

Supporting student development through a cooperative education coaching program

LISA ARMSTRONG

NANCY WAITE¹

University of Waterloo, Kitchener, Canada

MEAGEN ROSENTHAL

University of Mississippi, Oxford, USA

Uptake of new scopes of practice by pharmacists has been slow and inconsistent, which the literature suggests may be related to disconnects between pharmacists' established professional identities and the identities needed to adopt these new practices. This study evaluated the use of coaches to help pharmacy students during their cooperative education work terms develop professional identities more aligned with the new scopes of practice. In this longitudinal cross-sectional survey, trained pharmacist coaches met individually and in groups with students in the intervention arm of the study. Students and coaches in the intervention arm completed reflective questions and student intervention and control groups completed a self-assessment survey. Reflective comments indicated that both students and coaches identified student gains in career and professional planning, workplace navigation skills, ability to reflect on professional development topics, and contextualizing classroom learning within practice. Work-integrated learning combined with coaching can contribute to students' career and professional identity development. (*Asia-Pacific Journal of Cooperative Education*, 2015, 16(4), 255-265)

Keywords: Coach, mentor, cooperative education, student, reflective practitioner, pharmacist

The role of pharmacists has been expanding rapidly in Canada to include the ability to both conduct and be financially compensated for such activities as medication reviews, prescribing, and immunizations (Huang, Ryan, Zabel, & Palmer, 2014; "Pharmacists' expanded scope of practice in Canada," 2014). However, the rate at which these new opportunities are being integrated into pharmacists' practice has been slow and incomplete (Jorgenson, Lamd, & McKinnon, 2011; Schommer & Gaither, 2014). While this is occurring for many reasons, literature from fields including medicine, nursing, and school psychology has demonstrated disconnects between practitioners' professional identity and their actions in practice (Doolin, 2002; Fagermoen, 1997; Nastasi, 2000). For example, a study examining a hospital's efforts to influence clinical service provision by encouraging physicians to act as entrepreneurs was impeded by physicians' self-identification as autonomous practitioners (Doolin, 2002). If similar disconnects between professional identity and actions in practice are at play in pharmacy practice, it suggests that student pharmacist practitioners should be given an opportunity to develop a professional identity that aligns with new practice expectations to be successful in this new and changing environment.

The importance of addressing and supporting students' creation of professional identity during their academic program has been relatively well established (Chen & Lou, 2014; Hendelman & Byszewski, 2014; Trede, Macklin, & Bridges, 2012). Furthermore, it has also demonstrated that while professional identity is never totally fixed, it is a process that can be aided by teaching students to reflect on feedback, interact with the complexities of their environment, and experiment with "trial identities" (MacDonald, Cameron, Brimble, Freudenberg, & English, 2014). Moreover, this reflection is understood as a combination of

¹ Corresponding author: Nancy Waite, nmwaite@uwaterloo.ca

self-understanding and the understanding of situations that can be used to inform future action (Mason et al., 2011).

Research into the development of professional identity in students has shown that it can be enhanced using mentors and coaches (Frei, Stamm, & Buddeberg-Fischer, 2010; Tofade, 2010). In fact, the Center for the Advancement of Pharmacy Education (CAPE) recently called for the personal and professional development of students' ability to engage in help-seeking behavior (Medina et al., 2013). This outcome may be interpreted as helping students in the identification and use of mentors and coaches. Mentoring is understood as a relationship between a trainee and a more senior member of the profession or faculty, wherein the trainee is provided with advice and instruction (Tofade, 2010). Mentoring is also a process that takes place over an extended period of time (Haines, 2003). Coaching, however, is a more active, purposeful, and condensed version of what is happening in mentoring relationship (Tofade, 2010). Furthermore, coaching is generally associated with a specific set of goals, such as prompting students to engage in self-reflective practices or developing trial identities in a clinical placement (Frei et al., 2010; Tofade, 2010). While mentoring relationships are of importance to develop professional identities in pharmacy students, coaching provides a more expedient and purposive approach to this process (Tofade, 2010).

