

## CROSSOVER LEARNING THROUGH A HEALTH CAMPAIGN INTEGRATED IN A BACHELOR OF PHARMACY CURRICULUM

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### Abstract

**Purpose:** Continuous improvement in teaching and learning methods is vital for addressing the changing needs of pharmacy education. Many have agreed that one of the most effective approaches is crossover learning, whereby learners are actively involved in shaping their learning experiences and acquiring knowledge in both formal and informal settings. In this work, we report an ongoing initiative of facilitating a student-led health campaign, *Brain Awareness Day*, to promote crossover learning.

**Method:** The campaign is included in our curriculum (Bachelor of Pharmacy with Honours) as a formal mode of learning and continuous assessment. A total of 84 pharmacy students were divided into groups of eight or nine to work on a drug addiction-themed assignment and present the result in the form of a poster exhibition. A short, online questionnaire was used to gather the students' feedback on their learning experience and perceived gain of relevant insights from the campaign.

**Findings:** Thirty nine out of 84 students took part in the survey. Most students agreed that their involvement in the campaign had contributed favourably to their learning experience and achievement of the pre-defined learning outcomes. The students also gave several suggestions for improving the organisation of the campaign. They suggested that more budget should be allocated for running the campaign, and that finding an off-campus venue might help to increase footfall.

**Significance:** We concluded that the campaign had been effective in encouraging crossover learning, and it would remain an integrated sub-programme in our pharmacy curriculum. Diversifying methods of teaching and learning may help to realise Malaysia's aim of developing well-rounded and employable graduates.

**Keywords:** Crossover learning; formal learning; health campaign; informal learning; pharmacy education; undergraduate students

## 1. INTRODUCTION

Teaching and learning in Malaysia have become less didactic and increasingly diversified in the past decade, as the focus of tertiary education was shifted to prepare for the fourth industrial revolution. Engaging students in their own learning process using various methods and technological aids is now a priority. Successful teaching is not merely designed to enable unidirectional knowledge transfer, but also to hone soft skills and promote personal growth. Teachers assume an ancillary role to make room for autonomous learning, and assess the outcomes using suitable tools (Laurillard, 2012).

To develop an effective teaching strategy, we must first understand the paths of learning in different settings. Two modes of learning are thought to co-exist: formal and informal. Formal learning is led by teachers and systematic with a universal set of pre-defined outcomes; however, it is also rigid, passive, and idle outside the confines of a classroom. On the contrary, informal learning is unstructured and malleable, and the students actively set personalised goals and the pace of their progress; a group of students learning the same subject matter may arrive at differing but equally acceptable conclusions. *Crossover learning*, which occurs at the intersection of formal and informal learning, is popularly cited as a notable innovation in education (Sharples et al., 2015). Reducing students' dependence on teachers has been shown to positively influence their inner motivation and capacity for lifelong learning (Abdullah, Ramlan, Sabran, & Alsagoff, 2014). Further, learning is augmented via the collective effort of a group of individuals who *collaborate* in completing a given task. Collaborative learning diminishes educational inequality and improves the academic performance of students from less advantaged backgrounds (Snyder, Sloane, Dunk, & Wiles, 2016).

The efficacy of crossover learning in empowering students to acquire the requisite skills as a health professional has not been investigated. This is an interesting subject to explore, as programmes for training health professionals differ somewhat from others in that the students are required to achieve a set of generic and highly specialised outcomes, and that the learning environment tends to span various settings such as classrooms and hospitals. A major challenge that we have faced lies in enabling the students to apply complex theories to solve clinical problems. Other investigators have trialled several approaches with variable success, including team-based learning (Bleske et al., 2016), role playing (Luiz Adrian, Zeszotarski, &

Ma, 2015), and assignments shared across disciplines of pharmacy (Stewart, Buckner, & Wildfong, 2011).

In this report, we describe a health campaign, *Brain Awareness Day*, which has been formally included in our pharmacy curriculum. We hypothesised that organising a health campaign could enhance students' learning experience, increase their interest in a subject matter, and produce better learning outcomes (Mattson, Haas, & Kosmoski, 2013). We also present the results of a survey that was conducted to gather the students' feedback on the efficacy of the campaign in creating a useful learning experience.

