

## INSTRUCTIONAL DESIGN AND ASSESSMENT

### Student Perceptions of Learning Through an International Comparison

Phillip Woods, BPharm,<sup>a</sup> Jason Perepelkin, PhD,<sup>b</sup> Amary Mey, PhD,<sup>c</sup> Rodney Gapp, PhD,<sup>d</sup>  
Michelle King, PhD<sup>a</sup>

<sup>a</sup> School of Pharmacy, Griffith University, Gold Coast Campus, Queensland, Australia

<sup>b</sup> College of Pharmacy & Nutrition, University of Saskatchewan, Saskatoon, Canada

<sup>c</sup> School of Medicine, Griffith University, Gold Coast campus, Queensland, Australia

<sup>d</sup> Griffith Business School, Griffith University, Gold Coast Campus, Queensland, Australia

Submitted December 8, 2015; accepted March 3, 2016; published December 25, 2016.

**Objective.** To broaden pharmacy students' international perspectives through a teaching and learning method involving international comparison.

**Design.** Four topics within a pharmacy law and practice course were taught in-person by collaborating faculty members representing two international perspectives (Australian and Canadian). The assessed learning objective was for students to be able to synthesize an international comparative analysis that reflected an international perspective.

**Assessment.** Approximately 70% (n=44) of the class completed an online survey instrument that explored students' perceptions of their own learning. Six domains of inquiry represented in the questionnaire included knowledge development, international perspective, future prospects, personal enjoyment, assessment method, and overall learning experience. Quantitative and qualitative survey results reflected students' strong support for all statements of inquiry.

**Conclusions.** The method involving international comparison, a classroom teaching collaboration and knowledge management using compare-contrast strategy positively influenced student perceptions in a range of ways and was effective in raising international perspectives in the pharmacy curriculum.

**Keywords:** global pharmacy, international pharmacy education, compare and contrast, collaboration

## INTRODUCTION

Globalization is a dominant and dynamic phenomenon for health care and the pharmaceutical industry in the 21st century.<sup>1-4</sup> Globalization has been referred to as a process of international integration arising from the exchange of knowledge, information, know-how, organizing systems, and generally "how things are done."<sup>5</sup> Worldwide, health industry professionals and practitioners are experiencing increasingly diverse, multicultural populations.<sup>3</sup> Many universities around the world are actively internationalizing their course and program offerings, such as in Australia, where the peak body "Universities Australia" states the key aim: "(to) advance internationalisation of Australian universities."<sup>6</sup> There has also been a call for pharmacy graduates to learn with and from professionals in other countries<sup>4,7-9</sup> and for pharmacy educators to adapt to the new dynamic of globalization.<sup>1-3,10</sup>

**Corresponding Author:** Phillip Woods, School of Pharmacy, Griffith University, Gold Coast campus, Queensland, 4222, Australia. Tel: +61 7 55528312. Fax: +61 7 55528804. E-mail: phillip.woods@griffith.edu.au

At the 2008 national meeting of the American Association of Colleges of Pharmacy (AACP), the "globalization of pharmacy education" was named as one of three major initiatives to be pursued.<sup>4</sup> Since then the AACP has established the Global Pharmacy Education Special Interest Group (GPE-SIG). The strategic plan for the GPE-SIG (2015) specifies a detailed range of proposed activities directed toward their mission: (to) "Develop, facilitate, advance and promote quality global health/international pharmacy education."<sup>11</sup> Two key strategies put forward to achieve this mission are: to support the development, implementation, and evaluation of global health/international training programs for student pharmacists and to promote pharmacy faculty scholarship in the area of global health/international pharmacy education and practice.<sup>11</sup> The challenge for pharmacy schools is how to best help students develop an appreciation of the importance of international perspectives in health, medicines use, and understand the place and relevance of the pharmacist in different international systems. Developing international perspectives can aid students in their acquisition of pharmacy practice skills, grow their aspirations to

take new challenges, and encourage them to be open to new career opportunities.<sup>1,4,7,8</sup>

