

## RESEARCH ARTICLE

## Learning pathways during clinical placement of physiotherapy students: a Malaysian experience of using learning contracts and reflective diaries

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### Abstract

**Purpose:** Learning contracts and reflective diaries are educational tools that have been recently introduced to physiotherapy students from Malaysia during clinical education. It is unclear how students perceive the experience of using a learning contract and reflective diary. This study explores the learning pathways of the students after using a learning contract and a reflective diary for the first time in their clinical placement. **Methods:** A total of 26 final-year physiotherapy students completed a learning contract and a reflective diary during clinical placements. Two researchers explored the data qualitatively by the thematic content analysis method using NVivo. **Results:** A total of four and six main learning themes were identified from the data of the students through a learning contract and reflective diary. **Conclusion:** These learning themes reflected the views of the students about what they have considered to be important learning pathways during their clinical placements. They give valuable insights into the experiences and opinions of students during their clinical education process, which should be useful for enhancing teaching and learning methods in physiotherapy education.

**Key Words:** *Education; Physical therapy; Students; Qualitative study*

### INTRODUCTION

Reflective diaries and learning contracts are popular educational tools commonly used in Western countries by the various health professions. However, such tools are not very common nor as popular among students and academicians from Malaysia. Reflective practice is a vital component in health care professional education [1]. Writing reflective diaries is strongly recommended for students in their clinical placement. It is a powerful method for students to express their emotions based on good and bad experiences during practice [2,3]. Furthermore, students are prompted to share their learning moments through writing, discovering themselves deeply by look-

ing through their own written reflections [4]. In writing reflective diaries, the students pick up self-reflective assessment skills during their clinical posting to develop their critical thinking by identifying their own limitations, reflecting upon learning incidents, and thereby creating changes among themselves [5]. A learning contract also serves as a guide for the students to choose a specific learning task at their clinical placement and focus on learning it. Thus, students are able to set their individualized learning goals with a learning contract [6]. Therefore, a learning contract and reflective diaries are valuable clinical educational tools in physiotherapy practice.

Although these learning tools have been widely acknowledged by researchers, we are keen to capture the perspective of students towards their learning pathway during clinical placement using these tools. The main focus of this study was to answer the question of how the students perceive using clinical education tools such as a learning contract and reflective diary during their clinical placements. The present study aimed

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to understand the learning pathways of physiotherapy students during their clinical placement using these clinical education tools. The findings derived through this current study might provide information on the experience of the students and their learning pathways using reflective practice and learning contracts at their clinical placement. Such information might be beneficial to new students in preparing themselves mentally and physically in their learning pathway using these educational tools.

## METHODS

### Study design

A qualitative design using a phenomenological approach was applied. This approach aimed to generate a description of experiences of participants as phenomena [7].

### Sample

A purposive sample of 26 final year physiotherapy students who underwent clinical placement in a government hospital participated in this study. This sample consisted of 22 females and 4 males with a mean age of 22.5 years (SD, 0.58; range, 21 to 23 years). The purposive sampling was chosen in this study in order to capture the true reflections of the study participants who had significant knowledge and experience of going through the process of using a learning contract and reflective diary. This sampling method was chosen to elicit the true experiences of the participants and to prevent data pollution and biases.

### Ethical considerations

Permission for this study was obtained from the Ethics Committee of a government university. The students signed informed consent prior to the study. All of the research materials were handled exclusively by the first researcher and no student names were associated with any final written materials.

### Data collection

All of the subjects had a familiarization session on the utilization of a learning contract and reflective diaries during their studies in Year 3, Semester 2. The format of the learning contract and structured questions in the reflective diaries was introduced. Some examples were given to facilitate students in preparing their learning goals and promoting better reflective diary writing. The students were arranged for a 12-week clinical posting in a government hospital in the first semester of the 4th year of a physiotherapy undergraduate program. They were asked to complete their learning contract with individualized learning objectives after discussion with their clinical educators on the first day of clinical placement. They were re-

quested to complete the diaries at the end of the 12-week clinical placement. All of the learning contracts and reflective diaries were collected the day after the end of the 12 weeks of clinical placement.

