

Review Article

Fostering Reflective Capacity in Undergraduate Pharmacy Education – A Narrative Review

De Silva DTN*, Fernandopulle BMR

Department of Para-Clinical Sciences, General Sir John Kotelawala Defence University,
Faculty of Medicine, Rathmalana, Sri Lanka.

*Correspondence: thisurisolva@gmail.com

Abstract

Purpose: Reflection enhances critical-thinking and problem-solving skills which are considered essential to integrate theory learnt in the classroom with the ambiguities of practice. There is currently international attention on methods of fostering reflective capacity in undergraduate pharmacy education. Aim of the review is to overview the evolution of reflective practice, educational impact of reflection, tools used to enhance reflection, and the possible implications of reflective practice activities in the Sri Lankan undergraduate pharmacy curricula. **Methods:** A narrative review was undertaken. Articles were retrieved using ‘Google Scholar’ web search engine. All types of literature i.e. consensus reports, original research articles, reviews, books were reviewed in order to gather relevant findings. **Results:** Limited publications were available in relevance to reflective practice in undergraduate pharmacy education in both Sri Lanka and across the globe. Special emphasis was given to the tools and methods of reflective practice used in similar professional education programs which could be adapted to undergraduate pharmacy education. **Conclusion:** Despite the inherent challenges in implementation, education programs of many health professions include reflective practice activities in their curricula although it is seldom practiced in undergraduate pharmacy education.

Key words: Reflection, Reflective practice, Critical thinking

Introduction

Reflection is a metacognitive process that builds up a better understanding of both the self and the situation in order to make decisions regarding future action.(1) Reflective capacity is indeed regarded by many as an essential characteristic for professional competence hence reflective practice activities are now being incorporated into undergraduate, postgraduate and continuing medical education, and across a variety of health professions.(2) There are numerous educational approaches used to facilitate reflection from text based reflective

journals to the creative use of electronic versions such as blogs.

Translating theory into practice is considered the most critical step in professional education though many students fail in this exercise.(3) Evidence suggest that while the skills of analyzing, synthesizing, and evaluating improved over the course of a pharmacy program, students’ motivation to think critically did not.(4) Therefore, integrating reflective practice activities presents a better solution in bridging theory with practice. Reflection provides the basis of deep learning from past experiences. It



helps develop critical thinking, problem-solving, and self-directed and lifelong learning skills through gaining new understandings, new perspectives, and new alternatives for future experiences.(5) Fostering reflective capacity within medical education also helps inform clinical reasoning,(6) and enhance professionalism (7) among trainees.

Various disciplines in healthcare i.e. doctors, (8)(9) nurses,(10) physiotherapists,(11) occupational therapists (12) have included reflective practice in their higher education setups and experienced its positive outcomes. Thus, the question remains unanswered why it has not been embraced by pharmacy education. One explanation is that pharmacy education research is more focused on developing a knowledge base,(13)(14) service provision (15)(16) and mastering skills (17)(18) rather than on developing reflection. Minimal availability of teaching resources is also shown as a probable cause for reflective activities to be limited in pharmacy education.(5) Main objectives of this narrative review are to overview how researchers have defined reflection, the evolution of reflective practice, educational impact of reflective practice in health professionals' education, tools and methods used globally to enhance reflection, common problems encountered with reflection and the possible implications of reflective practice activities in the Sri Lankan undergraduate pharmacy curricula.

Methodology

A review of literature was carried out retrieving research articles using 'Google Scholar' web search engine. There were no time limitations placed around the searches as over-viewing the evolution of reflective

practice was a major objective of this review. Articles written in English language were utilized. All types of literature i.e. consensus reports, original research articles, systematic and narrative reviews, and books were reviewed in order to gather findings. Key words such as 'pharmacy education', 'reflective practice', 'experiential education' and 'critical thinking' were used for the search.

Results

Definition of reflective practice

Analysis of the vast array of literature available shows that reflective practice has been used interchangeably with reflection as an umbrella or generic term, whereas, reflective writing, is an example of a reflective instrument and is simply a representation of reflection.(19) Another term, critical reflection, refers to a more intense level of reflection. It conceptualizes clinical practice by taking account of other crucial elements, perspectives, biases, and assumptions by drawing on a person's awareness of self and others.(5)

Rodgers cites Dewey's assertion that 'reflection is a meaning-making process that moves learners from one experience into the next, each time with a deeper understanding of its relationships with and connections to other experiences and ideas'.(20) Some other definitions of reflection include 'an active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusion to which it tends',(21) 'a generic term for those intellectual and affective activities in which individuals engage to explore their experiences in order to lead to a new understanding and appreciation',(22) 'a form of mental

processing with a purpose and/or anticipated outcome that is applied to relatively complex or unstructured ideas for which there is no obvious solution'.(23)

The educational impact of reflective practice in health professionals' education

Work of Mann *et al.* highlighted that, there was no convincing evidence that reflection enhanced competence through a change in clinical practice or improved patient care. However, it was noted that there was a plausible potential benefit. There was evidence that reflection was associated with a deeper approach to learning that allowed new understandings to be integrated with existing knowledge and skills. An important outcome that they identified was that diagnostic reasoning of complex and unusual cases could be improved by reflection.(2)

Reflection by undergraduate medical students is known to increase self-reported measures of self-awareness, professional thinking skills and the skills required for intimate examinations.(1) Several studies described positive outcomes of reflection in areas such as diagnostic thinking,(24) professional identity,(25) scores in medical-humanism aptitude (26) and final examination results for obstetrics and gynaecology.(27) In conclusion, students found reflection was useful and the implementation of reflection increased both self-reported and objective outcomes on learning and professional development.

