the group
3. Identifying what is happening when there is a problem
4. Starting the group working
5. Suggesting directions the group can take
6. Listening actively
7. Giving positive feedback to other members of the group
8. Compromising
9. Helping relieve tension

10. Talking
11. Ensuring that meeting times and places are arranged
12. Observing what is happening in the group
13. Trying to help solve problems
14. Taking responsibility for ensuring that tasks are completed
15. Liking the group to be having a good time

After scoring, three team skills overall scores were indicated based upon the sums of the attribute ratings: “very effective,” “effective,” and “useful if you worked on some of your team skills.” The score sheet assigned values from 0-3 for each answer. The “very effective” range was from 40 – 45, the “effective” range from 35 – 40 and the “useful if you worked on some of your team skills” was under 35.

A paired t-test was used to test the significance of difference between pre and post team skills session. A two-sample t-test was used to test the significance of difference in pre-post-team-skills-session difference between graduate business students and pharmacy students. Alpha-level was set at 0.05.

The study had been approved by the College’s IRB as exempt and received a continuation for data analysis.

RESULTS

The survey package included the opportunity to self-score to indicate into which of three categories their totals fell: “useful if you worked on some of your team skills,” “effective team person,” and “very effective team person.” The averages for each of the classes resulted in being included in the “useful if you worked on some of your team skills” category even though nearly half scored averages that put them in the “effective team skills category.”

In answering Research Question 1, neither business nor pharmacy students changed significantly on the overall teamwork skill average at the .05 level in t-test. However, the distribution of business students across the 15 dimensions more closely approached a normal curve than did pharmacy students, who had a positive skew.

The pharmacy results indicate more variation in the change from pre-training to post-training possibly because there is less consistent definition of what constitutes important team skills than in the business world. In addition even though business desires to have decisions more data driven, there is still admiration for risk taking with limited data.

Looking next at Research Question 2, only in one of the dimensions, “Liking the group to be having a good time” was there a significant difference between the pharmacy and business students. Business students were significantly more likely to value this attribute of teamwork after the intervention. This item may relate to the greater awareness of business students of the importance of getting along with teammates. It’s possible that business students can net out to value a positive environment more quickly than pharmacy students as they have been imbued with the importance of good work relationships and ability to provide positive customer service. See Figure 1 and Table 1.