## 2. METHODOLOGY

A total of 84 pharmacy students were divided into groups of eight or nine to work on a drug addiction-themed assignment, followed by poster presentations in a health campaign, *Brain Awareness Day*. The rationale for the chosen theme was to raise the level of social awareness among our students. Instructions for the assignment were posted on an interactive website maintained by the university, Integrated Portfolio Management System (iFolio). It was also mandatory for the students to attend a series of lectures on drugs of abuse and addiction prior to initiation of the assignment. The campaign was run entirely by the students under close supervision by the lecturers, including the selection of a public venue for it. They were required to set up a poster exhibition of commonly abused addictive substances. The students were also required to interact with visitors to the exhibition and explain the harmful effects of drug abuse and addiction. Several lecturers from our faculty were also present at the exhibition to assess the students' performance based on pre-defined criteria.

A short online questionnaire consisting of four items was constructed using a Likert scale of 1 to 5 (1-strongly disagree; 2-disagree; 3-neither agree nor disagree; 4-agree; 5-strongly agree), and one open-ended item was used to obtain the students' feedback on their learning experience and perceived gain of relevant insights from the campaign. The four items were: 1. Participation in the *Brain Awareness Day* has been an interesting learning experience; 2. Participation in the *Brain Awareness Day* has assisted me in achieving the course learning outcomes; 3. I think active participation in the *Brain Awareness Day* is a more effective method of learning than an assignment that results in a written report or an oral group presentation; 4. The *Brain Awareness Day* should be continued as one of the learning and assessment methods for the parent course. The open-ended item required the students to suggest how the activities of the *Brain Awareness Day* could be improved. Descriptive analysis was used to analyse the data. Common themes were also identified from the students' suggestions for improving the organisation of the campaign.

### 3. RESULTS

A total of 39 students took part in the survey. The overall feedback was positive, with near-unanimous consensus that the campaign had promoted crossover learning (Table 1). Bar one neutral response, most students agreed that the campaign had created an interesting learning experience (mean score = 4.38). They also supported the suggestion that the campaign should be continued for prospective students (mean score = 4.31). However, fewer students agreed that the campaign had helped them to attain the expected outcomes of the parent course (mean score = 4.10); only seven respondents *strongly agreed* with the statement. When asked to rate the effectiveness of the campaign as a mode of learning, the students gave a mix of negative, neutral, and positive responses (mean score = 3.90).

Table 1: *The results of a survey conducted to gauge the students' acceptance of the campaign.*

Variables	N	%	Mean score	SD
1. Participation in the <i>Brain Awareness Day</i> has been an interesting learning experience.	39	100	4.38	0.54
2. Participation in the <i>Brain Awareness Day</i> has assisted me in achieving the course learning outcomes.	39	100	4.10	0.50
3. I think active participation in the <i>Brain Awareness Day</i> is a more effective method of learning than an assignment that results in a written report or an oral group presentation.	39	100	3.90	0.72
4. The <i>Brain Awareness Day</i> should be continued as one of the learning and assessment methods for the parent course.	39	100	4.31	0.61

Based on the open-ended item of the survey, the comments given by the students showed that they were in general enthusiastic about participating in the programme (Table 2). For example, some students remarked that the budget should be expanded to allow the purchase of more decorative materials for the exhibition that would then enhance the appeal of the programme; others thought that the duration of the programme could be extended to accommodate more activities or visitors. Other suggestions included finding a better venue, partnering with a private organisation, and creating opportunities for commercialising the programme to attract more public attention.

Table 2: *Common themes identified from the students' suggestions for improving the organisation of the campaign.*

Feedback theme	Excerpts of the students' feedback
1. Increasing financial support	<p>Respondent 1: <i>"provide more budget for us to make the event more fun and interesting"</i></p> <p>Respondent 4: <i>"increase budget allocation for each group for purchasing materials"</i></p>
2. Extending the duration of the programme	<p>Respondent 3: <i>"the time of exhibition should be extended until late afternoon to gain more experience"</i></p> <p>Respondent 5: <i>"the time for exhibition should be extended so that all of the participants have adequate amount of time to go to all the booths"</i></p>

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Respondent 11: *“the time of exhibition should be extended until late afternoon to make all the efforts of materials preparation worthwhile”*

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3. Finding a better venue to attract more visitors

Respondent 7: *“get more participants and pick a suitable place and time so that more people can come”*