Evolution of the theory of reflection

Several early educational experts have described various concepts with regard to reflective practice and assessment of reflection. Reflective practice as a concept for learning emerged into many professions in the 1980's.(28)

Dewey described the 'reflective thought' as an important aspect of learning. He defines reflective thought as the "active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that supports it and the further conclusions to which it tends".(29) He claims that we are constantly searching for evidence to support our beliefs which allows us to provide the best alternative or an explanation of more weight. Therefore, reflective thinking allows "judgment to be suspended in order for further inquiry" to be conducted.

Polanyi introduced the concept of tacit dimension, where someone uses their tacit (hidden) knowing of previously collected information that "cannot be put into words" to guide them to new findings as "we know more than we can tell".(30) Schon's theory discusses the concept of 'technical rationality' where he describes two pivotal constructs 'reflection in action and reflection on action'. The reflection in action occurs during professional practice whereas reflection on action occurs as a retrospective process after the action has occurred during which practitioners attempt to look back, analyze, and critically review an event to determine what elements led to their actions.(31) In 1984, Kolb introduced the Experiential Learning Theory (ELT), which begins with the learning experience, followed by the practitioner reflecting on that experience. The practitioner then develops theories and draws conclusions, which lead to experimentation with new insights and understandings, which in turn provide further opportunities to reflect on that experience.(32)

Boud *et al.*, in 1985, explored the components of reflective practice and identified seven elements of reflective processes to guide the

learner in self-directed learning.(22) As per Boud's explanation, the seven elements of reflective process are; 1. Returning to the experience; 2. Attending to feelings; 3. Association; 4. Integration; 5. Validation; 6. Appropriation; 7. Outcomes and action.

Mezirow described the 'transformative learning process' and distinguished between three types of learners: non-reflectors, reflectors, and critical reflectors.(33) Non-reflectors are those who do not exhibit any evidence of reflection. "Reflection enables us to correct distortions in our beliefs and errors in problem solving", (34) and "give meaning to an experience".(33) Critical reflection, which "triggers transformative learning", (33) goes beyond reflection as it involves a critique of one's original beliefs. "Critical reflection is not concerned with the how or how-to of action but with the why, the reasons for and consequences of what we do".(33)

Educational approaches to facilitate reflection

As mentioned earlier, there are a variety of educational tools used to enhance reflection both text and digital in undergraduate, postgraduate and continuing medical education, the choice of which varies with the intended outcomes and should also be determined by the user since everyone has a preferred style.(1) Several healthcare disciplines such as medicine,(1) nursing,(35) physiotherapy (36) and allied health (37) have used reflective practice tools in skill development because they enhance reflective ability. However, there is very limited evidence for the use of such reflective tools in pharmacy education.(5)

These reflective tools take different formats depending on the intended outcomes of the users such as journals,(38) diaries,(36)

blogs,(37) portfolios,(39) e-portfolios (40)(41) etc.

Journals have been used extensively by medical, nursing, and allied health disciplines as a means of encouraging the learner to look back on events and analyze them further, thereby promoting reflective thinking and practice.(38)(35)(42)(43)

Reflective blogs have been documented in the literature and have proven to be a useful tool to document and measure reflective practice electronically in the medical,(44) allied health (37) and dental professions.(45) Blogging is regarded as a more time-efficient and engaging reflective tool. These electronic formats are accessed on a daily basis by an individual and comments are shared and exchanged with a forum of peers.(37) Blogs encourage greater group participation as it "cultivates students' reflective peer to-peer learning".(46) Flexibility, accessibility, ease of use, organized social interaction, and empowerment of students toward learning critical-thinking skills are attractive aspects of using a blog for reflective learning.(37)(47) Blogs allow inclusion of hyperlinks, video recordings, photographs, illustrations, and comments to a site, which can then stimulate group discussion, interaction, sharing of ideas and experiences, feedback, and personal thoughts and commentaries.(47) Group blogging enhances communication and collaboration which encourage participants to consider others' ideas.