Team Skills

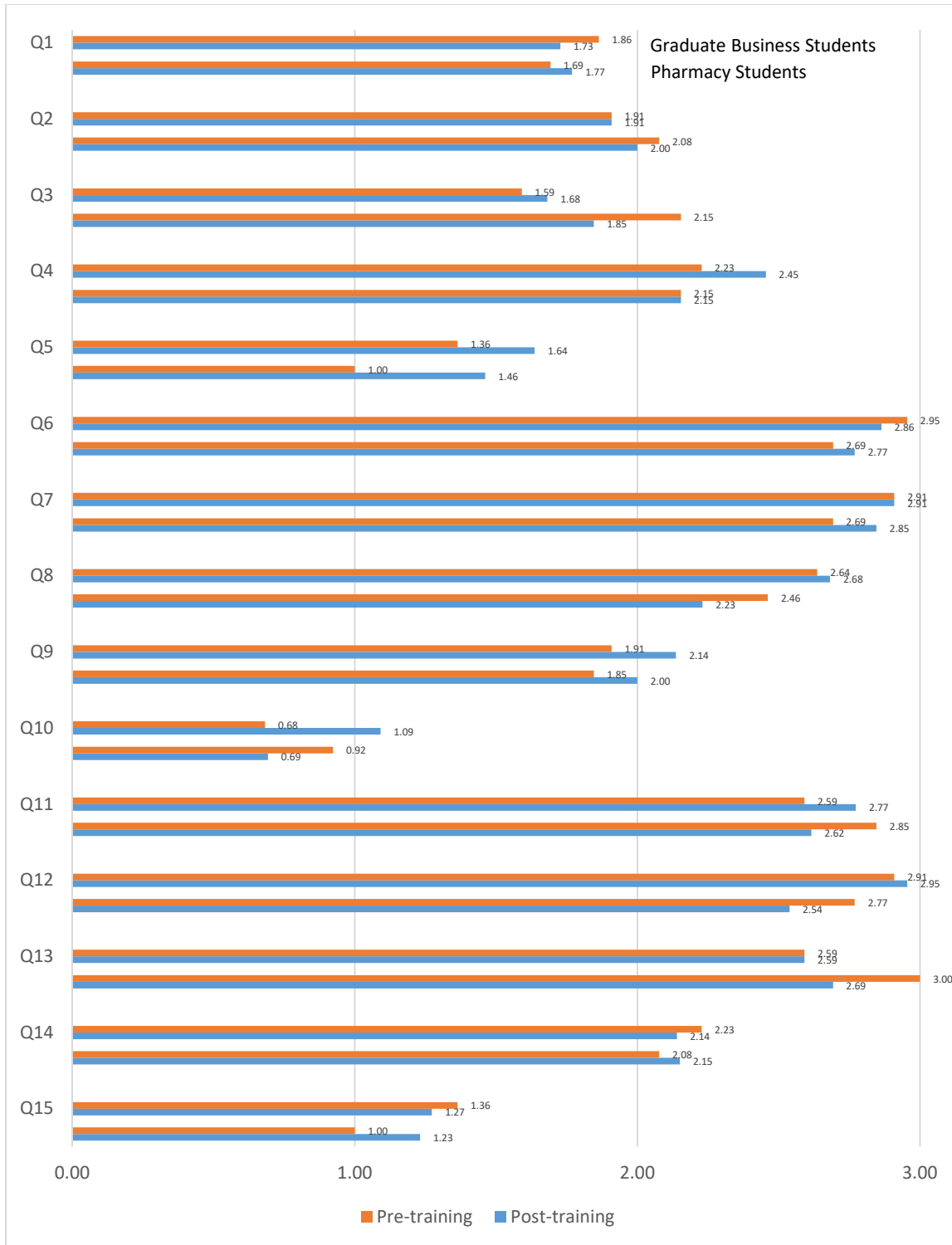


Figure 1. Mean Scores of Survey Questions Pre and Post Team Skill Session

Table 1. Results of Statistical Analysis on Differences in Pre-Post-Team-Skills-Training Difference between Graduate Business and Pharmacy Students

ITEM	DIFFERENCE IN PRE-POST-TEAM-SKILLS TRAINING DIFFERENCE BETWEEN GRADUATE BUSINESS AND PHARMACY STUDENTS	P-VALUE
Question 1	-0.21	0.49
Question 2	0.08	0.80
Question 3	0.40	0.29
Question 4	0.23	0.41
Question 5	-0.19	0.66
Question 6	-0.17	0.39
Question 7	-0.15	0.37
Question 8	0.28	0.42
Question 9	0.07	0.85
Question 10	0.64	0.35
Question 11	0.41	0.12
Question 12	0.28	0.36
Question 13	0.31	0.17
Question 14	-0.17	0.21
Question 15	-0.32	0.04

CONCLUSION

This pilot showed only one significant difference between the pharmacy sample and the business sample, which was in “liking the group to have a good time.” However, promising directional trends emerged in the great variability in pharmacy answers, possibility reinforcing the newness of the team concept to the profession.

As the pharmacy profession moves toward being more integrated with the business functions, it is useful to expose pharmacy students to the same team training that business students receive.

Furthermore, given that interest in developing teamwork skills is being expressed in many cultures and countries, an expansion of this comparison of teamwork skills across disciplines, especially business and pharmacy, may be of use not only to educators in pharmacy and business schools, but also among organizations that hire pharmacy graduates in countries other than the United States.

In future research, larger samples of students from different disciplines are needed before making recommendations on any needed variations in training team skills in disparate schools. As team skills become more important in many workplaces a dialogue among various types of schools on how best to teach them is valuable.

