Engaged learners breed engaged pharmacists?

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Teachers are influencers

The World Health Organisation characterises "teacher" as one of the seven (recently updated to eight) star roles of a pharmacist and as such, though this role predominates in academia, it should be part of the make-up of every pharmacist irrespective of their sector of practice (WHO 1997). In the hierarchical structures of society, teachers occupy positions of influence, and again, every pharmacist (including but not restricted to registered tutors) should give thought to the personal philosophy that undergirds their teacher-learner exchanges. I, for one, am generally driven to inspire and motivate others to reach their full potential in life and in my role as a full-time academic, my teaching philosophy is to inspire young minds to develop a sustained appetite and love for learning but with a guiding passion to serve individuals and various communities.

Inspiring active learning

Since learning, according to Bloom's taxonomy (Bloom 1956) and subsequent revisions thereof (Anderson & Krathwohl 2001), occurs on a continuum, my goal is to inspire incremental learning from the basic levels of understanding towards intermediate levels of knowledge application and the higher order of generating new knowledge. This progression of learning is essential in the training of pharmacists where critical thinking and problem-solving are mandatory for clinical as well as other operational and strategic decision-making and for being agents of change in the profession.

One of the biggest obstacles in pursuit of these more complex levels of cognition, is the prevailing passivity towards learning that has become synonymous with the "internet" generations of learners. Literature shows that "Millennials" and "Generation Z" are more comfortable with rote learning and memorisation which satisfies primarily the lowest level of Bloom's taxonomy, i.e. learning to acquire knowledge, whereas critical thinking, reasoning and engagement with literature to understand is generally lacking (Arum & Roksa 2011; Lorenzo & Dziuban 2006; Shatto & Erwin 2016). While this surface approach to learning is in no way reflective of their ability, it does require a more concerted effort to enhance the learning process.

A number of teaching and learning techniques are used to good effect at the School of Pharmacy, University of the Western Cape

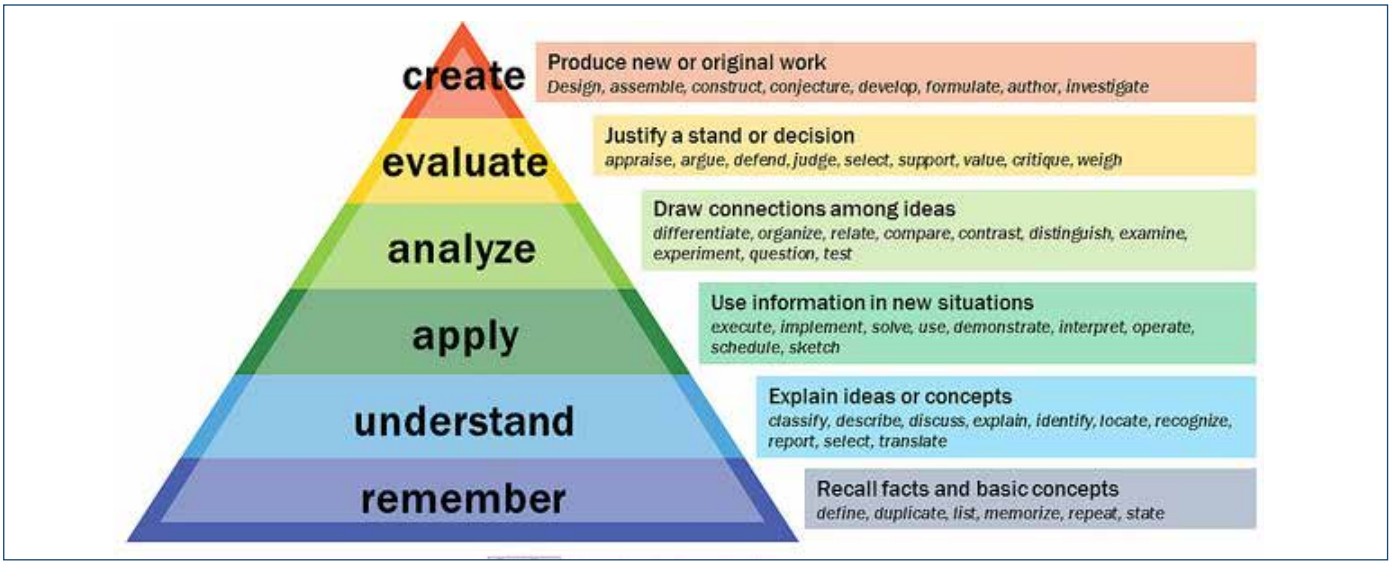

Figure 1: Revision to Bloom's Taxonomy of learning (Vanderbilt University, Centre for Teaching)

and some, which are designed to inspire *active* learning in the courses that I teach in the discipline of Pharmacy Practice, will be outlined briefly. My goal is to create an environment which fosters meaningful engagement with subject matter by (i) stimulating curiosity and interest, and (ii) showing relevance and providing the tools for self-directed inquiry.

