



## BACHELOR OF PHARMACY INDUSTRIAL TRAINING: PERFORMANCE AND PRECEPTOR PERCEPTION

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### ABSTRACT

Industrial training for undergraduates in Malaysian universities is widely practiced. It provide hands-on experience and up-to-date information to the graduates who are about to enter the competitive job market. Many researchers have reported the impact of industrial training on students' performance. However, studies focusing on the preceptor perception of student performance are lacking. This study was done with the objective to evaluate UiTM's Bachelor of Pharmacy student's performance and to investigate preceptors' perception towards them during industrial training. Questionnaires were distributed to selected pharmaceutical, cosmeceutical, traditional and complementary medicine industries (n=55). The outcome of these questionnaires was analyzed using Statistical Package for the Social Sciences (SPSS). The analysis revealed that the preceptors have good viewpoint of these final year students. Nearly all respondents agreed that 82% of these students showed excellent performance during their industrial training. On the scale of 1-10, almost all elements tested showed the mean score of equal or more than 8. Nevertheless, students need to improve on their entrepreneurial and managerial skill. This study proved that the preceptors selected from various industries showed a favorable outlook towards the performance of UiTM pharmacy graduates, however more effort need to be done in order to improve their entrepreneurial and managerial skills.

**Keywords:** industrial training, preceptors' perception, Bachelor of Pharmacy students, elements

### INTRODUCTION

Industrial training is a superlative runaway for undergraduates to grasp the hands-on experiences provided before entering the competitive world of the profession. It is assumed that these students do not have adequate experiences required to fill in thousands of vacancies posts available in the industries. Through industrial training, theoretical knowledge acquired from lectures can be applied and practiced then, thereby experiences can be acquired. For each new employee enrollment, employers are typically accentuating on working experiences in addition to qualification background<sup>1</sup>. Increased competitiveness and highly mobile carriers in the everlasting global market place are examples of factors that made enhancing skills and experiences among undergraduates a necessity<sup>2</sup>. Employee skills and experiences are also major factors emphasize by the employer due to the facts that the duration and cost to train an experienced staff is cheaper than hiring a new, inexperienced staff. Apart from fostering good relationship amongst university and industries, students also benefited from the exposure to the most up-to-date information in an increasingly competitive world of technology<sup>3</sup>.

In Malaysia and other countries, labor market has become more and more competitive<sup>4</sup>. Therefore, industrial training should be made obligatory in diploma and degree program as it increases the chances for the graduates to secure a job.

Faculty of Pharmacy Universiti Teknologi MARA (UiTM) has made industrial training compulsory since 2008. Students were required to undergo industrial training for seven to eight weeks. During this period, they were evaluated by their respective preceptors on the attributes listed in the survey form provided. There are 4 general sections in the form in which these attributes were divided accordingly. Each section

comprises of the crucial aspects of students' skills, knowledge, professionalism, work performance and overall performance. From this, preceptors' perception can be collated and students' performance evaluated. In this study, we will only focus on the evaluations of UiTM's Bachelor of Pharmacy students' performance and industries perception towards them. The outcome of this study can be used for a future references and as an input for further actions and improvements that can be made pertaining to industrial training program.

### METHODS

#### Study design

This study was designed as a cross-sectional study that employs the method of descriptive or observation epidemiology through the collection of data from sample chosen from the population. Structured questionnaires were distributed to the preceptors from pharmaceuticals, cosmeceuticals, traditional, and complementary medicine industries who were the key respondents. The assessment on students' performance and preceptors' perception were rated by preceptors on a scale of 1 (poor) to 10 (excellent).

#### Sample selection

One set of evaluation form consisted of 4 main sections were distributed to the industries' preceptors. The selected population (n=154) was evaluated for its performance throughout the industrial training program.

#### Data collection

At the end of the industrial training program, evaluation forms completed by the industries preceptor were collected and analyzed using SPSS<sup>®</sup> version 17.0.