While international experiential education may be very popular with students and is probably the best form of active learning in this area, the dominant barrier is financial.<sup>2,7,9</sup> Fortunately, there are teaching and learning alternatives to international advanced pharmacy practice placements that also incorporate active-learning methods. These include case study scenarios, simulated-patient activity group-work, and interaction with patients from diverse cultural groups.<sup>12</sup> Active-learning techniques in pharmacy education have also involved conducting Internet-facilitated interactions with international pharmacists or pharmacy students and using compare-contrast techniques to guide student thinking, reflection, and synthesis.<sup>1,7,13</sup>

There is a growing literature on the aspects of internationalizing pharmacy school curricula, but there is a paucity of evidence reflecting what students think and perceive about learning international perspectives, particularly through classroom-based methods. Evaluating student perceptions of learning from internationalized teaching initiatives supports the development, implementation, and potential expansion of such initiatives, and is consistent with the mission and strategies of the AACP's global pharmacy education SIG. Recognizing the importance of preparing students as global citizens establishes internationalization as fundamental to graduate success.

In 2015, an initiative was undertaken to introduce international perspectives to bachelor of pharmacy (BPharm) students in a compulsory third-year pharmacy law and practice course, at the School of Pharmacy at Griffith University, Queensland, Australia. The purpose of this initiative was to take the first steps to develop effective learning and raise student interest within an internationalized pharmacy curriculum. A key early step toward this purpose was to try to understand if students would engage with the idea of learning international perspectives on law and pharmacy practice, and perceive the intervention as a positive educational experience that was relevant to their careers. The aim of the intervention was to enhance student perception of learning experience and international interest through exploring an answer to the research question: How will students perceive their constructive learning experience and learning outcomes when pharmacy law and practice topics are taught from two international perspectives? To achieve this, the specific objectives of the intervention were (1) to assess students' perception of, and level of satisfaction with, the international comparison method as a classroom teaching method, and (2) to evaluate the perceived impact of the international comparison method on students' overall learning experience, enjoyment, and career relevance.

Ethical approval was sought and granted by Griffith University.

## DESIGN

The pharmacy law and practice course introduces the theory and application of Australian regulations and laws to the practice of pharmacy, making it a crucial course within the BPharm degree program. Coinciding with a visit from a Canadian pharmacy academic, a collaborative in-class teaching intervention delivered a range of topics to the Australian class in a comparable way, revealing how Australia and Canada deal with and apply important pharmacy-related regulations. Four major topics within the course were taught and discussed from the two international perspectives: national health care systems; regulations governing medicine access by citizens; regulations governing becoming and staying registered as a pharmacist; and regulations governing pharmacy ownership.

The topics were delivered in-person by the collaborating academics in a two-hour lecture setting, with one topic covered each week. The Australian and Canadian perspectives on each topic were delivered consecutively each week with opportunity for student query and discussion. A rich set of online resources and references to aid self-directed exploration and discovery also were provided. The learning objective of this section of the course and its assessment output was "to demonstrate an understanding of at least one Australian pharmaceutical and/or pharmacy regulation topic by using an international comparative analysis to show an international perspective." Students were introduced to the rationale for learning international perspectives via an in-class discussion and review of publications calling for emerging pharmacy graduates to learn international perspectives<sup>4</sup> and for pharmacy educators to internationalize their curricula.<sup>1-3</sup> There were 63 students enrolled in the course, 10 of whom were international (foreign) students.