### Data analysis

Data analysis was done using thematic content analysis. The process of data analysis was adapted from Burnard [8]. First, the first researcher went through the data and recorded a preliminary general message from students. The data were analyzed further by the first researcher to identify similarities and differences between the messages. The messages were then unitized into phrases or sentences relating to specific topics. Then, a code was assigned to a text chunk of any size that represented a single theme or issue of relevance by using NVivo (QSR International Pty Ltd., Doncaster, VIC, Australia) software. Phrases or sentences formed through the reflective diaries and learning contracts of the students were categorized under specific codes. Similar codes were collapsed into fewer, broader themes, and the final theme list emerged. The final theme list was shared with additional researchers to validate the first coding scheme created. Doubts and problems concerning the definitions of themes and coding results were discussed and resolved within the research team [9]. General agreement in the coding process was reached and verbatim extracts were taken from the text to illustrate the content of each final study theme. The triangulation method was adopted, as the final data were cross-checked among the researchers and with the informants to ensure the credibility of the research.

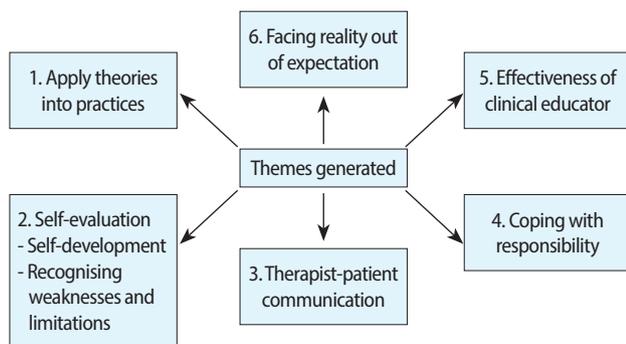
## RESULTS

A total of 26 final year physiotherapy students who underwent clinical placement in a government hospital participated in this study. This sample consisted of 22 females and 4 males with a mean age of 22.5 years (SD, 0.58; range, 21 to 23 years). The students demonstrated 4 common themes in their learning contract, while 6 themes were extracted through the analysis of their reflective diaries. All of the details are as discussed below. Analysis of the learning contract demonstrated the following 4 common themes by students during the clinical placement: 1) to apply theory to practice, 2) to improve communication skills, 3) to achieve self-development, and 4) adaptation to the clinical environment. A summary of the themes and subthemes is shown in Fig. 1.

### Analysis of learning contact

#### *To apply theory into practice*

The students were encouraged to identify their own learning needs through utilization of a learning contract in their



**Fig. 1.** Themes identified through analysis of learning contracts during clinical placement.

clinical setting. The findings demonstrated that students strived to look for opportunities to apply their knowledge during their clinical placement. Below are examples of general objectives prepared by students as shown in their learning contract.

- To apply theories, knowledge, and clinical reasoning in the cases that I got. (Student P)
- To apply assessment and treatment techniques. (Student X)

Some students were able to recognize their weaknesses specifically and therefore more focused objectives were generated through their learning contracts. Subthemes extracted through main objectives are listed as assessment skills, clinical reasoning, and treatment skills, as described below.

*Subtheme 1: assessment skills.* Good assessment skills are important for students to identify problems in patients, preparing a treatment plan accordingly to ensure effective changes happen during the physiotherapy sessions. Our findings showed that students were keen to sharpen their assessment skills during their clinical placement.

- To practice full assessment toward every case. (Student H)
- To be able to perform a nerve tension test. (Student L)
- To improve cardiorespiratory assessment skills. (Student Y)

*Subtheme 2: clinical reasoning.* Undergraduate physiotherapy students are required to possess the ability to analyze results of assessment, develop a hypothesis and prepare a treatment plan accordingly. Therefore, students in this study focused a great deal on applying evidence-based practice to their learning contracts. Some of the experiences that supported the need for clinical reasoning in the learning pathway of the students are presented below:

- To be able to improve my knowledge on medical diseases, their pathophysiology, clinical features, doctor's management, and complications of the diseases. (Student C)
- Try to find evidence-based knowledge to support my case study. (Student S)
- To be able to relate the clinical presentation of patients with the morbidity of different diseases in patients who have

respiratory diseases. To be able to analyze biochemical and blood results of particular patients. (Student O)

- To be able to interpret X-ray findings. (Student P)