**Instrumentation**

The analysis was performed based on 4 main general sections. Each section focused on the different key aspects of students' performance. The first section evaluates students' skills and knowledge which included leadership skills, teamwork ability, entrepreneurial and managerial skills, communication skills, problem solving ability, skills in handling or applying standard software, acquires in-depth knowledge in area of study, ability translating theories into practical activities and enthusiasm in learning new

knowledge. The second section evaluates students' professionalism which includes good working ethics, new working environment adaptation, discipline, toleration with others, and the enthusiasm in executing daily tasks. Third section was to evaluate students' work performances which include aspect of completing tasks capability, independent work, fast-learner worker, competitive in performing tasks and punctuality. The last section summarized the whole students' performance in general.

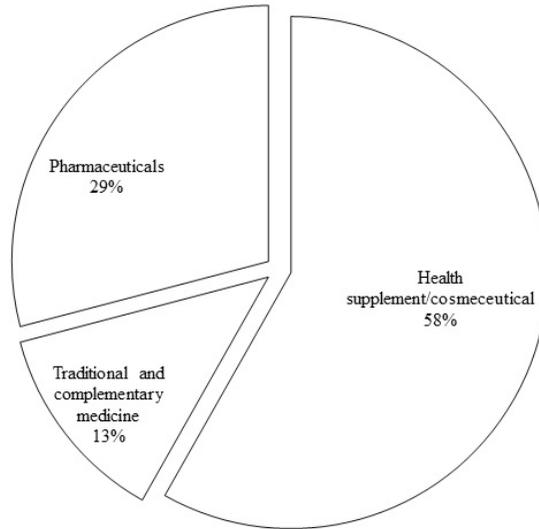


