Introduction

Pharmaceutical care (PC) is a new academic discipline within pharmacy practice. It focuses on the paradigm shift in the role of pharmacist from product-oriented dispensing to patient-centred care, with an emphasis on solving drug-related problems for the achievement of predefined clinical outcomes (Helper & Strand, 1990). In line with the practice of PC, several concepts including the philosophy of PC, the components of PC, principles of drug-related problems, PC cycle and PC practice requirements need to be well understood by the practitioner for successful patient care. As part of the introductory course to the pharmacy profession, (PR1103 “Pharmacy Practice I”), Year 1 pharmacy students are introduced to the principles of PC in their first semester of study. This is to allow them to develop an appreciation of the emerging role of the pharmacist in today’s healthcare continuum.

Traditionally, the principles of PC were taught as two didactic lectures in PR1103, with a heavy focus on the concepts and philosophy involved. Further concept illustration using actual case scenarios was limited due to the following reasons:

- students lacking the required therapeutic and pharmacology foundation knowledge at this stage of their course (i.e. Year 1 first semester), and
- limited amount of time allocated for this topic within the module.

As a consequence, many students had given feedback that this subject was boring, yawn-inducing, too theoretical and difficult to learn.

The New Teaching Model

Method

In order to facilitate students’ interest in PC principles and improve the quality of their learning, a new hybrid teaching method encompassing didactic lectures, short e-learning modules (e-modules) and interactive case scenarios was adopted for two cohorts of students (n=344) from Academic Years 2011/12 to 2012/13. This new model embraced the
concept of a flipped classroom (Berrett, 2012; Brame, 2012). In her article, Brame defines this learning approach succinctly,

In essence, “flipping the classroom” means that students gain first exposure to new material outside of the class, usually via reading or lecture videos, and then use class time to do the harder work of assimilating that knowledge, perhaps through problem-solving, discussion or debates. (p.1)

With this approach in mind, I divided the module’s syllabus into five parts:

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The first part comprised of Didactic Lecture 1 whereby students were introduced to the philosophy of PC, the components of PC and drug-related problems. The second part required students to read three short e-modules, each focusing on one of three commonly encountered chronic disease conditions, namely high blood pressure, chest pain and diabetes. It outlined the etiology, diagnosis and management of the disease condition of interest. All contents were in simplified layman language that did not require any prior therapeutic and pharmacology knowledge. Each e-module was approximately fifteen minutes long and was presented as an Adobe Breeze presentation with accompanying audio recording. Students were provided the links to the e-modules which they can download and read at their convenience. A key element of the flipped classroom approach is applied here, since the provision of e-modules in the syllabus gives students the chance to gain “first exposure to new materials outside of class” (Brame, 2012, p.1)

After reading the e-modules, students were asked in part three of this learning model to attempt four short case scenarios. Each case scenario depicted drug-related problems that were frequently encountered by patients with the chronic diseases described in the e-modules. As an application of what they have learnt in Lecture 1 and the three e-modules, students were required to identify the appropriate drug-related problems portrayed in each of the case scenarios. These tasks that they have to complete reflect another key element of the flipped classroom approach which Brame outlines in her article—the importance of providing a mechanism to assess student understanding (i.e. being able to identify drug-related problems in the case scenarios). This self-directed learning of both e-modules and case scenarios were to be completed before the next didactic lecture.

In part four (Didactic Lecture 2), an interactive discussion of the case scenarios was first carried out. For this class, students were randomly called upon to discuss the solution to each case scenario and any question or disagreement was promptly clarified. This was followed by instructor-led teaching of concepts on developing a PC plan and its illustration using a case study based on the information found in the e-modules. The provision of learning activities during the lecture which focus on higher level cognitive activities (i.e. discussion, clarification and critical analysis of case scenarios) is another example of the flipped classroom approach being applied in the syllabus. Lastly, students were surveyed on their perception of the effectiveness of this hybrid teaching method immediately after Lecture 2.

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Survey Findings

In total, 87.2% of students responded to the survey, administered immediately following the implementation of this new instructional method. As a whole, this hybrid teaching method was well received by the students. The majority of respondents (>90.0%) preferred this hybrid teaching method over conventional teaching using didactic lectures alone. The success of this new teaching model was also reflected in the qualitative feedback, which were gathered from the survey itself as well as the end-of-semester teaching evaluation exercise. These findings will be discussed in greater detail in the following paragraphs.