*Subtheme 3: treatment skills.* Handling skills are crucial for physiotherapy students as they affect the treatment outcome in each physiotherapy session. The findings in this study demonstrated the intention of students to improve their treatment and intervention skills, which are shown below:

- To be able to perform a sterile suction technique. To be able to design exercise that can train multiple deficits in neurology case patients. (Student M)
- To identify techniques to address spasticity. (Student L)
- To learn more exercises for balance training. (Student U)
- To practice variable progression in a treatment plan. (Student H)

**To improve communication skills**

Giving instructions in a proper and understandable manner is very important for gaining compliance in patients and carers during assessment and treatment sessions. Interaction with other healthcare members is also vital for better performance in an interdisciplinary system of hospitals. Clinical settings provide the best opportunity for students to deal with different characteristics of patients in the hospital. Thus, students in this study demonstrated their eagerness to sharpen their communication skills during clinical placement. The opinions of students collectively support the need for communication skills, as demonstrated below:

- To practice effective communication with patients. (Student S)
- To be able to gain the patient's compliance. (Student D)
- To be able to communicate and understand the patient's status and his condition. (Student A)
- To improve my communication skill with patients, carers, and other health care teams. (Student Q)
- To be able to convince the patient to follow exercises given, such as breathing exercises. (Student F)

**To achieve self-development**

Final year students in this study were trying to prepare themselves to work in the society by fulfilling their objectives in their learning contracts, which stressed achieving higher performance physically and mentally. For example, they wished to improve their confidence level and time management skill as demonstrated below:

- To be able to manage my time better in treating every patient. (Student Q)
- To be able to finish all assessment and treatment within 1 hour. (Student C)
- To build confidence while approaching patients and care-

givers. (Student B)

**Adaptation to the clinical environment**

Familiarization with the working environment was mentioned by students as well. It improves the efficiency of work while it enables work to be performed safely.

- To be able to get familiar with the setting in medical wards such as types of oxygen masks, arterial lines, and central lines. (Student P)

**Analysis of the reflective diaries**

Analysis of the reflective diaries has shown 6 common themes with subthemes described in Fig. 2.

**Apply theory to practice**

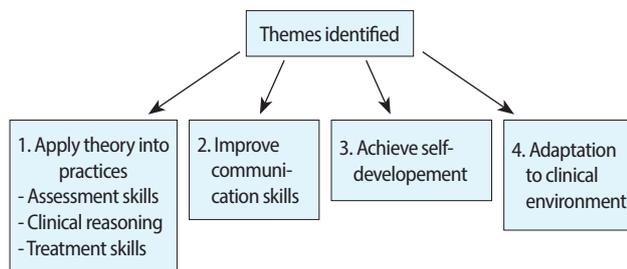
In the diaries, the students shared their hands-on experiences during the clinical placement, recalling the incidents that happened throughout the period. Furthermore, they shared their happiness in applying new assessment skills such as women’s health assessment in patients.

- It was the first time I performed a vaginal examination. It was a really good experience for me. (Student I)
- I studied women’s health for quite some time but never had the opportunity to apply them in a clinical situation. Today, I learned and performed a vaginal examination and perineometer measurement for the first time! (Student H)
- I had a chance to improve and become more familiar with the surgical case assessment. (Student Y)

**Self-evaluation**

Of all the reflective diaries, self-evaluation became part of the common events during students’ reflection upon their clinical experience. Two main subthemes were generated in the analysis, which were 1) self-development and 2) recognizing weaknesses and limitations.

*Subtheme 1: self-development.* The students were aware of their development during the clinical placement. Improve-



**Fig. 2.** Themes generated through analysis of reflective diaries during clinical placement.

ment in their confidence level was mentioned by the students in their reflective diaries. They also recognized their own capability in managing their learning as well as the patients’ conditions.