Figure 1: Type of Industrial Preceptor

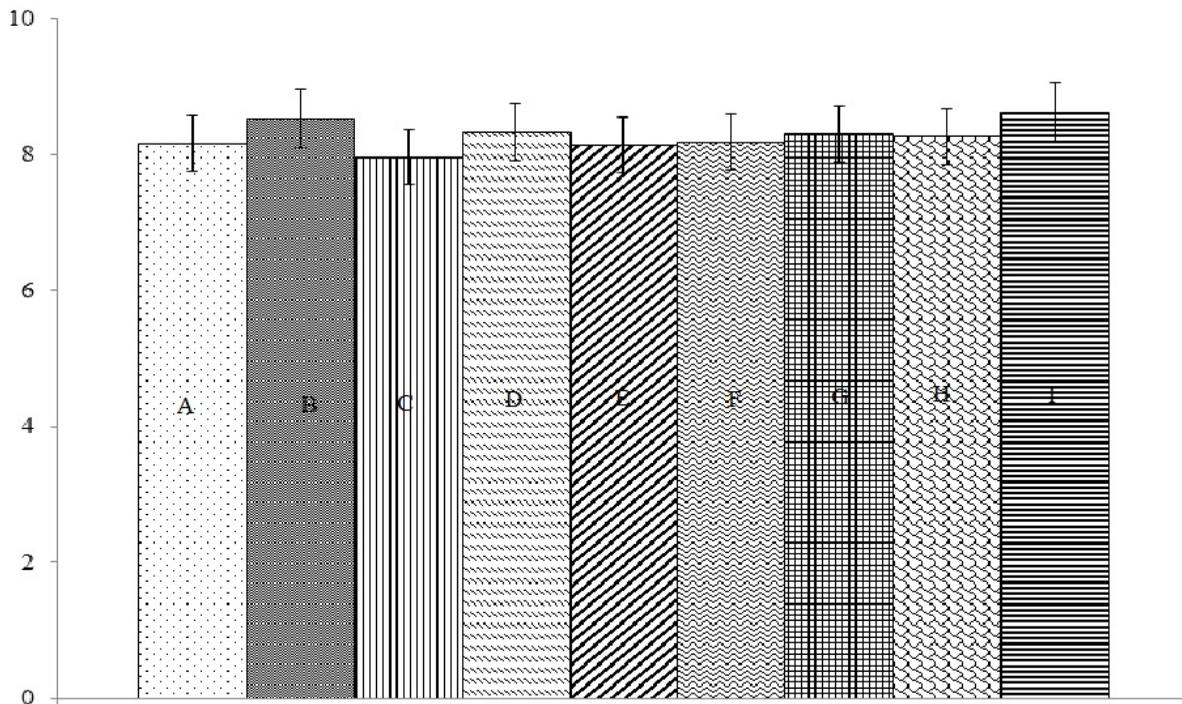


Figure 2: Mean score of students' skills and knowledge (A) Acquire good leadership skills and capable to lead a project (B) Competent to work in team and team up in group activities (C) Acquire entrepreneurial and managerial skills (D) Acquire good oral, written and interpersonal communication skills (E) Capable to identify problems and ground-breaking ideas in problem solving (F) Having a good skills in handling equipment or applying standard software process (G) Acquire in-depth knowledge in area of studies (H) Capable to translate theories to practical activities (I) Enthusiastic learning new knowledge and manage to use information

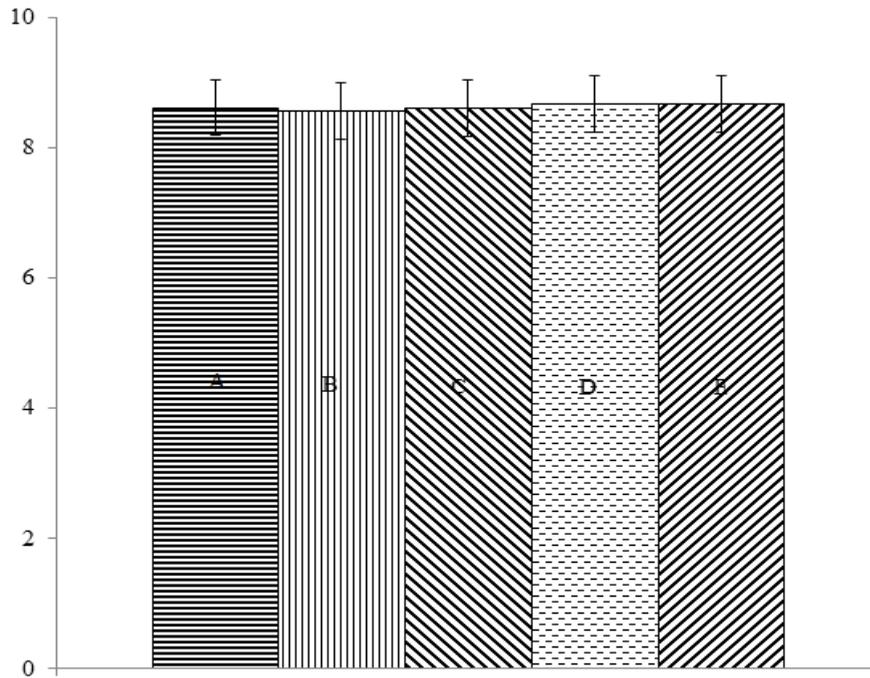


Figure 3: Mean scores of students' professionalism (A) Acquire good working ethics (B) Competent to adapt to new working environment (C) Acquire discipline and comply with company's term of conduct (D) Willing to tolerate and accept other's opinion (E) Motivated and enthusiastic in execute daily task