Respondent 15: *“to be held in a more public space so more public can come for the event and learn”*

Respondent 37: *“carry out more activities in the public areas”*

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4. Partnership with private organisations

Respondent 34: *“involve all university students and private sectors”*

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5. Increasing the commercial value of the programme

Respondent 39: *“expand the program activities and increase commercial value of the program to attract more participations”*

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#### 4. DISCUSSION

Managing the health campaign, *Brain Awareness Day*, entailed a broad skill set and a high level of commitment. With minimal help from the lecturers, the students were required to critically review, interpret, and present the literature in a lucid and attractive format. The task challenged the students to conceptualise knowledge into information that could be used to increase the public awareness and understanding of the risks associated with drug abuse and addiction. Though the campaign was embedded in a *formal* curriculum, most of the actual

learning occurred via the students' *informal* interaction with their audience. The findings of our survey showed that the campaign had become a successful platform for crossover learning.

In ensuring that crossover learning had taken place, we defined several criteria to assess the students' performance, and coincidentally these criteria also served as indicators of crossover learning. In this context, the 'marriage' between diverse methods of learning (and the associated outcomes) constitutes crossover learning. We first assessed the students' ability to respond to impromptu questions, which helped us to gauge their problem-solving and oral communication skills. To answer our questions, the students must have a thorough understanding of the theories they had learned in the classroom. Assessing the content of a poster enabled us to gauge the students' creative ability in transforming abstract theories into attractive visuals. Based on our assessment, the students performed well in both domains, with most scoring 8-10 on an assessment scale of 10.

Crossover learning provides learners with authentic, engaging, and varied opportunities for learning (Sharples et al., 2015). It is an overarching concept that tackles many facets of modern education, including *constructivist* and *collaborative learning*. For instance, the active participation of our students in the campaign follows the principle of constructivism, whereby learners construct knowledge instead of being fed facts by teachers (Omar, 2014). Organising the health campaign effectively drove the students' transformation into constructivists. Formulating and laying out the message of the campaign in a clear and interesting fashion demanded intensive preparation and creativity in constructing novel ideas. We agree with others that constructivism is an efficacious mode of learning, from which learners reap multiple rewards (Mattson et al., 2013).

Interacting with the campaign visitors created an exercise for the students to practise their communication skills. This is resonant with the daily responsibility of a pharmacist for supplying essential drug-related information to their patients (McDonough & Bennett, 2006; Rodis, Legg, & Casper, 2008; Langley & Belcher, 2009). Also, the communication process was multi-directional; it took place not just between the students and the visitors, but also among members working in a team, and between the students and other individuals who provided help, including the lecturers and the campaign's venue manager. Effective communication is essential to collaborative learning, which compels learners to work successfully together towards a common goal (Snyder et al., 2016).

In summary, the realisation of crossover learning in our campaign-based module depended on several prerequisites: granting the students a high degree of autonomy within an informal setting, fostering a collaborative relationship among them, and minimising involvement of the lecturers, who should function only as facilitators (Yusoff, Abdul Karim, Othman, Mohin, & Abdull Rahman, 2013). The students responded favourably to such a bespoke module. This is evident in the high rating scores (> 4) given by the students to the items that were used to garner feedback on different aspects of the module (Table 1). However, several limitations warrant consideration. First, some students could have been mentally unprepared for the given task and still preferred conventional modes of learning. The item that was used to gauge the students' readiness for new challenges had received the lowest mean score of 3.90. An introductory lecture could be given to the students to equip them with relevant concepts before the module was started. Second, financial constraints had limited our options of the campaign's venue and the purchase of exhibition materials. Considering the present economic climate, we speculate that this may continue to be a hurdle for future students. Third, little time was available for running of the campaign. This may be overcome by converting the campaign into a series of shorter sub-programmes that occur throughout a four- or five-month semester.

## **5. CONCLUSION**

We have developed a module, in the form of a health campaign, for promoting crossover learning, a concept that has been gaining popularity in tertiary education. The campaign was well received by our students, despite several drawbacks identified in its implementation. We would continue to organise the health campaign as an integrated sub-programme in our Bachelor of Pharmacy curriculum. We believe that crossover learning would become a major approach to tertiary education in Malaysia, in keeping with the country's aim of developing well-rounded and employable graduates.

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