Students were required to use both course and reference material to write a 1,500 word essay using the compare-contrast genre. The compare-contrast genre is known to raise students' cognitive processes of analysis, evaluation, and creation. These three cognitive processes are regarded as the most important goals of learning and education according to a revision of Bloom's taxonomy.<sup>14</sup> The processes can be encouraged through the use of active, constructive, and interactive learning techniques.<sup>15</sup> A constructive learning activity is to ask students to produce compare-and-contrast outputs from two given examples,<sup>15</sup> requiring learners to analyse what is the same or different in what will be two different examples. Constructive-learning activities assist learners to produce outputs that contain ideas that go beyond the presented information. When learners are asked to explain their analysis, evaluation of

the examples is required. The necessity for the learner to construct an original written explanation of their compare-and-contrast analysis encourages the creation of something new for the learner. Learning is supported within this activity through learners making “cognitive connections between topics and groups of topics,”<sup>16</sup> aiding both the identification of key concepts as well as information networks.<sup>17</sup> Comparing and contrasting concepts or topics is important in improving both conceptual and metacognitive knowledge.<sup>18</sup>

Students were given thorough instruction on the method of constructing an academic compare-and-contrast essay and directed to extra Web-based instruction. An essay-assessment guide (available by contacting the corresponding author) with grading criteria also was provided to assist students in maximizing the effectiveness of their essay. The assignment constituted 30% of their overall course grade.

## EVALUATION AND ASSESSMENT

After the learning activity of essay writing was completed, an online questionnaire was developed to explore students’ perceptions of their own learning from evaluating the two national perspectives. Development of the questionnaire was informed by a literature review and by two expert panels, the first being the research team undertaking the actual research, the second an internal university teaching and learning panel of experts. The instrument contained 18 questions arranged into six domains of inquiry: knowledge development; international perspective; future prospects; assessment; personal enjoyment; and overall evaluation of learning experience. These domains were made up of 10 constructs and used a five-point Likert-scale ranging from 1=strongly agree to 5=strongly disagree to measure students’ level of agreement with the statement depicting aspects of the domains above. The questionnaire also contained eight open-ended questions that invited students to comment on their experiences. (A copy of the questionnaire is available by contacting the corresponding author).

The questionnaire was delivered online to 63 enrolled students at a point in the course that was unlikely to be influenced by assessment activities. Reminders were provided via the course webpage and in class by an academic member of the staff not involved in the teaching or assessment. Data were downloaded into a Microsoft Excel spreadsheet before transfer to SPSS, (IBM Predictive Analytics Software, Version 22), for analysis. Simple descriptive statistics were used to analyse participants’ Likert-scale responses, which were summarized using frequencies and means. Content analysis of participants’ comments and responses to open-ended questions was

conducted to gain further insights about their experiences and perceptions of the international comparison method.<sup>19</sup>

Forty-five student responses were received. Exploratory analysis of the data revealed one case where the participant’s comments and responses to open-ended questions were in direct contrast to their Likert-scale rating. Therefore, the participant’s data were excluded from analysis. This provided a final response rate of 69.8%. The results are summarized in Table 1.

Approximately 90% of respondents agreed or strongly agreed that the comparison of two international perspectives was effective in supporting their learning needs and in broadening their awareness of how the pharmacy profession fits into national regulatory frameworks. Comments closely aligned with the course-learning objectives, which included acquiring knowledge about laws and regulations that govern the profession, as well as the similarities and differences between the two countries.

Respondents identified that the process involved in completing the assignment was key to facilitating their knowledge development. Some comments indicated underlying dissatisfaction with having to place greater effort into completing the assessment task (ie, a compare and contrast essay) than into completing their regular course work. However, while the required research skills appeared to be beyond the comfortable capabilities of some, it was acknowledged that the research and construction processes helped them to gain new skills, subsequently benefitting their learning experience. There was a strong sense of accomplishment, particularly among those who indicated they had inadequate knowledge and skills at the start of the assignment and were forced to develop these skills in order to complete the task. A small number of respondents preferred learning through the international comparison method over listening to traditional lectures in the topic area.

Respondents’ comments provided evidence about the impact of their newly acquired knowledge and sense of accomplishment on their understanding of the frameworks that govern their future profession. Higher-order learning was evident in students’ comments, which reflected analysis, evaluation, and creation.