The University of Waterloo's School of Pharmacy was established in 2008 and is the first new pharmacy school in Canada in more than 20 years. It is also the only one of the ten pharmacy schools in the country and the second in North America to offer cooperative education as its primary method of delivery for experiential education through a series of four-month long paid work terms that occur early and often throughout the program. As a result students are exposed to the realities of pharmacy practice, including the variable uptake in new pharmacy services, in the midst of developing their professional identity. This exposure has meant that student interest in career guidance and practice discussion starts within their first year as they begin considering, applying, and interviewing for work-term positions.

The School's pharmacist faculty and two experiential-learning staff members have provided *ad-hoc* individual student support in the past. However, the sheer number of requests from students has meant that those faculty and staff members are often unable to meet demand. To meet this increasing student need, a coaching program was developed in 2011. Its primary objective was to support students as they participated in the cooperative education program. In particular, coaches assisted students in professional identity development by helping them reflect on their workplace choices, understand their workplace experience, and career development. Coaches also helped students identify and understand connections between classroom and workplace experiences. The objective of this study was to compare and contrast the experience of a group of pharmacy students with access to this coaching program with that of a control group that did not receive coaching.

METHODS

Design

This study employed a longitudinal cross-sectional comparative design and was reviewed and approved by the University of Waterloo Office of Research Ethics.

Participants: Selection and Activities

Coaches: An invitation to apply to become a coach for the coaching program at the University of Waterloo was distributed through professional pharmacy networks in Ontario, Canada. Interested pharmacists submitted their *curriculum vitae*, and a brief summary of their coaching and mentoring experiences. Applicants were screened and selected by a research assistant and faculty member. Criteria for selection included having a practice in a patient care setting, teaching experience, and demonstrated passion for coaching and mentoring. The 12 coaches were offered a \$1,000 (Cdn) honorarium for their coaching work over a two-year period.

Coaches participated in a day-long structured training program aimed at standardizing the coaching sessions across student groups. This included an overview of the coaching program (i.e., its rationale and fit within the undergraduate curriculum), prompting questions to be used during coaching sessions, instructions on how to complete the coaching feedback forms, parameters around appropriate and inappropriate areas of student-coach discussions, and a list of resources to access if coaches felt that individual students required additional support. Coaches were trained to empower and guide students to learn how they could use their own skills, knowledge, and abilities to solve the challenges they face in the program (Tofade, 2010). All coaches provided consent for their data to be used in the research study.

Control group: The School of Pharmacy's graduating class of 2012 acted as the control group and did not participate in the coaching program. An in-class session was held with these students during the final year of their program to explain the study and ask them to complete a voluntary self-assessment survey.

Intervention group: The intervention group comprised of the graduating class of 2013. An in-class session was given to these students, which included an overview of the coaching program, student/coach expectations, a description of the coaching activities and assignments, and the backgrounds and interests of the coaches. Attending coaching sessions and completing self-assessment surveys and feedback forms were required of all students in the intervention group, and were embedded in a mandatory seminar course. However, students were given the option of participating in the coaching research study, and only data from those students who gave consent were included in the research analysis.

The Intervention: The Coaching Program

The 12 coaches were randomly matched with 10 students each. The coaches conducted two identical coaching sessions (one each in 2011 and 2012), each consisting of a one-on-one individual coach meeting, and a group meeting with all 10 students. Most coaches held the group session before the individual meetings, though this was not required. The time period between group and individual meetings depended on student and coach schedules, but generally occurred within a few weeks of each other. The sessions occurred in the academic term after the students' second and third cooperative work term. Coaches were given contact information for students in their group, and were responsible for organizing meetings for each coaching session. Coaching sessions could be in person or via Skype, Adobe Connect, phone calls, or instant messaging. Coaches were asked to complete one feedback form for each individual student meeting, and one for each group meeting.

Assessments

Self-assessment survey: No standardized instrument capturing student development of professional identity in pharmacy was available based on a review of the literature. As such, previously used instruments measuring topics such as metacognition, self-efficacy, and learning process (Thomas, Anderson, & Nashon, 2008), and students' experiences with learning, studying and teaching (i.e., questionnaires) were examined and informed the development of a new self-assessment instrument for this study. No specific questions were taken directly from these surveys.

The final questions were of two types. The first type was open-ended questions and asked about career development and choice of type of work term. The second were 5-point scale rating questions, ranging from strongly disagree to strongly agree, and asked about career development, as well as professional development and self-reflection. The self-assessment instrument was pilot tested with a group of students and staff members not involved in the research study, and then revised accordingly. The self-assessment survey was administered to students online through the University of Waterloo's learning management system.