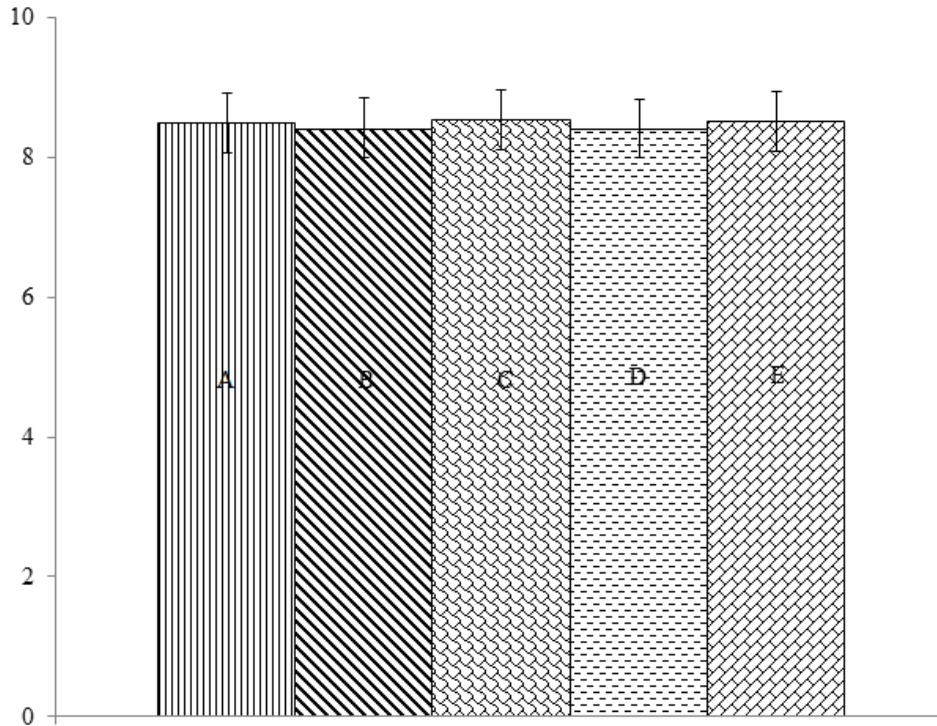


Figure 4: Mean scores of students' work performance. (A) Capable in completing task within time constraint, (B) Fast-learner worker, (C) Punctual and able to report in good time each day for work (D) Require less supervision and able to work independently (E) Competitive and committed in performing task

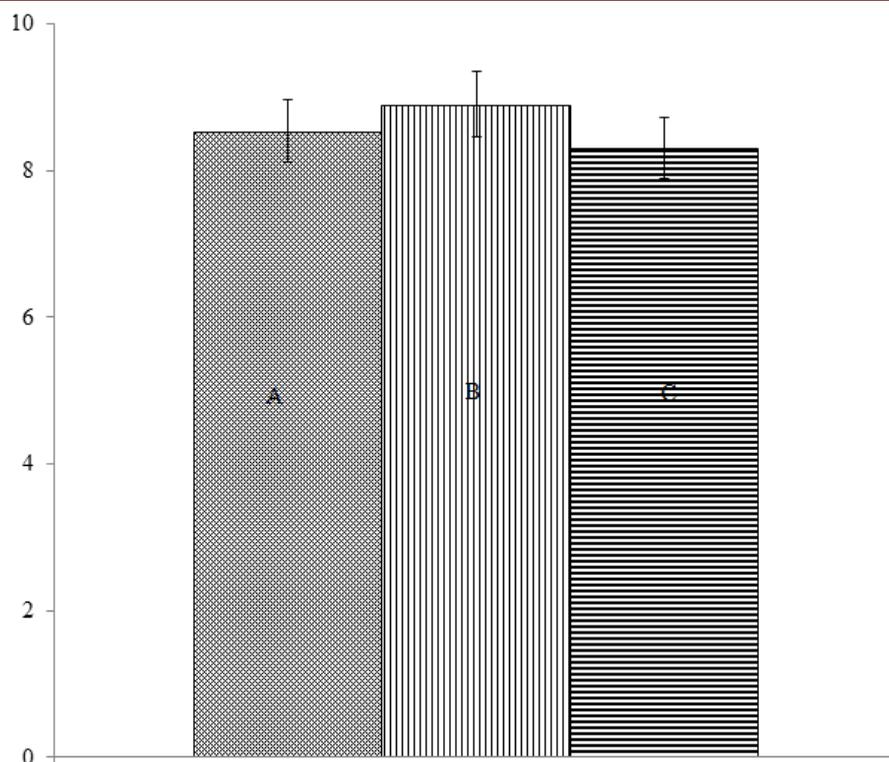


Figure 5: Bar chart of mean score of student from respective industrial preceptor. (A) Health supplement/cosmeceutical (B) Traditional and complementary medicine (C) Pharmaceutical