A few participants reported low satisfaction with this method for facilitating their knowledge development. Their comments suggest a perception that the subject matter lacked relevance to their future practice role and they were dissatisfied with the choice of Canada as the comparison country for the learning exercise. There was support for any future exercise to use New Zealand or the United Kingdom as the comparator.

Almost all respondents (93.2%) agreed or strongly agreed that the international comparison method was

Table 1. Student's Likert-scale Responses To the Questionnaire (n=44; 69.8%; Lower Mean Values Indicate Greater Level of Agreement)

Domain of inquiry <sup>a</sup>	Questionnaire Statement	Strongly Agree/Agree (%)	Neither Agree nor Disagree (%)	Disagree/Strongly Disagree (%)	Mean (SD)
Knowledge development	Learning through the two international perspectives was effective in helping me to learn	88.6	6.8	4.5	1.2 (0.5)
	Learning through the two international perspectives broadened my awareness of how my profession fits into complex regulatory frameworks	90.9	6.8	2.3	1.1 (0.4)
International perspective	Learning through the two international perspectives was effective in helping me develop an appreciation of how other international societies and cultures regulate the pharmaceutical industry and pharmacy	93.2	6.8	-	1.1 (0.3)
Future prospect	Learning through the two international perspectives is relevant to my future aspirations	67.4	14.0	18.6	1.5 (0.8)
	Learning through the two international perspectives has raised my interest in working abroad one day	61.4	25.0	13.6	1.5 (0.7)
Personal like/enjoyment	Learning through the two international perspectives was interesting to me and kept me engaged with the material	68.2	15.9	15.9	1.5 (0.8)
	Learning through the two international perspectives resulted in me learning things that were unexpected or even surprising	77.3	11.4	11.4	1.3 (0.7)
Assessment	Constructing an international compare and contrast assignment developed my ability to analyse and critically evaluate information and evidence	67.4	23.3	9.3	1.4 (0.7)
	Constructing an international compare/contrast assignment developed my ability to generate awareness and ideas appropriate to my profession	72.7	20.5	6.38	1.3 (0.6)
Overall evaluation of learning experience	Overall, learning through the comparison of international perspectives lifted my feeling of learning-engagement compared with other courses that require learning large amounts of factual information	61.4	25.0	13.6	1.5 (0.7)

effective in helping them develop an appreciation of how other international societies and cultures regulate the pharmaceutical industry and pharmacy. Aspects of the health system were discussed for both countries with similarities and differences highlighted.

Similar to knowledge development, respondents associated their raised awareness with having to complete the compare and contrast essay, which formed the assessment component of the learning exercise. Several students reflected on the benefit of increased awareness as exemplified by the following comment: "It was a good experience to learn something that's beyond my contextual knowledge because exposure to different managements can widen perspectives, and to even apply them to our own systems."

Students' increased knowledge about the Canadian system and understanding of the governing rules and regulations appeared to heighten their awareness and appreciation for the rules and regulations that govern the Australian health system. For one student, increased awareness appeared to extend beyond the learning objective of the exercise: "The assignment gave me a clear perspective into understanding how the pharmacy profession works depending on what country you are in. It also made me appreciate the benefits that we have in Australia, as well as realising the importance of sharing information between countries to achieve the best outcome in the pharmacy profession." Only one response suggested a disconnection between the learning activity and relevance to their future professional role.

Respondents' assessments of the relevance of the exercise to their future aspirations and interest in working abroad were generally positive. Comments from those who indicated agreement or strong agreement with one or both items of this domain indicated the effectiveness of the exercise in reinforcing their aspirations, and in helping to clarify questions they had regarding practical issues relating to working abroad.