Feedback forms: The feedback forms were designed to gather information specific to the experiences of students and coaches with the coaching program. The students' form contained four open-ended questions: "What did you feel best about during this coaching session?", "What did you feel worst about during this coaching session?", "What could have been done better during this coaching session?", and "What else would you like us to know?". The coaches' form contained the same basic questions as the student form, but coaches were also asked to reflect on the success of the session, and their perceptions of changes in students' over the course of the coaching program. Both students and coaches completed one electronic feedback form after each coaching session (individual and group).

A timeline of study activities and assessment collection points is provided in Figure 1. A few surveys and feedback forms were provided in hard copy form, which were transcribed into appropriate electronic forms by the research coordinator.



FIGURE 1: Timeline of coaching and assessment activities for both the intervention and control arms in the coaching program.

Analysis

All data were de-identified; students were given unique research numbers, coaches were given pseudonyms, and any data for which consent was not given were removed from analysis. To improve comparability of results from the intervention and control groups, only the results from the final self-assessment, which was completed at the same time point in the curriculum for both the intervention and control group, were analyzed. Quantitative data were summarized using descriptive statistics.

Qualitative data were content analyzed to build a preliminary set of themes. Four researchers separately analyzed feedback data for 10 students from one-on-one sessions, 10 coaches for one-on-one sessions, and 10 students from group sessions. The researchers met to discuss similarities and differences between emerging coding structures. Once theme consensus was achieved, NVivo 9 was used to organize qualitative data and categorize the remaining data. After completing the analysis, the qualitative themes were further discussed by the broader research team to confirm the meanings and use of various categories.

RESULTS

Percentages of students for whom self-assessment and feedback form data were available ranged from 54 to 100%. The quantitative results from the control and intervention group's final self-assessment survey questions are presented in Figure 2. The questions from the self-assessment were grouped into three themes: self-reflection, reflection in practice environment, and work choices. The rankings of the Likert scales were collapsed into strongly disagree/disagree, neutral, agree/strongly agree categories. No significant differences were noted between the intervention and control groups in these analyses.

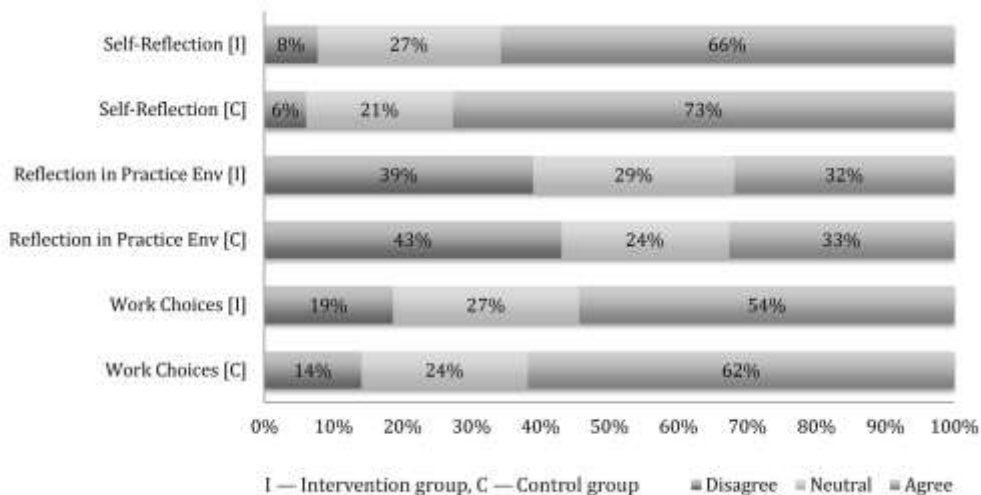


FIGURE 2: Proportions of respondents from self-assessment survey results measured on a Likert scale.

The qualitative data taken from the student and coaching feedback forms were organized into two general themes: student development and coaching program feedback. Each theme is presented below along with select representative quotations.

