Research Paper

Concomitant Role Of Near Peer Tutoring and Shadow Modules in Occupational Therapy

B. Venugopala Rao[1]*, Joydeep Dutta Chaudhuri[2], Viswakanth B[3] ,Nirmala Palayanthan[4]

[1]*Department of Anatomy, MAHSA University, Malaysia*
[2]*College of Health Sciences, Husson University, United States*
[3]D*epartment of Forensic Medicine, PKD Institute of Medical Sciences, India*
[4]*Department of Anatomy, MAHSA University, Malaysia*
Corresponding Author:B. Venugopala Rao

ABSTRACT: *Occupational therapyis faced with challenges of enhancing student learning and developing research proficiency of the faculty. Since effective student teaching is linked to research productivity by the faculty, this aspect needs to be developed as faculty research is not significant.*
Near Peer Tutoring is a teaching model wheretutors are at a senior academic level than tutees. Shadow modules is a recent modification of small group teaching that is driven by preidentified learning needs. This article proposed that the amalgamation of Near Peer Tutoringand Shadow Module will maximize learning potential of students and offer opportunities for faculty research.

I. INTRODUCTION

The occupational therapy (OT) curriculum is evolving to ensure that students acquire adequate scientific knowledge, an understanding of how clients receive health care, and acquire the skills to work collaboratively. This has intensified the academic rigor and hence measures need to be initiated to mitigate this burden. This article highlights the merits of the amalgamation of a Near-Peer Tutoring program (NPT) and the Shadow Module (SM) concept in the OT curriculum to develop a robust platform of teaching and learning.

The student burden

In the light of the prospective transition from the Masters to the OTD program, alterations in the direction of teachingand possibly an increase in study load can be anticipated. This is concerning sincestudents typically feel overwhelmed in the initial stage as many do not anticipate the rigor and volume of study. It has been reported that examinations and amount of classwork are the greatest stressors for OT students in the first year of the professional program (1). This stress, asacross all health care disciplines, is particularly in anatomy and neuroscience, where examination performance is more reliant on the retention ofactual, rather than procedural, knowledge (2). Anecdotal reports suggest that OT students also experience similar stressin both these courses. However, suitable guidance, discussion and analysis of the problems were the most important factors that OT students adopted to succeed in these courses. These learning strategies were greatly augmented by faculty support, whichunderscores the crucial role of the faculty in the developing student learning (1, 3).

The role of faculty research in student learning

The primary goal of research is to advance knowledge, while that of teaching is to develop and enhance learning abilities in students (1, 4). These are interlinked in ensuring that course content is relevantand conducive to the development of critical thinking. It has been suggested across all disciplines that research capabilities of teaching faculty can explicitly and implicitly support productive and efficient student learning by synergistic integration of teaching and scholarship (3, 4). Hence there is a compelling reason to enhance this facet of faculty developmentwithin the OT profession.

Research productivity among occupational therapy faculty

The observation that student learning is coupled to faculty researchis particularly relevantin OT education where research productivity among faculty is relatively low compared to other health care disciplines, and the general sciences (2, 5). Asubsequent survey revealed that scholarship in OT faculty was a relatively novel activity, and though there has been a progressive increase in scholarly publications and research funding among the OT faculty, the volume and quality of the research has not demonstrated significant growth(6).

The most significant barrier to research has beena lack of time, sincemost faculty are involved in teaching and administrative commitments, rather than in researchdirected activities (7). In addition, a significant number of faculty have limited research experience, resulting inless stringently executed studies that primary examine institutional rather than global situations. Thedissemination of the resultswas also poor with only a small percentage of the OT faculty publishing in peer reviewed journals (8). Moreover, there seems to be significantly less institutional support for faculty research in OT as compared to other disciplines (2, 6, 8).

A conceptual approach to advancing student learning and faculty research

The endeavor to maximize the efficiency of student learning processesofferexcellent opportunitiesfor innovative research in teaching methods. The next sections provide a conceptual approach to facilitate student learning and enhance faculty research in OT by amalgamation of two complementary approaches, namely NPT and SM.

Near Peer Tutoring

Tutoring is a learning process wherein students work together, typically on a one-to-one basis, to acquire knowledge and skills. The practice of peer-assisted learning (PAL),is a common practice in educational institutions. Itis defined as a situation where students with the same educational level and academic year, who are not professional teachers, help other students to learn by providing guidance and educational tools (9).

This practice of PALhas been mainly adopted due to limitations of didactic teaching whichdoes not facilitate learning in students with disparate knowledge and learning styles. The efficacy of PAL has been demonstrated bythe improvement of performance and self-confidence of tutees and social interaction skills of tutors (8, 10). However, certain shortcomings have been identified in the structureof teaching sessions, inconsistencies in presentation methods and occasionally inadequacies in the knowledge of tutors (11).