The learning experience also appeared to improve respondents' self-awareness and motivation for optimizing their professional role. The comments of those who were ambivalent about the impact of the teaching method on their future aspirations indicated that they perceived the topic area and comparative country to have little relevance to their future roles. Of the few who disagreed or strongly disagreed with the statements regarding the impact of the exercise on their future aspirations, they seemed to be opposed to Canada being the country selected rather than opposed to the learning exercise itself. The majority of respondents agreed or strongly agreed that learning through the international comparison method was interesting and kept them engaged (68.2%),

and they gained knowledge that was unexpected or surprising (77.3%).

Respondents' comments provided evidence that highlight having an international academic deliver the material, and the requirement for self-directed learning to be aligned with their engagement in the learning process and subsequent enjoyment of the learning experience. Only a few students were ambivalent or did not perceive their experience of learning through the international comparison method to be engaging or enjoyable.

Approximately 70% of respondents agreed or strongly agreed that constructing the compare and contrast assignment was effective in helping them to develop the skills necessary for analyzing and evaluating information, evidence, and awareness appropriate to the pharmacy profession. While respondents generally perceived the assignment to be difficult to complete, they acknowledged it was overcoming these difficulties that facilitated their knowledge development. Those few respondents who disagreed that constructing the compare and contrast assignment was of value in facilitating development of analytical and evaluative skills appeared to dislike it because of the essay method of assessment used.

The majority of respondents agreed or strongly agreed that learning by comparing international perspectives was more engaging than learning by memorizing large amounts of factual information as was required in other courses. When asked what they considered to be their most significant learning experience, the opportunity to explore an international perspective appeared most valued.

The students' comments indicated they had gained new knowledge related to recognizing differences and similarities between the health systems of the two countries, particularly in relation to pharmacist registration. Comments also suggest a preference for learning by the compare-contrast method over learning through lectures alone. While a few students indicated they did not like the essay form of assessment, others saw this as an opportunity to acquire new skills. Improved learning outcomes in the subject area appeared linked to enjoyment of the learning process, and to the gaining of new knowledge and skills. These positive comments were not limited to those who provided positive ratings on the Likert-scale in relation to the impact of the method in enhancing their engagement.

The overall effectiveness of this international comparison initiative lies in the priority of aiding student understanding, making lecture material easier to digest.

## **DISCUSSION**

The majority of students agreed or strongly agreed that learning through the comparison of two international perspectives was effective in knowledge development

(see Table 1, Domain 1, and related comments). The constructive activity of comparing and contrasting, in conjunction with listening to a lecture, has been shown to be more effective than only listening to a lecture.<sup>20</sup> This is evident in the students' quotes concerning knowledge development. The compare-contrast method of thinking through the lecture material was well received, as was the assessment method of a compare-contrast essay. The learning of laws and regulations was raised from what the laws are to an understanding of why they exist; while another country might have different legislation, the ideas and ideals underpinning their laws are often similar.

Most students agreed or strongly agreed that they developed an appreciation of how other international societies and cultures regulate pharmacy and the pharmaceutical industry (Table 1, Domain 2). A smaller majority agreed or strongly agreed that the international perspective was directly relevant to their future aspirations or raised their interest in working abroad one day (Table 1, Domain 3). The international perspective appeared to be most appreciated by those whose pre-existing views or intentions were global or focused particularly on Canada. Dissatisfaction was expressed by a small number of students whose views were focused on countries that are common destinations for Australians wishing to work overseas, ie, New Zealand and the United Kingdom, or who had no intention of working overseas.

Raising student awareness and attention toward the broader world as a context for their own career futures is recognized as being an important means of expanding students' perspective of pharmacy practice.<sup>1</sup> Such a broadening of perspective can motivate students who want to conceive a 'professional practice vision', defined as a "professional mission (or) passion" that can feed an existing passion or provide a sense of purpose.<sup>21</sup> Comments along these lines were found in our study (see quotations relating to Domain 3: Future Prospects). Both the survey results within the future prospects domain of inquiry and the accompanying qualitative comments demonstrate that most students perceived that the international-comparative perspective was interesting and engaging. Most students perceive that they are able to use what was learned in the class-research context by applying it to their own personal career context. Such knowledge transfer between contexts is indicative of meaningful learning,<sup>22</sup> a necessary process for higher learning engagement.