Student Development

Decision making regarding career planning and post-graduation studies: Coaches helped students think about their future in two main areas — career planning and post-graduation studies. For career planning, the following topics were reported: how to overcome student-identified challenges with respect to jobs and careers, options/scenarios to consider upon graduation, how to prepare to search for jobs, and how to be a leader in the profession of pharmacy. Some students were also interested in how to prepare for post-graduation opportunities around the types of pharmacy networks and how to develop contacts in their area of interest, as well as advice regarding internships, residencies and PharmD programs. Here a student, then a coach, summarize their experience.

It was nice to have advice from someone outside of community pharmacy and to get a feel for what to expect from different pharmacy practices. It was also encouraging to hear about what to expect when we have graduated and the opportunities that are ahead for us. Student 38 (session one, with Coach Margaret)

... Student 58 has commented that he would like to be a clinical problem solver, so we spent time talking about how he can achieve this in a community setting, as he has mostly seen this as being a hospital pharmacist role." Coach Caitlin (session two meeting with Student 58)

Coaches also became navigators for students, helping them obtain the cooperative education experience they desired.

I liked the practical advice Coach Gerry provided me to prepare for my coop placement in the hospital setting. With no prior experience, Coach Gerry was able to provide me with ways I could gain the most benefit out of my time in the hospital. Student 54 (session two meeting with Coach Gerry)

Coaches were identified as helping students navigate institutional bureaucracies, offering advice on how to propose new ideas, and how to close identified knowledge gaps. This was accomplished by discussing options and requirements, how to get relevant experience for particular careers, who to approach for certain outcomes, and which settings are relevant to which careers.

Reflective and Professional Development

Students and coaches identified value in building a relationship with each other and having the opportunity to discuss personal and professional aspects of pharmacy. This relationship building seemed to make students more comfortable being reflective and identifying areas where they needed support.

I thoroughly enjoyed talking with Coach Caitlin. She is a very encouraging pharmacist who gave me valuable information on the profession and provided me with contact to a practicing pharmacist who I can certainly relate to. I greatly appreciated her opinions and advice and look forward to keeping in touch with her. Student 02 (session one meeting with Coach Catlin)

Student 33 and I have developed a good student-coach relationship. This was a very lengthy session, over 1.5 hrs. We went down several paths, personal, professional, and academic topics...I think we were very productive from mentor/coach perspective. I really enjoyed our discussion. Student 33 and I have a lot in common and I remember being in his shoes as a student. I think that helped us build a stronger connection. Coach Keith (session two meeting with Student 33)

Discussion of the Field of Pharmacy

Coaches and students enjoyed discussing pharmacy overall, including current challenges and changes in the field, the type of knowledge needed within the profession, predictions for the profession, and advice for moving forward. Sometimes coaches initiated these discussions, while other times these topics came up naturally. One coach initiated the conversation by e-mailing “controversial topics” for students to discuss.

It was a good opportunity to gain perspective about the pharmacy profession from someone outside the School of Pharmacy. Student 53 (session one meeting with Coach Gerry)

We had a great conversation about where we would like to see the profession of pharmacy to be in the next 5-10 years and what needs to happen in order for the profession of pharmacy to move toward a more clinical based practice. Coach Mabee (session two meeting with Student 25)

I enjoyed the opportunity to discuss current issues related to pharmacy, which is something we rarely have the opportunity to do during classes. Coach Lana had some interesting questions/topics to discuss. Student 30 (session two group meeting with Coach Lana)

Coaches identified changes in students over the course of the coaching experience with deeper discussions, more participation, engagement and openness, and higher level of reflection and interest in planning for the future.

The students were engaged in the conversation. They all seemed to have enjoyed, for the most part, their recent coop experience. They were less negative than before. They also appeared to have matured more in their ability to take on more responsibility during their coop term as well as negotiate for increased clinical activities. It was an enjoyable session. Coach Brittany (session two group coaching meeting)

Workplace and Classroom Learning

Coaches commented on student-identified intersections between curriculum and cooperative education placements — that is, intersections between material taught in the classroom and practical experiences gained during work placements. Very few students specifically mentioned this intersection.

The students seemed to have a pretty healthy grasp on the classroom vs. real world topic. I think I was able to learn the most about this as they discussed the challenges they faced. (I think the majority of students brought up the fact that they tried ‘classroom’ ideals and found they needed to pare down or adapt their approaches to day-to-day practices.) Coach Keith (session two group coaching meeting)

Some coaches encouraged students to identify critical learning moments from their cooperative education experiences as a way to increase reflection and inform decision-making.