## RESULTS AND DISCUSSION

### Respondent profile

55 preceptors participated in this study. They were selected by their management team to supervise the students throughout their industrial training. Breakdown of participated preceptors, 58% were from health supplement and cosmeceutical industry. As shown in Figure 1, 29% were from pharmaceutical industry, and the remaining 13% of the preceptors were from traditional and complementary medicine industries. A total of 154 students were evaluated for their performance during industrial training, out of 154 students evaluated, 24% were male and 76% were female.

### Section 1: Students' skills and knowledge

As mentioned earlier, there are three sections covered in this research paper. Figure 2 showed students' skills and performance. Their skills and performance was evaluated throughout the industrial training. Results showed that there is no significance difference between students' skills and performance based on gender. This verifies that there is no gender biasness among the preceptors in evaluating the students. It also showed that students trained at the pharmaceutical industries showed the highest percentage of scoring in acquiring in-depth knowledge whereby out of 32 students evaluated, 82.9% of them are rated as good by the industry. On top of that, the same group of students also rated excellent for leadership and enthusiastic in learning new knowledge which recorded 63% and 53.9% respectively.

Elements which scored more than 7 were considered as good. Figure 2 illustrated that these students were given the highest mean score with  $8.6234 \pm 1.0356$  in the element of enthusiastic in learning new knowledge and ability to use information. This was followed by students' competency to

work in a team and in group activities. However, they were evaluated by preceptors as acquiring the least score in entrepreneurial and managerial skills ( $7.961 \pm 1.084$ ). Three elements resulted in similar mean score that is good leadership, good skills in handling equipment and also capability in translating theories into practical activities. This showed that students who are more enthusiastic to learn something new in the workplace, they are very likely to team up with others in group activities. This may coincide with presence of other worker who may be more experience in the workplace. Therefore, working as a team with them are very beneficial. Knowledge transfer is a basic mechanism of learning<sup>5</sup>. Luis and Francisco, 2006<sup>6</sup> reported that teamwork is an important factor in facilitating knowledge transfer. Hence, knowledge transfer occurred during the team work and new knowledge and skills gained by students were applied throughout their training in the particular company. The lower score acquired for entrepreneurial and managerial skills can be due to several factors. Information extracted from UiTM Puncak Alam's official website<sup>7</sup> showed that less than 5 subjects offered to Bachelor of Pharmacy students are business-related subjects. Less exposure to the basic in business and management studies was the main factor that contributed to student not performing in this element during their industrial training. Lack of awareness on the entrepreneurship and business opportunities available in this field of discipline is another reason contributing to this finding. A study conducted on Library and Information Sciences students in universities of South East Nigeria showed that 70% of the students there were not aware of entrepreneurship opportunities in their own discipline<sup>8</sup>. Insufficient dissemination of information, curriculum and training resulted on lower awareness towards

entrepreneurship. This finding was parallel to situation occurring to Bachelor of Pharmacy student of UiTM. Students have to accept the fact that job opportunities in the government sector has declined sharply. They need to explore other pharmacy field to search for work opportunity. One of the opportunities is to set up their own pharmacy retail shop in which the entrepreneurship skills are essential.

### Section 2: Students' professionalism

In this section, students were evaluated based on their professionalism. Professionalism is defined as the conduct, aims or qualities that characterized or mark a profession or rather a professional person<sup>9</sup>. Professionalism has been described by academic medicine in more of a value-based manner<sup>10</sup>.