In relation to assessment, students were generally positive toward the international compare-contrast method of assessment (see Table 1, Domain 5, and related comments). Student comments reflect that the compare and contrast assignment increased awareness of new perspectives on legislation including motivation to explore

further. Many also learned that discoveries could be surprising, increasing their enjoyment (see Table 1, Domain 4, and related comments).

Most students found the use of an international comparison, facilitated by an international teaching academic, was enjoyable and assisted their engagement in the course. Clearly, students preferred the compare-contrast method of managing information over traditional didactic lectures. (see Table 1, Domain 6, and related comments). While students' feedback was generally positive, areas for refinement and improvement were identified.

Negative responses from some students centred on opposition to Canada being the country selected for the compare-contrast intervention. It is important to select a contrasting country that is likely to have the greatest relevance in the minds of a student cohort. However, there is also a need to strike a balance between stretching the imagination of the class beyond the familiar and selecting a comparator nation that is so different that it will prove too great a challenge for students who are novices in the course-discipline area. The health systems of Australia and Canada are known to share strong similarities but also significant differences and as such were a suitable pairing for this comparative exercise.<sup>23</sup>

Limitations within this study need to be acknowledged. First, this was a small-scale study and findings cannot be generalized. Second, measurement of student perceptions, while important, is an indirect measure of teaching and learning. However, testing student acceptance of an approach to the inclusion of internationalized content, and a different teaching and learning method, is an important first step. Perhaps the strengths of this study are in the idea of the intervention and the methods serving as a pathfinder for others. Third, the online questionnaire used has not been previously validated, and as such, the application of this questionnaire may be a limitation. On the other hand, development of the questionnaire drew on the expert knowledge of senior researchers, and underwent a stringent review process. The inclusion of open-ended questions allowed students to clarify their responses and provide insights that could not have been obtained by quantitative means.

## SUMMARY

This small classroom project demonstrates student perceptions of learning processes that involved an international comparative focus, a classroom collaboration between teaching academics from different nations, and a knowledge management strategy (compare-contrast). The compare-contrast process delivered meaningful, enjoyable, and creative outcomes, as reported in the findings. The study highlights several implications for teaching

practice. First, raising the subject material to include both an international perspective and relevance regarding career futures improves student learning engagement. Second, this study demonstrates a teaching and learning method that students perceive to be enjoyable and relevant. The authors suggest that such a method may be helpful in facilitating the profession's change in focus toward more social aspects of practice, including international perspectives. Third, the results of this study demonstrate that this method is worthy of consideration by other pharmacy academics who seek to raise international and global perspectives in their pharmacy curricula. In this case, we have shown how topics in a relatively "dry" subject such as pharmacy law and regulation can be delivered in an enjoyable and engaging way. Finally, this study may serve as a practical example for other pharmacy academics to initiate their own international teaching collaborations. Such collaborations are generally encouraged in the academia and in pharmacy<sup>10</sup> and can have value beyond the student experience in the classroom.<sup>24</sup>

## ACKNOWLEDGMENTS

This study was conducted under the auspices and funding of a Griffith University learning and teaching grant GGLT Grant No. 218384 (2014) and Ethics Protocol Number: PHM/19/14/HREC. The authors thank Griffith University for the opportunity and funding to conduct this initiative.