I feel that even if sometimes students don’t realize how the class content and the field placements intersect, those connections are still happening. Coach Caitlin (session two group coaching meeting)

Coaching Program Feedback

Overall, coaches enjoyed the program, appreciated the opportunity to help pharmacy students, to stay up to date with pharmacy curriculum, and to share their networks.

It is great and inspiring for me, as a coach and teacher, to talk with students who are enthusiastic and excited about becoming pharmacists. It inspires me to do better as a clinician. They are always exploring new opportunities, which helps stimulate my own creativity with respect to my own pharmacy career. I really appreciate and value that aspect of the coaching experience. Coach Brittany (session two meeting with Student 50)

Student experiences, on the other hand, were mixed. Many students enjoyed the coaching sessions, and others were more negative, but both groups provided constructive feedback.

...[Best:] good sharing of ideas, experiences from previous coop session. Worst: turned into a "complaining session" for students to complain to the coach about the coop experience, and what could be done better. Student 85 (session two group meeting with Coach Mabee)

Students and coaches also offered a number of critiques of the program. To begin students and coaches emphasized the importance of shared interests within groups to facilitate discussion. Coaches especially wanted more information to be shared about the students as a group, and the courses they were taking. Students wanted more information about coach interests. They also expressed a desire for the coaching program to be voluntary, or optional, because of the negative impact students who did not want to participate in the program had on other students.

Both groups also identified positive aspects of group meetings such as hearing other students' experiences, but overall individual meetings were preferred as they allowed more focused discussion and advice. Students and coaches requested that clearer goals and objectives be set, yet students and coaches also stated a preference for an informal setting where students are able to ask any questions they had. The results from feedback forms illustrated the importance of timing and scheduling, as many students met with their coaches after they had chosen their coop employers and this was seen as a drawback.

Another challenge was scheduling the sessions, specifically the group sessions. Most preferred longer sessions (up to 1 hour), while a few wished the sessions were shorter. Finally, many of the coaches who live out of town had used Adobe Connect, Skype, telephone calls, and instant messaging to conduct meetings with students; however, the inability to meet in person was seen as a disadvantage by most students and coaches. At times, technological problems, such as long lag times during meetings and improperly functioning equipment, impeded the quality of the meetings.

DISCUSSION

If pharmacy students are to meet the demands of an ever-changing pharmacy profession they must be allowed to develop a professional identity that provides them with a set of skills that fosters success in this endeavor. The newly developed coaching program at the University of Waterloo's School of Pharmacy was specifically designed to assist students develop such a professional identity. The qualitative results from the feedback forms for both the students and coaches revealed two primary themes: student development and coaching program feedback. A number of important sub-themes were also identified under the theme

of student development and included the following: decision-making regarding career planning and post-graduation studies, reflective and professional development, discussion of the field of pharmacy as a whole, and workplace and classroom learning. Literature in the area suggests that professional identity is constructed through interactions of students with members of the profession, faculty, and other students, through experiential learning, mentorship opportunities, and coursework (MacDonald et al., 2014). This coaching program contributed to this professional identity development process through a series of sessions wherein students interacted with actively practicing pharmacist coaches. A definition of professional identity development suggests that it is the process by which an individual becomes “aware of what matters most in practice, [and] what values and interests shape decision making” (Trede et al., 2012, p. 163). Delving more deeply into the sub-themes identified suggests that this process began for students who took part in the coaching program.

More specifically, students’ experience in work settings made them aware of practice matters and prompted them to begin asking coaches for insight into how these practice issues could be navigated. Being relatively “workplace naïve” and encountering contradictions between classroom ideals and the “pared down” realities of practice, they sought guidance on how to navigate bureaucracy, propose new ideas, function effectively within existing workplace constraints and influence change. These are admirable and relatively advanced workplace navigation skills and exactly the challenges that many practicing pharmacists manage poorly, resulting in the slow and incomplete uptake of new pharmacy services.

In addition, coaches provided input into individual student coop choices, career planning, and training opportunities. Since the coaching experiences occurred over time, and parallel to classroom learning and work experience, coaches identified cursory student improvement in the ability to be reflective, as well as increasing engagement with the coaching process. Reflection is a key component of professional identity development and is worth further research exploration. This reflection was also mirrored in discussions of larger issues of interest within the profession.