Figure 3 showed all elements evaluated recorded narrow range mean score, i.e (8.6753±1.0409 – 8.5714±1.0717). From figure 3, the highest mean score was the willingness to tolerate and accept opinion. Respondents rated 53.3% of student as excellent for this element. Only 0.6% rated them as satisfactory. 58.4% rated students as excellent in motivation and enthusiastic in execute daily tasks element. Whereas the lowest mean score were reported for the ability of the student to adapt to the new working environment. This result indicated that students' adaptation into a new workplace was slightly low compared to other elements of professionalism section. However, the mean score of students' adaptation to new working environment was still considered high, indicating that students seemed to adapt without problems. This was supported by research conducted by Ayarkwa et al (2012) which reported that students of Kwame Nkrumah University of Science and Technology (KNUST) did not have problem in adapting in the place where they were having industrial training<sup>4</sup>. From this section, it can be concluded that students' professionalism during industrial training was at an excellent level.

### Section 3: Students' work performance

In this section, students were evaluated on their work performance. All of the elements showed the mean score (8.5455±1.0608 – 8.4156±1.0646). Figure 4 showed that the highest mean score was for the element of fast-learner worker. Respondents rated 57.8% of student as excellent for this element which was the highest for this section. Only 3.9% were rated as satisfactory. The second highest percentage of excellent performance by student was punctuality at 51.3%. However, the lowest mean score belong to the element of competitive (46.1%) and committed in performing task (49.4%) respectively. These results indicated that students' ability in these elements was slightly not as good as other elements of work performance section. However, the mean score was still considered high and base on the rating given by preceptor, most of the students can perform well during their industrial training. 50% of the respondent agreed that student has been excellent in performing tasks with less supervision and able to work independently. It seemed to be that students from other universities who have undergone industrial training also show almost similar result. According to Omar et al (2009)<sup>11</sup>, 95% of student from Faculty of Engineering and Built Environment of Universiti Kebangsaan Malaysia was rated as good for their ability to work independently. This indicates that students do not have much problem in becoming

independent at their new workplace. This shows that students from Bachelor of Pharmacy UiTM can work competently even without supervision and able to work independently. This result was parallel with the excellent ability of student to adapt well in their workplace as mention in the previous section. Since they adapted well to the new workplace, they were able to perform task with less supervision. From this section, it can be concluded that student' work performance during industrial training was at a very good level.

### Section 4: Students' overall performance

This section summarizes the overall performance of students after considering the three elements mentioned previously. Based on the analysis conducted, 53.2% of the students were rated as excellent while 44.8% of them were rated as good. With the total of 98% of the students achieved good and excellent, it showed that majority of students from Bachelor of Pharmacy UiTM performed very well during their industrial training. Figure 5 illustrates the highest mean score was for the student whose undergone industrial training at the traditional and complementary medicine industries (8.9±0.712) and followed by the health supplement/cosmeceutical (8.540±0.930) and lastly from pharmaceutical industry. Lower score for student sent to the pharmaceuticals industry can be explained. Comparing to traditional industry, the pharmaceutical industries working environment are more stringent and highly regulated. This is essential to maintain high standard production of modern drugs. Their perceptions on the quality of personnel were higher compared to other sector.

### CONCLUSION

In conclusion, this study showed that the mean score of each element evaluated is above good rate. These scores indicate that industrial preceptor has a good view on UiTM Bachelor of Pharmacy students' performance during their industrial training. In some of the element such as acquiring entrepreneurial and managerial skills, the mean score were slightly lower but still within satisfactory level. Most students adapted very well to the environment at the work place and showed very good communication skills with other personnel in the industry. The result of this study also showed that preceptors from various industries have a positive outlook of UiTM Bachelor of Pharmacy student. In the long term, this will increase the confidence level among the industry players to employ UiTM pharmacy graduates.

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