REFERENCES

- The Accreditation Council for Pharmacy Education. (2015). *Accreditation standards and key elements for the professional program in pharmacy leading to the doctor of pharmacy degree*. Retrieved from <https://www.acpe-accredit.org>
- Allen, R.E., Copeland, J., Franks, A. S., Karimi, R., McCollum, M, Riese, D. J., & Lin, A. Y. F. (2103) Team-based learning in US colleges and schools of pharmacy. *American Journal of Pharmaceutical Education*, 77(6).
- Bennett, L. M., Gadlin, H., & Levine-Finley, S. (2010). *Collaboration & team science: A field guide*. NIH Publication No. 10-7660.
- Bragadóttir, H., Kalisch, B. J., Smáradóttir, S. B., & Jónsdóttir, H. H. (2016). The psychometric testing of the nursing teamwork survey in Iceland. *International Journal of Nursing Practice*, 22(3), 267.
- Brock, T., Boone, J., & Anderson, C. (2016). Health care education must be more of a team sport. *American Journal of Pharmaceutical Education*, 80(1).
- Brock, S., McClincy, P., Ma, C., & Sen, A. (2017). Toward more practical measurement of teamwork skills. *Journal of Workplace Learning*.
- Disis, M. L. & Slattery, J. T. (2010). The road we must take: Multidisciplinary team science. *Science Translational Medicine*, 2(22), 1-4.
- Dixon, J., Belnap, C., Albrecht, C., & Lee, K. (2010). The importance of soft skills. *Corporate Finance Review*, 14 (6), 35-38. Retrieved May 22, 2012, from <http://search.proquest.com/docview/751644804>
- Ellis, A. P. J., Bell, B. S., Ployhart, R. E., Hollenbeck, J. R., & Ilgen, D. R. (2005). An evaluation of generic teamwork skills training with action teams: Effects on cognitive and skill-based outcomes. *Personnel Psychology*, 58(3), 641-672.
- Frame, T. R., Gryka, R., Kiersma, M. E., Todt, A L., Cailor, S. M., & Chen, A. M. H. (2016). Student perceptions of and confidence in self-care course concepts using team-based learning. *American Journal of Pharmaceutical Education*, 80(30).
- Grumbach, K., & Bodenheimer, T. (2004). Can health care teams improve primary care practice? *JAMA*, 291(10), 1246-1251.
- Hasler, J. (1992). The primary health care team: History and contractual farces. *British Medical Journal*, 305(6847), 232.
- Hastie, C. C., Fahy, K., & Parratt, J. (2014). The development of a rubric for peer assessment of individual teamwork skills in undergraduate midwifery students. *Women and Birth: Journal of the Australian College of Midwives*, 27(3), 220-226.
- Henry, J. (2002). Conscious planning for effective classroom teams. *American Journal of Health Education*, 33(5), 310. Retrieved March 13, 2012, from <http://search.proquest.com/docview/212630087>
- Hess, R., Hagemeyer, N. E., Blackwelder, R., Rose, D., Ansari, N., & Branham, T. (2016). Teaching communication skills to medical and pharmacy students through a blended learning course. *American Journal of Pharmaceutical Education*, 80(4).
- Kelton. (2013), University of Phoenix survey reveals nearly seven-in-ten workers have been part of dysfunctional teams. *PR Newswire*. Retrieved February 11, 2015, from <http://www.prnewswire.com/news-releases/university-of-phoenix-survey-reveals-nearly-seven-in-ten-workers-have-been-part-of-dysfunctional-teams-187090161.html>
- Kennedy, F. A., & Dull, R. B. (2008). Transferable team skills for accounting students. *Accounting Education: An International Journal*, 27(2), 213-224.