The coaching program feedback provided insight to develop future programs starting with increasing the overlap between professional interests of coaches and students. This could be accomplished by providing more information about both students and coaches and allowing students to choose their coach. It is also suggested that the coaching program be optional to ensure students’ cooperation while participating in the program and lessen the impact of students less invested in the coaching process. Students also seemed to use coaching mostly to meet their individual needs and, therefore, individual meetings appear to provide more value than group-based ones.

Logistical issues such as session timing, scheduling and technical problems should be considered and resolved early in the process. However, flexibility and adaptability are important, as these challenges are difficult to fully anticipate. This also applies to the preference for face-to-face meetings, which can be both a timing, as well as geographical challenge, especially for those practitioners who work in cities other than the one where students study. It was pleasing to hear requests for flexibility in the structure of the coaching sessions to allow for exploration of practice issues as they arose, and attests to the quality of relationships being built between students and coaches.

The study had some limitations that need to be addressed. First, no significant differences were noted between the intervention and control groups of students on the self-assessment survey. As this was the first time this instrument was used with pharmacy students it is difficult to conclude whether this non-difference was indeed true, or if the instrument has not adequately calibrated to identify possible differences. Future research may wish to develop a more sensitive study-evaluation tool. Second, this study focused on one group of students at one point in time, making generalizability to other students in other programs difficult. Finally, since no qualitative data were collected from the control group comparison of thematic observations with the intervention group was not possible.

While many professional programs place their work-integrated learning activities at the end of the curriculum, the early co-placement of work terms and coaching sessions in the University of Waterloo's School of Pharmacy curriculum meant that students have the opportunity to reflect, trial, evaluate, accept and/or discard several professional identities before the end of the program under guidance of authentic practitioners. Future research could more thoroughly examine coaching's impact on the development of reflective pharmacy practitioners over a period of time. Based on student and coach feedback, several modifications to the coaching program could be implemented and assessment repeated. Finally, asking pharmacy students to complete a survey a few years after graduation could reveal additional or undetected impacts of the coaching program, as students may not realize, or recognize, the value of such professional relationships and the benefits of this coaching until they are full participants in the workforce.

CONCLUSIONS

The goal of the program was to investigate the role of pharmacist coaches in assisting students with professional identity development. Both students and coaches identified student gains in career and professional planning, important workplace navigation skills, the ability to reflect on and discuss professional development topics, and contextualizing classroom learning within the practice environment. Work-integrated learning activities when combined with coaching can contribute to students' professional identity development. Careful consideration of how coaching programs are structured may further enhance the student's experience.

ACKNOWLEDGEMENTS

The coaching program and this study were funded by a grant from the University of Waterloo Centre for Advancement of Cooperative Education (WatCACE) and made possible with support from colleagues Anita Abraham, Katie Cook, Anson Tang, and Dr. Eric Schneider. The authors thank the coaches and students for their participation and Joe Petrik for editorial assistance.

REFERENCES

- Canadian Pharmacists Association . (2014). *Pharmacists' expanded scope of practice*. Retrieved from <http://www.pharmacists.ca/index.cfm/pharmacy-in-canada/scope-of-practice-canada/>
- Chen, C., & Lou, M. (2014). The effectiveness and application of mentorship programmes for recently registered nurses: a systematic review *J Nurs Manag*, 22(4), 433-442.
- Doolin, B. (2002). Enterprise discourse, professional identity, and the organizational control of hospital clinicians. *Organization Studies*, 23(3), 369-390.
- Fagermoen, M. S. (1997). Professional identity: values embedded in meaningful nursing practice. *Journal of Advanced Nursing*, 25, 434-441.