- The new knowledge made me enjoy the learning so much. I will face the situation with more confidence in the future. (Student G)
- I have to be more independent and take initiative to ask for cases or discuss them with clinical supervisors. I will try to see different types of cases and always get back to clinical supervisors for their opinions.(Student D)

*Subtheme 2: recognizing weaknesses and limitations.* The students had undergone the process of identifying personal inadequacies in clinical placement through their reflective diaries. Culture shock and lack of medical knowledge were the main issues in the reflections of students as demonstrated below:

- I was fearful and kept thinking of any contraindications in managing the patient. I was hesitant to provide treatments. Overall, I took more than 1 hour to complete the whole session. (Student C)
- Basically, I have little experience in those areas of attachment. I have had no chance to perform objective assessment for women’s health cases before due to the restrictions in different hospitals. That’s why I am not confident in managing those cases. (Student Q)

**Therapist-patient communication**

Good communication skills are vital to improving the understanding of patients about their own condition and delivering clear instructions to patients. Compliance of patients towards physiotherapy treatment may be increased through proper patient and carer education. Students in this study reflected on problems faced during an interactive session with patients and the approaches they had used to solve the difficulties. The students showed a positive attitude in achieving improvement of their communication skills.

- The most difficult task is to give instruction in performing pelvic floor exercises, especially to the elderly. I have to be creative during the explanation of incontinence and teaching the exercises. Besides, I need to do it in the simplest way so that my patients will be able to understand the exercises and their benefits. (Student U)
- I learned to approach patients in a proper way so that he/she can understand me and follow my instructions. (Student Z)
- In dealing with an elderly patient, I need more patience towards them. They get tired and give up easily, having more difficulty in expressing their feelings compared to younger patients. It is hard for them to obey my commands when carrying out exercises. I learnt that we need to be

more patient and give them more encouragement when dealing with them. (Student P)

#### *Coping with responsibility*

The findings demonstrated that final-year physiotherapy students were striving to cope with their responsibility as future physiotherapists. The process of improvement was aided by various strategies of learning such as group discussion and knowledge sharing with colleagues. The effort of students was shown in the reflective diaries of students as displayed below:

- I discussed with my colleagues and consulted the therapist whenever any doubt arose. I refer to books and journals when I need further information. I feel very positive in what I can do in this area in helping the patients in need. I feel very positive about my attitude. It is very helpful to have a discussion with my friends and therapist. (Student S)
- I will ask my supervisor if there is any doubt and do some revision regarding that. I will note down all the new information and knowledge in my notebook for my future use. I will do some further revision to gain extra knowledge regarding what I learn. I will seize the opportunity to teach and explain something that I know to my colleagues. (Student F)

#### *Effectiveness of clinical educator*

Undeniably, clinical educators play a major role in assisting students' development in this profession. Adequate supervision and guidance of good clinical educators encourages students to achieve better performance academically and clinically. Students showed their gratitude towards clinical educators who aided them along the clinical placement. Positive feedback was seen through their reflective diaries.

- With the guidance from clinical educators, I was able to take my first step to perform a vaginal examination. My clinical educators gave me lots of confidence in my practice. (Student J)
- I learned to write a reflective diary in a proper way. I recognized my limitations through comments given by my supervisors on my reflective diaries. (Student X)

#### *Facing reality despite expectations*

Different hospitals with various settings and workforces affected the students' learning events. Students' high expectations toward their learning environment may have been in congruence with what they wish to observe and practice. The students showed their disappointment in reflective diaries as demonstrated below:

- Mostly medical cases were given when I was posted in the surgical area. (Student U)

## DISCUSSION

All the 26 respondents were considered in the results. No data was excluded during the analysis of the learning contracts and reflective diaries of the students. There was no issue of a difference of opinion between the 2 researchers during the process of theme extraction. This study explored the learning pathway of final-year students through learning contracts and reflective diaries. Students identified several issues that were important to clinical practice through personal perceptions such as the application of theory to practice, a concern for communication skills, reflection on positive and negative experiences, and effectiveness of clinical educators throughout the clinical placement. The analysis of the learning contracts provides information on the common learning goals of the students while the reflective diaries of the students generate a summary of practical experiences from the clinical placement. The results demonstrated the process of transition in the performance of students from the academic to the clinical setting. The learning contracts and reflective diaries were useful clinical teaching tools. The findings of the current study supported the fact that the students benefitted from these clinical teaching tools in their clinical placement as reported in past studies [10,11].