- Lavarty, G., Hanna, L., Haughey, S., & Hughes, C. (2015). Developing entrepreneurial skills in pharmacy students. *American Journal of Pharmaceutical Education*, 79(7), 1-9.
- Lencioni, P. (2003). *The five dysfunctions of a team: A leadership fable*. San Francisco: Jossey-Bass.
- Lingard, R. W. (2010). Teaching and assessing teamwork skills in engineering and computer science. *Journal of Systemics, Cybernetics and Information*, 8(1), 34-37.
- Lotrecchiano, G. (2013). A dynamical approach toward understanding mechanisms of team science: Change, kinship, tension, and heritage in a transdisciplinary team. *Clinical and Translational Science*, 6(4), 267-278.
- MacDonnell, C., George, P., Nimmagadda, J., Brown, S., & Gremel, K. (2016). A team-based practicum bringing together students across educational institutions and health professions. *American Journal of*
- Miller, C., Freeman, M., & Ross, N. (2001). *Interprofessional practice in health and social care: Challenging the shared learning agenda*. London: Arnold.
- Ofstad, W., & Brunner, L. (2013). Team-based learning in pharmacy education. *American Journal of Pharmaceutical Education*, 77(4), 1-11.
- Opatrny, C., McCord, M., & Michaelsen, L. (2014). Can transferable team skills be taught? A longitudinal study. *Academy of Educational Leadership Journal*, 18(2), 61-72.
- Parkhurst, C. (1994). Assessing and improving students' verbal communication abilities in pharmacy courses. *American Journal of Pharmaceutical Education*, 58, 50-55.
- Prichard, J.S., Stratford, R.J., & Bizo, L.A. (2006). Team-skills training enhances collaborative learning. *Learning and Instruction*, 16, 256-265.
- Riebe, L., Reopen, D., Santarelli, B., & Marchioro, G. (2010). Teamwork: Effectively teaching an employability skill. *Education & Training*, 52(6/7), 528-539.
- Rotz, M. E., Duenas, G. G., Zañoni, A., & Grover, A. (2016). Designing and evaluating an interprofessional experiential course series involving medical and pharmacy students. *American Journal of Pharmaceutical Education*, 80(5).
- Sargeant, J., Loney, E., & Murphy, G. (2008). Effective interprofessional teams: "Contact is not enough" to build a team. *Journal of Continuing Education in the Health Professions*, 28(4), 228-234.
- Slavcev, R.A., Whaite, N. M., & Jennings, B. (2016). Shaping pharmacy students' business and management aptitudes and attitudes. *Currents in Pharmacy Teaching and Learning*, 8(5), 672-680.
- Stainbank, L. J. (2009). Working in teams: Improving the team experience. *Meditari Accountancy Research*, 17(1), 69-80.
- Stewart, W. H., & Roth, P. L. (2001). Risk propensity differences between entrepreneurs and managers: A meta-analytic review. *Journal of Applied Psychology*, 86(1), 145-153.
- Symons, N. R., Wong, H. W. L., Manser, T., Sevdalis, N., Vincent, C. A., & Moorthy, K. (2012). An observational study of teamwork skills in shift handover. *International Journal of Surgery*, 10(7), 355-359.
- Teamwork. (2016). *Merriam-Webster's learner's dictionary*. Retrieved November 20, 2016, from <http://www.merriam-webster.com>
- Thacker, R. A., & Yost, C. A. (2002). Training students to become effective workplace team leaders. *Team Performance Management*, 8(3/4), 89. Retrieved March 13, 2012, from <http://search.proquest.com/docview/217095590>
- Tuckman, B. W. (1965). Developmental sequence in small groups. *Psychological Bulletin*, 63(6), 384-399.
- University of South Australia. (2011). *Teamwork skills questionnaire*. Handout in Working in Teams Online Workshop. Retrieved March 24, 2011 from <http://careerscbc.yolasite.com/resources/Team%20work%20skills%20questionnaire%20C.pdf>
- Volkov, A., & Volkov, M. (2015). Teamwork benefits in tertiary education: Student perceptions that lead to best practice assessment design. *Education & Training*, 57(3).

Weller, J., Paul, A., Frengley, R., Torrie, J., Shulruf, B., Hopeley, L., Henderson, K., Dzendrowsky, P., & Yee, B. (2011). Evaluation of an instrument to measure teamwork in multidisciplinary critical care teams. *BMJ Quality & Safety*, 20(3), 216-222.

BIOGRAPHIES



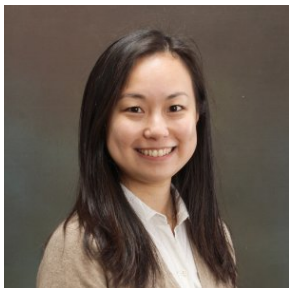
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