- Frei, E., Stamm, M., & Buddeberg-Fischer, B. (2010). Mentoring programs for medical students - a review of the PubMed literature 2000-2008. *BMC Medical Education*, 10, 32.
- Haines, S. T. (2003). The mentor-protege relationship. *American Journal of Pharmaceutical Education*, 67(3), 1-7.
- Hendelman, W., & Byszewski, A. (2014). Formation of medical student professional identity: categorizing lapses of professionalism, and the learning environment. *BMC Medical Education*, 14, 139. doi: 10.1186/1472-6920-14-139
- Huang, J. L., Ryan, A. M., Zabel, K. L., & Palmer, A. (2014). Personality and adaptive performance at work: a meta-analytic investigation. *Journal of Applied Psychology*, 99(1), 162-179.
- Jorgenson, D., Lamd, D., & McKinnon, N. (2011). Practice change challenges and priorities: a national survey of practicing pharmacists. *Canadian Pharmacists Journal*, 144(3), 125-131.
- MacDonald, K., Cameron, C., Brimble, M., Freudenberg, B., & English, D. (2014). Realizing the professional within: the effect of work integrated learning. *Asia-Pacific Journal of Cooperative Education*, 15(2), 159-178.
- Mason, H. L., Assemi, M., Brown, B., Cain, J. J., Cox, W. C., Cutler, S. J., . . . Plaza, C. M. (2011). Report of the 2010-2011 academic affairs standing committee. *American Journal of Pharmaceutical Education* 75(1), 1-8.
- Medina, M. S., Plaza, C. M., Stowe, C. D., Robinson, E. T., Delander, G., Beck, D. E., . . . Johnston, P. (2013). Center for the Advancement of Pharmacy Education (CAPE) Educational Outcomes 2013. *American Journal of Pharmaceutical Education* 77(8), 162.
- Nastasi, B. K. (2000). School psychologists as health-care providers in the 21st century: conceptual framework, professional identity, and professional practice. *School Psychology Review*, 29(4), 540-554.
- Schommer, J. C., & Gaither, C. A. (2014). A segmentation analysis for pharmacists' and patients' views of pharmacists' roles. *Research in Social and Administrative Pharmacy*, 10, 508-528.
- Thomas, G., Anderson, D., & Nashon, S. (2008). Developments of an instrument designed to investigate elements of science students' metacognition, self-efficacy, and learning processes: the SEMLI-S. *International Journal of Science Education*, 1-12. doi: 10.1080/09500690701482493
- Tofade, T. (2010). Coaching younger practitioners and students using components of the co-active coaching model. *American Journal of Pharmaceutical Education*, 74(3), 1-5.
- Trede, F., Macklin, R., & Bridges, D. (2012). Professional identity development: a review of the higher education literature. *Studies in Higher Education*, 37(3), 365-384.



About the Journal

The Asia-Pacific Journal of Cooperative Education publishes peer-reviewed original research, topical issues, and best practice articles from throughout the world dealing with Cooperative Education (Co-op) and Work-Integrated Learning/Education (WIL).

In this Journal, Co-op/WIL is defined as an educational approach that uses relevant work-based projects that form an integrated and assessed part of an academic program of study (e.g., work placements, internships, practicum). These programs should have clear linkages with, or add to, the knowledge and skill base of the academic program. These programs can be described by a variety of names, such as cooperative and work-integrated education, work-based learning, workplace learning, professional training, industry-based learning, engaged industry learning, career and technical education, internships, experiential education, experiential learning, vocational education and training, fieldwork education, and service learning.

The Journal's main aim is to allow specialists working in these areas to disseminate their findings and share their knowledge for the benefit of institutions, co-op/WIL practitioners, and researchers. The Journal desires to encourage quality research and explorative critical discussion that will lead to the advancement of effective practices, development of further understanding of co-op/WIL, and promote further research.

Submitting Manuscripts

Before submitting a manuscript, please ensure that the 'instructions for authors' has been followed (www.apjce.org/instructions-for-authors). All manuscripts are to be submitted for blind review directly to the Editor-in-Chief (editor@apjce.org) by way of email attachment. All submissions of manuscripts must be in Microsoft Word format, with manuscript word counts between 3,000 and 5,000 words (excluding references).

All manuscripts, if deemed relevant to the Journal's audience, will be double-blind reviewed by two or more reviewers. Manuscripts submitted to the Journal with authors names included will have the authors' names removed by the Editor-in-Chief before being reviewed to ensure anonymity.

Typically, authors receive the reviewers' comments about 1.5 months after the submission of the manuscript. The Journal uses a constructive process for review and preparation of the manuscript, and encourages its reviewers to give supportive and extensive feedback on the requirements for improving the manuscript as well as guidance on how to make the amendments.