Incorporating E-modules: Improved Students’ Understanding of the Course Content

According to the survey results, more than 90.0% of the respondents found the e-modules interesting (with 75.5% and 11.2% indicating that they “Agree” and “Strongly Agree” respectively) and easy to understand (with 80.4% and 17.5% indicating that they “Agree” and “Strongly Agree” respectively). A similarly positive response was reflected in the qualitative feedback:

- “A very interesting way of teaching.”
- “She created a very interactive environment for us to learn. It made the driest topic become interesting and engaging.”
- “She deserved commendation for her excellent work in making a rather uninteresting module a very interesting and pleasant learning journey for us newly matriculated students, making our Year 1 Semester 1 a pleasant one.”

The respondents also gave feedback that the e-modules improved their understanding of the lecture content, specifically PC principles and concepts such as drug therapy problems (with 82.5% and 12.6% stating that they “Agree” and “Strongly Agree” respectively) and the use of a case scenario to illustrate the importance of developing a sound PC plan (with 82.4% and 14.8% stating that they “Agree” and “Strongly Agree” respectively).

Overall, 86.7% of students were receptive to the use of more e-modules for this purpose. They shared more in the qualitative feedback gathered:

- “The E-modules were informative and provided good background before lecture 2.”
- “Challenging at first but enjoyable as I started to appreciate the case scenarios and link to pharmaceutical care concepts.”
- “The case scenarios were very interesting. More of it [sic] because I can follow the lecture better. I love to learn more about it.”

Using Case Scenarios: Improved Students’ Understanding of PC Concepts & Their Application in Real Life

Students’ response to the use of case scenarios in the syllabus were also positive, based on the data gathered. The majority of respondents indicated that the case scenarios improved their understanding of PC concepts (72.7% and 25.2% stating that they “Agree” and “Strongly Agree” respectively), with up to 95.1% agreeing that the scenarios allowed them to have a glimpse of the application of PC concepts in the real world:

- “Interesting examples used to teach concepts. Case scenarios were helpful in learning as well as to illustrate the importance of some of the abstract concepts.”
“She engaged in interesting learning method. [She] gave LOADS of relevant examples related to drugs and pharmacy in her lectures which was good since they helped me relate better to how the lecture content can be applied to the real world context.”

Overall, students’ comments from both the post-course survey and the end-of-semester teaching evaluation exercise indicated that they enjoyed this student-centred approach of teaching and appreciated its usefulness in helping them reach the module’s learning objectives; it piqued their interest in learning more about the principles of PC, and the active classroom engagement using the case scenarios led to a better understanding of PC concepts.

• “This teaching method showed us the relevance of what we were learning. I really enjoyed the hybrid [teaching method].”

• “Very useful as it helped to show possible scenarios that we as pharmacists may encounter in the future.”

• “More E-modules and examples on pharmaceutical care scenarios please, they were really useful.”

No overtly negative comments on this hybrid teaching method were received from students, although some suggested the possibility of mounting the e-modules before Lecture 1 should more of these modules be created. This is to allow more time for students to read these e-modules before attending the lectures.

Conclusion

In conclusion, a non-traditional hybrid teaching method was successfully employed to facilitate the teaching of difficult concepts to first year undergraduate students. This technology-enabled flipped classroom approach was beneficial to learners as it allowed for the active acquisition of additional factual content outside of routine classroom teaching. It, in turn, acted as a scaffold which facilitated the achievement of higher level cognitive activities and learning outcomes, thereby making the knowledge acquisition journey more rewarding for learners.

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ABOUT THE AUTHOR

Dr Ong Pei Shi teaches Pharmacy Practice to undergraduates as well as Clinical Pharmacokinetics and Therapeutic Drug Monitoring to PharmD students. She embraces cooperative and active learning approaches in her classes in order to make learning more enduring. By doing so, she also seeks to equip her students with the necessary hard and soft skills to meet the challenges as future pharmacists in an ever changing healthcare environment.
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Endnote

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References