The results showed that the students focused much on their application of theory during their clinical placement. In this study, through analysis of learning contracts, specific skills such as assessment skills, treatment skills, and evidence-based practices were experienced by students as key learning pathways within their learning process. Past studies of contract learning in nursing education also demonstrated that the majority of the students agreed that a learning contract enable them to relate and apply theory to practice, improving their nursing skills after the clinical placement [10]. Similar opinions were given by physiotherapy students in this study who had been exposed to the benefits of a learning contract during the familiarization session prior to the beginning of clinical placement. Our findings showed that students were keen to obtain the same benefits by using this learning tool. Most of the students are aware of the importance of minimizing theory-practice gaps by applying theories to practice during clinical placement. Thus, students demonstrated their individualized learning goals in the learning contract to ensure that targets were achieved at the end of clinical placement.

The students shared a number of clinical experiences, which ranged from their first experience on selective assessment skills until the end in their difficulty faced during treatment in writing reflective diaries. The findings revealed that students had undergone a process of self-evaluation during reflection on their positive and negative experiences. They mentioned their

strengths and weaknesses in clinical events during the placement. While recognizing self-weaknesses, such as low confidence level and poor clinical reasoning skills, students showed their ability to make changes in themselves with plans and suggestions. Students in this study also shared their happiness with the success of coping with their responsibilities as physiotherapy students. The findings are consistent with the research of Cooper et al. [11] on final year nursing students. The authors found that their students reflected both positive and negative characteristics in themselves while dealing with different patients. The study demonstrated the development of maturity among nursing students in their leaning process, as these students were able to synthesize the importance of and responsibility for a given clinical task. William et al. [12] observed the learning process of students in clinical placement with reflective practice in his study. His results showed the emotional response of students meeting with unfamiliar or new learning events, followed by development of coping strategies, evaluation of learning outcomes, and an increase in their confidence level with successful events. In the current study, the students showed a similarly positive attitude in facing their limitations and improved with reflection on the good and bad points among them.

Similar findings regarding the interaction of students with patients and supervisors were found by Larin et al. [13]. A previous study of reflective diaries of students revealed students' awareness of the therapist-patient relationship, learning to listen to their patients' needs, and recognizing the importance of patient education and care. The results of this study showed that the topic of communication was stressed by students in their learning contract and reflective diaries. Students strived to obtain patient compliance during the treatment process through effective communication skills. Besides, students mentioned that the proper manner of explanation of the disease process in patients and exercise instructions would help to reduce anxiety in patients. In this study, the students also stressed effective communication skills as a key factor for communicating with clinical educators to achieve more advanced learning of professional skills. The experience of students in the clinical placement was greatly influenced by the clinical educators [14,15]. The students in this study shared good experiences of learning with the clinical educators in the clinical placement. The students felt that their confidence level in managing patients increased with support from clinical educators. The students frequently mentioned the clinical educators during their reflective diary writing. Identifying effectiveness in clinical educators can improve the quality of clinical education, which aids the positive development of key learning pathways in students.

The main weakness of the qualitative study is that it is not

possible to make quantitative predictions. However, the strength of this research is that this study provides an understanding and description of students' personal experiences of using these clinical education tools and their reflection of how learning takes place individually in a clinical atmosphere. Another strength is that this study showed a sequential pattern of learning pathways as exemplified by the students in a naturalistic setting using these clinical education tools. Such information might help academics and clinical educators to monitor the students over the domains of clinical learning and clinical skills identified by the participants of the current study. Although learning pathways and a reflective diary were used in other parts of the world, the natural setting in which these learning tools are implemented may have an influence on the efficacy of these tools. Any such influence could be considered new knowledge pertaining to that particular naturalistic setting and such knowledge holds high importance for successful implementation of these teaching methods in a clinical environment. In this regard, the current study findings are claimed to have value and importance for academics and clinical educators from Malaysia. Hence, the findings of the current study cannot be neglected, and it should certainly be of interest to any academics or clinical educators who look forward to evidence of efficacy in implementing learning contracts and reflective diaries with Malaysians.

In conclusion, learning contracts and reflective diaries were shown to be effective clinical educational tools for physiotherapy students. A major benefit in this study was that the students were being encouraged to develop independent learning methods. The students successfully identified their individual learning needs while recognizing the value of their clinical experiences through reflection. Therefore, both of these learning tools should be considered an integral part of professional practice in physiotherapy education.

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## CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported

Supplementary material: Volunteer's audio recording of the abstract.

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