If the manuscript is deemed acceptable for publication, and reviewers' comments have been satisfactorily addressed, the manuscript is prepared for publication by the Copy Editor. The Copy Editor may correspond with the authors to check details, if required. Final publication is by discretion of the Editor-in-Chief. Final published form of the manuscript is via the Journal website (www.apjce.org), authors will be notified and sent a PDF copy of the final manuscript. There is no charge for publishing in APJCE and the Journal allows free open access for its readers.

Types of Manuscripts Sought by the Journal

Types of manuscripts the Journal accepts are primarily of two forms; *research reports* describing research into aspects of Cooperative Education and Work Integrated Learning/Education, and *topical discussion* articles that review relevant literature and give critical explorative discussion around a topical issue.

The Journal does also accept *best practice* papers but only if it present a unique or innovative practice of a Co-op/WIL program that is likely to be of interest to the broader Co-op/WIL community. The Journal also accepts a limited number of *Book Reviews* of relevant and recently published books.

Research reports should contain; an introduction that describes relevant literature and sets the context of the inquiry, a description and justification for the methodology employed, a description of the research findings-tabulated as appropriate, a discussion of the importance of the findings including their significance for practitioners, and a conclusion preferably incorporating suggestions for further research.

Topical discussion articles should contain a clear statement of the topic or issue under discussion, reference to relevant literature, critical discussion of the importance of the issues, and implications for other researchers and practitioners.



EDITORIAL BOARD

Editor-in-Chief

Dr. Karsten Zegwaard

University of Waikato, New Zealand

Copy Editor

Yvonne Milbank

Asia-Pacific Journal of Cooperative Education

Editorial Board Members

Ms. Diana Ayling

Unitec, New Zealand

Mr. Matthew Campbell
Australia

Queensland Institute of Business and Technology,

Dr. Sarojni Choy

Griffith University, Australia

Prof. Richard K. Coll

University of South Pacific, Fiji

Prof. Rick Cummings

Murdoch University, Australia

Prof. Leigh Deves

Charles Darwin University, Australia

Dr. Maureen Drysdale

University of Waterloo, Canada

Dr. Chris Eames

University of Waikato, New Zealand

Mrs. Sonia Ferns

Curtin University, Australia

Dr. Jenny Fleming

Auckland University of Technology, New Zealand

Dr. Phil Gardner

Michigan State University

Dr. Thomas Groenewald

University of South Africa, South Africa

Dr. Kathryn Hays

Massey University, New Zealand

Prof. Joy Higgs

Charles Sturt University, Australia

Ms. Katharine Hoskyn

Auckland University of Technology, New Zealand

Dr. Sharleen Howison

Otago Polytechnic, New Zealand

Dr. Denise Jackson

Edith Cowan University, Australia

Dr. Nancy Johnston

Simon Fraser University, Canada

Dr. Mark Lay

University of Waikato, New Zealand

Assoc. Prof. Andy Martin

Massey University, New Zealand

Ms. Susan McCurdy

University of Waikato, New Zealand

Dr. Norah McRae

University of Victoria, Canada

Dr. Keri Moore

Southern Cross University, Australia

Prof. Beverly Oliver

Deakin University, Australia

Assoc. Prof. Janice Orrell

Flinders University, Australia

Dr. Deborah Peach

Queensland University of Technology, Australia

Dr. David Skelton

Eastern Institute of Technology, New Zealand

Prof. Heather Smigiel

Flinders University, Australia

Dr. Calvin Smith

Brisbane Workplace Mediations, Australia

Prof. Neil Taylor

University of New England, Australia

Ms. Susanne Taylor

University of Johannesburg, South Africa

Assoc. Prof. Franziska Trede

Charles Sturt University, Australia

Ms. Genevieve Watson

University of Western Sydney, Australia

Prof. Neil I. Ward

University of Surrey, United Kingdom

Dr. Nick Wempe

Whitireia Community Polytechnic, New Zealand

Dr. Marius L. Wessels

Tshwane University of Technology, South Africa

Dr. Theresa Winchester-Seeto

Macquarie University, Australia

Asia-Pacific Journal of Cooperative Education

www.apjce.org

Publisher: New Zealand Association for Cooperative Education