## REFERENCES

1. Fierke KK, Kading ML, Scott DR. Creating international opportunities in the classroom. *Pharm Educ*. 2014;14(1):5-8.
2. Arif SA, Gill TK, Reutzel TJ. Barriers to offering international experiences to pharmacy students by U.S. colleges of pharmacy. *Curr Pharm Teach Learn*. 2013;5(5):387-393.
3. Bress AP, Filtz MR, Truong H-A, Nalder M, Vienet M, Boyle CJ. An advanced pharmacy practice experience in Melbourne, Australia: practical guidance for global experiences. *Curr Pharm Teach Learn*. 2011;3(1):53-62.
4. Yanchick VA. Thinking off the map. *Am J Pharm Educ*. 2009;72(6):Article 141.
5. Scholte JA. *What is Globalization? The Definitional Issue Again*. University of Warwick, UK: Coventry Centre for the Study of Globalisation and Regionalisation; Department of Politics and International Studies, University of Warwick, UK; 2002.
6. Universities Australia. About us. 2015. <https://www.universitiesaustralia.edu.au/about-us#.VsJpZvI96Hs>. Accessed Aug 26, 2015.
7. Pan A, Ryan M, Cain J. A student's perspective of learning in a global classroom course. *Curr Pharm Teach Learn*. 2015;7(4):551-555.
8. University of London School of Pharmacy. *The Global Pharmacist*. London, UK: UCL School of Pharmacy and Development Education Research Centre, Institute of Education, University of London; 2014.
9. Owen C, Breheny P, Ingram R, Pfeifle W, Cain J, Ryan M. Factors associated with pharmacy student interest in international study. *Am J Pharm Educ*. 2013;77(3):Article 54.
10. Alsharif NZ. Globalization of pharmacy education: what is needed? *Am J Pharm Educ*. 2012;76(5):Article 77.
11. American Association of Colleges of Pharmacy. *Global Pharmacy Education (GPE)-SIG Strategic Plan*. 2015. <http://www.aacp.org/governance/SIGS/global/Pages/default.aspx> Accessed Dec 12, 2015.
12. Sales I, Jonkman L, Connor S, Hall D. A comparison of educational interventions to enhance cultural competency in pharmacy students. *Am J Pharm Educ*. 2013;77(4):Article 76.
13. Wilby KJ, Taylor J, Khalifa SI, Jorgenson D. A course-based cross-cultural interaction among pharmacy students in Qatar and Canada. *Am J Pharm Educ*. 2015;79(2):Article 26.
14. Krathwohl DR. A revision of Bloom's Taxonomy: an overview. *Theory Pract*. 2002;41(4):212-218.
15. Chi MTH. Active-constructive-interactive: a conceptual framework for differentiating learning activities. *Top Cogn Sci*. 2009;1(1):73-105.
16. Hammann LA, Stevens RJ. Instructional approaches to improving students' writing of compare-contrast essays: an experimental study. *J Lit Res*. 2003;35(2):731-756.
17. Dickson SV, Simmons D, Kameenui E. Instruction in expository text: a focus on compare/contrast structure. *LD Forum*. 1995;20(2):8-15.
18. Sitko BM. Metacognition and writing instruction. In: Hacker DJ, Donlosky J, Graesser AC, eds. *Metacognition in Educational Theory and Practice*. Mahwah, NJ: Erlbaum; 1998:93-115.
19. Holdford D. Content analysis methods for conducting research in social and administrative pharmacy. *Res Social Adm Pharm*. 2008;4(2):173-181.
20. Schwartz DL, Bransford JD. A time for telling. *Cogn Instr*. 1998;16(4):475-5223.
21. White SJ. Your professional practice vision. *Am J Health Sys Pharm*. 2009;66(16):1432, 1434-1435.
22. Mayer RE. Rote versus meaningful learning. *Theory Pract*. 2002;41(4):226-232.
23. Mossialos E, Wenzl M, Osborn R, Anderson C, eds. *International Profiles Of Health Care Systems, 2014*. New York, USA: The Commonwealth Fund; 2015.
24. Enskär K, Johansson I, Ljusegren G, Widäng I. Lecturers' experiences of participating in an international exchange. *Nurse Educ Today*. 2011;31(6):541-546.