Employing the learner's frame of reference

When students find content immediately relatable on one or more cognitive levels, it evokes personal interest and subsequent meaningful engagement with the topic. This Contextual Teaching and Learning system of instruction leverages the innate disposition to constantly seek meaning by connecting new knowledge with previous knowledge and experiences and has at its root the principle that all of nature is inter-related and that patterns of connections or relationships exist everywhere and helps us make sense of or derive meaning about various phenomena (Johnson 2002).

In the same way, making a topic relatable and meaningful to a learner begins with understanding their frame of reference and then building on it. For example, students, when first introduced to pharmacy philosophies and regulation, have little or no experience of pharmacy as a profession and the frame of reference used is their role as "expert patients" who have already developed perceptions of the profession but from a client's perspective.

Learners are encouraged to share experiences through this lens and this approach to teaching encourages a more active participation in the learning process which minimises rote learning (McGlynn 2005). An additional benefit to this method of teaching and learning in Pharmacy Practice is that it solidifies the patient-centred philosophy of pharmaceutical care, since the point of departure in learning is the "expert patient".

A second approach which builds on the learner's frame of reference is experiential learning. While the externship at other year levels fulfils the purpose of applying knowledge acquired, the objectives are slightly different at second year level. The community pharmacy externship is a *pre-course* requirement for the second year course on Medicine Legislation and Supply Management. During this 30-hour externship, learners – under the supervision of a pharmacist – are expected to complete activities in a structured workbook and these are intentionally designed to offer authentic learning experiences that will prime students for content *yet to be covered* in the classroom.

The goal is for learners to bring their experiences from the community pharmacy to the classroom setting to enrich their learning. Building on the Contextual Teaching and Learning Theory of seeking connections between new and existing information, cognitive science has shown that new information is more readily accepted if it is familiar on one or more levels (Lombardi 2007). Through the externship in community pharmacies, the goal is to expand the learner's frame of reference so that the theory taught in the classroom is more readily assimilated.

Showing relevance

Engendering an immediate sense of the relevance of information that links the content to particular "real-world" problems is another way of arresting learner interest and securing their immediate engagement with the content. In final year elective lectures on Advanced Medicine Supply Management, introducing a new topic is prefaced with recent media captions of service delivery outputs and/or health outcomes that are symptomatic of areas of dysfunction in local and international pharmaceutical systems and in groups, learners are requested to trace it back to the root cause/s.

When the topic emerges spontaneously from this exercise, learners immediately entrench significant connections between prevailing challenges (e.g. medicine shortages, substandard medicines) and key principles underpinning a particular topic (e.g. pharmaceutical quality assurance). Other approaches used to show relevance in electives are guest lectures by visiting practitioners and site visits to distribution centres, which immediately contextualises the topic according to specific models of practice and systems of operation.

Self-directed learning: debates and discussion forum

Debates are introduced early in the Bachelor of Pharmacy programme to steer students away from a dogmatic approach to learning, to encourage learners to scrutinise a topic from different angles, to engage with international literature and to appreciate diverse opinions.

The second year course on Health and Pharmacy philosophies, Policy and Legal frameworks and Organisational structures lends itself well to debates. This approach is centred on the construction of well-substantiated arguments to support or refute resolutions on topical and controversial pharmacy- and public health-related issues that are covered in lectures at a basic level and relies on independent, student-led research and inquiry. Learners work in groups of six and research their topics extensively before the debate (refer to figure 2). Topics include pharmaceutical care, health promotion and prevention, pharmacy support personnel and the National Health Insurance.

The lecturer serves as one of the many information resources and a mandatory consultation forms part of their preparation. A typical debate is 25 minutes long with 4 speakers in each team and a pair fielding questions from assigned groups in the audience at the end. This structured engagement, coupled with online student polls before and after each debate, ensures that the audience remains active participants in the learning experience.

Literature supports the use of debates to develop skills in framing and analysing arguments (Osborne, 2005 & Proulx, 2004). Osborne (2005) and Walker and Warhust (2000) established that debates in classrooms were beneficial in developing critical-thinking skills.