Near-peer tutoring, amore recent modification, augments the merits of PAL and addresses its inadequacies, since it is rooted in andragogy, a learner centeredteaching method (12). The adoption of the NPT model in OT education is prudent since students in professional programs, tend to be more self-directed and task oriented in their learning process, and are motivated by intrinsic rather than extrinsic reasons (13). Significant variations of NPT from PAL are that tutors in NPT are at a more advanced level of education, and the focus is more on enhancing learning skills through social and cognitive congruence. Social congruence refers to interpersonal interaction that is empathic and characterized by concern for others,leading to a safer learning environment in which learners are motivated to take risks. Cognitive congruence enables tutors to understand the learner's needs by targeted questioning and tailored explanations due to a similarity in knowledge (14). Overall more recent exposure to learning material of tutors, along with shared learning experiences, low communication barriers and similar social roles within the group, lead to better communication and learning. Hence it can be anticipated that NPT will offer a more efficient teaching alternative to didactic teaching and PAL.

The shadow module

The curriculum in most professional programs is primarily driven by teaching faculty. The SM is a diversion from this concept since though run in parallel, it works outside the course eliminates the teacher-learner relationship of didactic learning (7, 15). It is rooted in principles of the "Zone of Proximal Development" which suggests that a learner's cognitive development is highly dependent on social interaction and collaboration between a learner and a knowledgeable expert (16), and the "Intermental Development Zone (IDZ)", which proposes that jointly solving a problem is vital to providing a structure for supporting learning (17).

The SM is run by a student leader, referred to as a Shadow Module Leader (SML), who is a volunteer typically selected by the learner group or the faculty in charge (15). The SML decides, after discussion with the learner group, intended learning outcomes, means of delivery of educational content, tools for assessment of learning, and approaches towardscreating a shared output using a collaborative technology platform. In a SM, students create their own learning resources or identify resources from open-access material. As a group the students critique these resources and generate notes which can be checked by the faculty for accuracy, and then posted on any suitable platform. Any output from the 'Shadow Module' sessions is typically made available to

Department of Anatomy, MAHSA university, Malaysia

all students, including those that have not have participated in the SM, through any Virtual Learning Environment tool. All these activities are coordinated by the SML, who may liaise with the faculty during the initial sessions, though faculty input is usually minimal.

Since the SMencourages effective collaborations within the group, it offers significant advantages. Being student driven it enables participants to develop a richer understanding of the subject aslearners take collective responsibility for identifying learning goals and determining how to address them(18). This also encouragesthe development of peer identified niches, wherein students identify their own areas of expertise and benefit to the group (4, 6,14). Moreover, these small group settingsallow incorporation of reinforcement and retrieval techniques and studentsclosely identify themselves with the educational material due to their involvement in creating a repository of knowledge (3, 8, 15).

While the SM is essentially self-sustaining, as it is expected to operate with limited faculty input, it provides some challenges in the initial stages. The selection of the SMLis crucial and is typically a rigorous process where the grades and the individual's organizational and communication skills are examined. The SMLs needs to be well versed inthe use of active learning tools in small group settings, along with methods for evaluation of students with an emphasis on providing effective feedback (12). Other hurdles in the implementation of SM include the inability of learners to identify their weaknesses, and the reluctance to participate in the additional activities that are felt to encroach on time outside the class.

However, since the SM concept is based on the constructivist learning theory where emphasis is on thinking about learning, and less on the material to be taught, ithas the potential to promote deep learning approaches (19). Further, since the SM is primarily a student lead approach it has the potential to encourage greater student engagement and collaboration, thus reducing the dispersive nature of a didactic learning approach.

Amalgamation of NPT andSM

The OT profession is faced with the dual challenges of optimizing student teaching and improving faculty research. Considering that teaching is the major research strength of the OT faculty, the most tangible benefit that can be anticipated is the empowerment of students in identifying broader themes across subjects, and hence these two approaches in tandem have the potential to stimulate deeper learning approaches and provide an effective supplement to traditional didactic teaching.

It is not feasible to suggest aspecific protocol for concurrent use of NPT and SM since its implementation will vary among institutions based on curricular organization and resources. However, the broad outline should involve identification of topics to be discussed by the learner group and a framework of how sessions would be conducted. A "Practice Centered" model focusing mainly on reinforcing basic concepts and reviewing key aspects of the material could be adopted.Alternatively, students could choose to utilize the "Learning Centered" approach that aims on setting problems and providing support for learners to solve them (11). Often the most efficient approach is a combination of both models depending on the topic to be discussed. During the initial meeting a decision will also need to be made about how notes from these meetings would be shared within and outside the group. Also, online resources would need to beverified so that no errors are inadvertently introduced. The SML should also communicate to the faculty member the learning needs of the group so thatrelevant topics receive adequate consideration.

Following the end of the sessions, the SML would check the notes prepared by the group and then forward it to the faculty for final approval. These notes would typically be different from those provided by faculty as they would have been written from a student's perspective. The approved notes can be posted at sites which are accessible to all students, regardless of whether they participated or not in the SM. The technological options for the dispersion of the learning material would be at the discretion of the university, and could be made available to all health care disciplines, thereby creating a common resource within the institution. This institution wide data base and reference document that would allow a health care discipline to obtain a better perspective of other health care disciplines.