## Appendix 1. Sample Student Comments<sup>1</sup>

### **Knowledge Development**

“After starting the assignments, I felt my knowledge of the pharmaceutical laws expanding. The comparison with Canada helped me understand the Australian legislation better.” s23

“It has helped me understand how two different countries can share similarities and differences in regulating their health care system-including their pharmaceutical industry and pharmacy. . .” s36

“From the comparison, I got to know the facts presented to me in the lectures a little better than I did, by just listening to them alone.” s24

“From the perspective of an international student, I’ve learnt a lot on the different health care systems in both countries in relation to my home country.” s30

“Learning an international law system in detail (eg structure of their exams) seems irrelevant to my current learning. Learning an international system from a country which has reciprocal laws (eg New Zealand) would seem a lot more relevant to me...” s20

### **International Perspective**

“Having to know how the pharmaceutical industry is regulated at both Australia and Canada gave me a clear understanding of what protocols and roles need to be met and practiced in both countries.” s06

“Through the comparison of differing international perspectives it brought out the true differences in Pharmacy Law and Practice on a global scale; much like learning a second language adjunct to English. Also allowed me to explore different ways my future profession fits into the world.” s10

“It was a good experience to learn something that’s beyond my contextual knowledge because exposure to different managements can widen perspectives, and to even apply them to our own systems.” s30

“It feels so foreign after growing up with the Australian system, but being aware of how other countries do it is not only interesting but it also makes you appreciate the system we have in place.” s22

“I did learn more about the Canadian system which was interesting, but I don’t really feel like it gave me any knowledge that was useful for my career. Even if I wanted to work in Canada I’d just have to study again anyway. Apart from mere interest it appeared to be a waste of a course in terms of being prepared for our careers.” s41

### **Future Prospects**

“I was already planning on doing some pharmacy experience in a country such as Canada, so this assignment was perfect in helping me gain information I would need to do so.” s29

“This assignment allowed me to think globally and reflect on the ways it may affect my future career. I have understood what there is to know about how certain policies work in the pharmacy profession and the reasons why the policies are put in place. It gave me an insight on the politics related with pharmacy.” s28

“If we were able to choose from a selection of countries to compare then possibly it may be relevant. New Zealand may be a better choice if relevance was important.” s44

### **Personal Enjoyment**

“I was surprised to find that different states have different requirements when it comes to ownership and how only pharmacists are eligible to own pharmacies here in Australia.” s03

“I thoroughly enjoyed the task as I gained a lot of knowledge about pharmacy and health care in Canada.” s25

“I enjoyed learning about the different countries’ management on their pharmacy systems. And it was great to have greater knowledge on things beyond (my home country).” s30

“It was cool to have a lecturer from another country and just to learn the basics of our country was a bit more interesting than just having a few lectures on it.” s11

“The comparison made the experience more self-guided as I would delve into the deeper comparisons of Canada vs Australia than what was just provided in lectures. This definitely made it more enjoyable.” s10

“I really enjoyed it. I had fun doing it and found it was definitely helpful in broadening my perspectives of pharmacy.” s39

(The assignment. . .) “Allowed for strong linking of different concepts and made it easier to remember facts.” s10

“A lot of students struggled with how to word the assignment, eg first person, third person, article form, or as a question.” s23

“The assignment was more a report than an essay, word count challenging to not be over simplistic.” s45

### **Overall Learning Experience**

“I enjoyed learning about a different system that we were unfamiliar with. . . I think looking at two countries helps emphasise the important points to get across to students. It was a nice change and something new for students to be exposed to and to accommodate new cultures in pharmacy.” s18

“The initial research phase when I had a plethora of information and had to categorise and make links between what was important and what was just interesting.” s10

“This assignment made the lecture materials easier to digest as a whole and helped me to understand in depth.” s24

---

<sup>1</sup>Each student-response was allocated a number code (s1, s2 etc. . .s44) based on the order in which the response was electronically received.