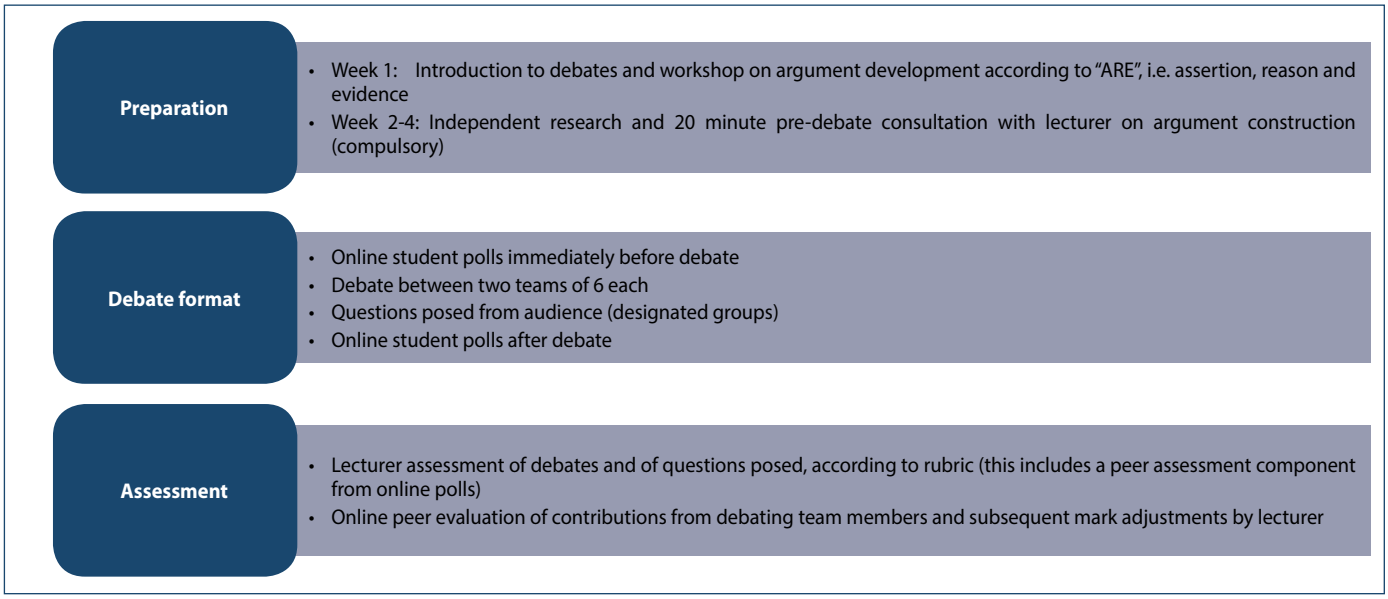

Figure 2: Debate structure for second year students in the discipline of Pharmacy Practice

Student evaluations of debates confirmed these benefits. *"The debate was an excellent assignment to challenge the student's ability to: Work as a team, work under pressure, improve time management, improve individual confidence, learn important aspects of the course work and beyond through research and understanding. It helped us gain an understanding of important topics that we as the youth definitely should be thinking critically about and also about ways in which some of these issues could be dealt with in terms of NHI effectiveness, sugar tax, etc."* ***Student X, 2017***

Through the university's online teaching platform, newer technologies have been exploited to facilitate student engagement with the learning process and to promote higher levels of learning. "Millennials" and particularly the current "Generation Z" learners are very comfortable in the digital ecosystem and using these platforms leverages their strengths in accomplishing the aforementioned goals (Shatto & Erwin 2016; Twenge, 2007).

Among others, the online Discussion Forum is utilised in the final year elective on Advanced Medicine Supply Management where students interrogate an application-type question on the quality of pharmaceuticals. On this platform, they articulate well-substantiated assertions, while commenting and posing questions on the posts of their peers – but without the time pressures and anxieties associated with public speaking. Being an asynchronous forum, students do not all contribute at the same time thus affording them the flexibility to submit comments at any time of the day, from a setting of their choice and after consulting any literature or other resources required (Harasim 1989).

The lecturer monitors these discussions and when necessary, intervenes with comments and probing questions to ensure that the depth and breadth of the discussions are optimal. This input from the lecturer has shown to improve learner interaction (Balaji and Chakrabarti, 2011). Consequently, students learn from their peers, their lecturer/s and the course material by engaging with, commenting and critiquing posts (Anderson and Garrison 1998) and this fosters a higher order of learning (Anderson 2004). Ideally, a discussion forum should not have too many participants, and therefore lends itself to an elective course of this nature which has an average of 12 students.

In general, students highlighted the same positive characteristics of a Discussion Forum that are outlined in the literature, including the more advanced levels of learning, the personalisation of learning and fostering peer interactions. *"I enjoyed that I could research before answering, I could thoroughly read through the question to grasp it better. I could type my answer out and post it when I was comfortable. A really good method of assessment."* ***Student X, 2018*** *"Interacting with other pupils and being exposed to their views and ideas. Being able to comment and ask questions to other people. Understanding the chapter through peers' views. It was also an interesting challenge"* ***Student Y, 2018***

Influencing the next generation of pharmacists

At present, there are many macro-level tensions in health, pharmacy and higher education and the current and future generations of Bachelor of Pharmacy graduates should be equipped to skilfully navigate these tensions. Inculcating a culture of learning that is active rather than passive and that is guided by a service orientation, will potentially breed an engaged generation of pharmacists who can be the change agents that advance the profession within new contexts such as the National Health Insurance.

The formal education sector plays a primary role in this regard, however, budding pharmacists are routinely interfacing with "teachers" in pharmacies, professional societies and organisations and the influence of both are instrumental in developing a pharmacy workforce that is adept at responding to healthcare challenges in South Africa and beyond. Establishing more

formalised partnerships between the academic and practice sectors under a common ethos could augment learning experiences and create a more seamless transition for learners between the classroom and various workplace settings.

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