Some health professionals prefer to use portfolios to foster reflective practice. Portfolios, whether handwritten or electronic, are similar to journals in that they contain students' reflections on personal experiences and course content. Reflective portfolios are seen as a useful tool for

initiating triggers for reflection and feedback, and linking academic knowledge with clinical practice.(48)(49)

A reflective statement has been a useful tool to measure reflection in medicine, and although similar to a journal, it differs slightly in its format by documenting all aspects of the “journey” in one final statement.(50)

Common problems encountered with reflection

Reflective practice activities will only be effective if students are self-directed, are ready and motivated to learn, have the curiosity necessary to learn more, and recognize that their previous experiences are a “rich source of learning”.(51) Lack of time, resources and motivation too are considered as barriers which impair the possibility of implementing reflective practice in professional settings. Low engagement in reflection is also a noted factor by several authors.(52) Lack of reliability of the assessment tools and the challenges of assessing reflection are the most cited disadvantages of implementing reflective practice in health professions education.(53) Effective assessment of ‘imponderables’, i.e. the areas with more creative and original aspects remains a challenge.(54)

Discussion

Although many other health professionals’ education programs have effectively embraced reflective practice activities, it is of question that pharmacy education hasn’t reached it yet. Lack of motivation and lack of resources are demonstrated as potential reasons.(55) Not so surprisingly, the inclusion of reflective practice activities in undergraduate pharmacy curricula remains a

farfetched goal in the Sri Lankan higher education setup. Hence exploring its possibility has become an urgent requirement to foster reflection of future pharmacy graduates.

Pharmacy being a more knowledge and skills based area rather than reflection based is another justification. A rigorous understanding of the elements of reflective practice in pharmacy and reliable assessment strategies to evaluate tools of reflection is a prerequisite for implementing reflective practices effectively.(54) Tsingos *et al.* emphasizes the fact that the lack of structured framework or guidelines for implementing reflective practices such as there are in other health professions education is a major setback and constructing such guidelines would be a better starting point in encouraging reflection among pharmacy undergraduates.(5) Similarly, the Sri Lankan University system and other relevant organizations (i.e. The Pharmaceutical Society of Sri Lanka) could involve in constructing an initiative on this behalf.

The Sri Lankan Pharmacy undergraduate curricula contains experiential education placements at different professional settings i.e. drug manufacturing plants, regulatory authorities, community pharmacy outlets, hospital pharmacies, hospital wards etc. mostly during the culminating year of the academic program. These placements provide a vast array of professional experiences which would be ideal to be used for reflective practice activities. Furthermore, these allow the undergraduates to interact with professionals representing various disciplines which presents them with various challenges in professional practice e.g. professionalism dilemmas. Such experiences could be effectively utilized for

reflective learning. Critical analysis of experience and gaining better understandings and insights of the problem will provide the undergraduates with newer alternatives for future action. Hence, including reflective practice activities in the experiential learning component of the curriculum will be an investment. This issue is further highlighted by the work of Tsingos *et al.* as “the future pharmacy practitioner, therefore, must ensure that not only the correct knowledge and medications are disseminated to the patient, but that the practitioner’s personal perspectives, biases, approaches, and attitudes also be considered, as well as the experiences shared by other health professionals”.(5) Although portfolio based assessment is carried out to some extent in the diploma level pharmacy education in Sri Lanka, ethical issues such as plagiarism have been observed by academics as major setbacks. This might probably be due to lack of motivation of students regarding reflective practice. We can learn from such experiences and refine the techniques in order for them to be adapted into experiential education components in undergraduate pharmacy education in Sri Lanka.

Theoretical aspects of reflection could be provided by means of introductory lectures to students during their second or third years of the undergraduate academic programs. This would provide the students the overall idea of reflection and motivate them towards learning from what they actually encounter. Group activities of reflective practice would encourage peer-to-peer feedback, cultivating further discussions.

Portfolios and blogs are suggested as appropriate reflective tools in pharmacy education “as these allow for greater group participation and continual feedback,

acknowledging the experiences of students in their respective clinical placements and sharing that experience in light of their personal perspectives, biases, approaches, and attitudes”.(5) There is very limited evidence for reflective portfolios and blogs being used in pharmacy education in contrast to other areas of health education.(1)(39)(56) Although “Implementation of a pharmacist’s blog with multidisciplinary team members could improve information exchange and assist with collaboration of ideas, recommendations of alternative medicine regimens, and sharing of experiences by other health professionals”,(5) initiating reflective practice using portfolios would be a pragmatic avenue to start with in the Sri Lankan context as rigorous technological training would be required for examiners and facilitators regarding reflective blogs. As an initiative for reflective blogging simple on-line reflective activities could be carried out. Almost all universities now have their own Learning Management Systems which allow students and teachers to connect and share learning material. Such a platform would be a good avenue for the students to reflect on their own experiences in professional placements etc. faculty members can receive a feedback and subsequently transform teaching activities accordingly. Introduction to reflective blogs can be done gradually once both the undergraduates and faculty members are well motivated towards ‘learning through reflection’.

Conclusion

Despite the unique shortcomings and challenges, many health professionals’ education programs include reflective practice activities in their undergraduate curricula although it still remains a far-fetched goal in pharmacy education. ‘Learning

through experience' will foster the pharmacy undergraduates' critical thinking ability and help better perform in future practice. Hence, promoting reflection will create universal pharmacy graduates who would succeed in a multidisciplinary professional setting.

Conflicts of interest

Authors have no conflicts of interest to disclose.

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