Avenues of research:

The incorporation of NPTs and SMs while enhancing OT teaching, also offers new avenues for faculty research, since OT faculty have identified teaching as one of their strengths (3,8, 20). While there are numerous similarities of content and teaching approaches among different health care fields (20), many of the teaching techniques are not transferable across disciplines. Hence, OT specific methods need to be developed to encourage inductive teaching methods using inquiry-based learning techniques. This offers opportunities to establish baseline data to understand how and why OT students learn, the challenges they face, and what facilitates their learning process. Other aspectsof OT education that need elucidation include procedural measures such as the ideal level of seniority of the tutors in NPTs and howlearning outcomes should be

measured in OT education. Also, relatively little is known about specificretrieval techniques that encourage the development of higher order cognition among OT students. These answers can only be obtained by implementation of a research studies directed towards rigorous data collection and analysis.

II. CONCLUSION:

For the OT profession to thrive, the definition of research needs to extend beyond conventional research to include studies on student teaching and learning. The evaluation of innovative teaching options by OT faculty can influence how the curriculum is formulated, and encourage the development of research potential. Thus, incorporation of NPTs and SMs would provide a novel opportunity for the creation of a community of learners who will prosper as the new generation of teachers and researchers.

REFERENCES:

[1].   Everly JS, Poff DW, Lamport N, Hamant C, Alvey G. Perceived stressors and coping strategies of occupational therapy students. Am J OccupTher1994;48: 1022-28.
[2].   Augustin M. How to learn effectively in medical school: test yourself, learn actively, and repeat in intervals. Yale J Biol Med. 2014; 87: 207-12.
[3].   Cianciolo AT., Kidd B, Murray S. Observational analysis of near-peer and faculty tutoring in problem-based learning groups. Med Educ. 2016; 50: 757-67.
[4].   Kulasegaram KM, Martimianakis MA, Mylopoulos M, Whitehead CR, Woods NN. Cognition before curriculum: rethinking the integration of basic science and clinical learning. Acad Med 2013;88: 1578-85.
[5].   Holcomb JD, Christiansen CH, Roush RE. The scholarly productivity of occupational therapy faculty members: results of a regional study. Am J OccupTher1989; 43: 37-43.
[6].   ToppinKJ.The effectiveness of peer tutoring in further and higher education: a typology and review of literature. High Edu1996;32: 311-45.
[7].   Paul S, Liu Y, Ottenbacher KJ. Research productivity among occupational therapy faculty members in the United States. Am J OccupTher2002; 56:331-4.
[8].   Alcamo AM, Davids AR, Way DP, Lynn DJ, Vandre DD. The impact of a peer-designed and -led USMLE Step 1 review course: improvement in preparation and scores. Acad Med 2010; 85: 45-8.
[9].   KlingbergT.Development of a superior frontal-intraparietal network for visuo-spatial working memory. Neuropsychologia2006; 44:2171-7.
[10]. Archer JC. State of the science in health professional education: effective feedback. Med Educ2010; 44: 101-8.
[11]. Zamor E, Chigerwe M, Boudreaux KA, Ilkiw JE. Approaches and Study Skills of Veterinary Medical Students: Effects of a Curricular Revision. J Vet Med Educ2017; 44: 490-501.
[12]. Gupta J, Bilics A. Scholarship and research in occupational therapy education. Am J OccupTher2014; 68: 87-92.
[13]. Cohn ES, Lyons K.D. The perils of power in interpretive research. Am J OccupTher2003; 57: 40-8.
[14]. Holaday B, LaMontagne L, Marciel J. Vygotsky's Zone of Proximal Development: implications for nurse assistance of children's learning. Issues ComprPediatrNurs1994; 17: 15-27.
[15]. Ericcson KA, Chase WG, Faloon S. Acquisition of a memory skill. Science 1980; 208: 1181-2.
[16]. Scott JL, Moxham BJ, Rutherford SM. Building an open academic environment - a new approach to empowering students in their learning of anatomy through 'Shadow Modules'. J Anat. 2014; 224:286-95.
[17]. Evans DJ, Cuffe T. Near-peer teaching in anatomy: an approach for deeper learning. AnatSciEduc2009; 2: 227-33.
[18]. Hansen MM. Versatile, immersive, creative and dynamic virtual 3-D healthcare learning environments: a review of the literature. J Med Internet Res 2008; 10: 1051-9.
[19]. Lockspeiser TM, O'Sullivan P, Teherani A, Muller J. Understanding the experience of being taught by peers: the value of social and cognitive congruence. Adv Health SciEduc Theory Pract2008; 13: 361-2.
[20]. Thomas A, Menon A, Boruff J, Rodriguez AM, Ahmed S. Applications of social constructivist learning theories in knowledge translation for healthcare professionals: a scoping review. Implement Sci2014; 9: 54-9.