TBL IN THE EYES OF A SWEDISH MEDICAL STUDENT

How Team-Based Learning (TBL) Prepares Students for the Workforce

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My name is Tim, and I am a student of medicine in Stockholm, Sweden, at the Karolinska Institute since 2022. In the very first course of the program the Team-Based Learning (TBL) format was introduced along with its purpose, tools and well-established study methods such as spaced repetition. The format is part of the teaching plan and examination criteria of every course and each term the group constellations are switched out to provide social diversity. In other words, I have been exposed to this learning environment consistently for almost three years in various courses and settings.

This essay will dissect three key elements of the TBL and InteDashboard environment that to me are its most powerful strengths: One, TBL as a knowledge and reasoning acquisition method. Two, the flexibility of a digital platform. Three, the innate capability of honing social and collaborative skills in the TBL format and why this is important to the future clinician. Throughout the text, anecdotes and studies will be incorporated with my own thoughts and reflections.

To me the format has always been a multifaceted learning moment. For one it helps me catch up on things that I might have missed or forgot to study, which to be frank, is something that can happen quite a lot to a stressed-out med student. Secondly, it challenges my perception of my already established knowledge by either forcing me to explain my ideas to a peer or reevaluating my perception when a peer explains their ideas to me. Learning by teaching is a well-established study method and have been advocated by many in academia for a long time. Einstein famously said that if you cannot explain something to a six-year-old, you do not really understand the subject yourself. I have yet to meet a medical student that is six years old, but I still think there are bits of truth in that statement applicable here. Thirdly, the format involves application, where basic ideas are extrapolated to more abstract and complex scenarios which leads to deeper learning.

Exploring the ideas above and the phases of the TBL process, one can see that there are elements of repetition in that there are self-studies, individual testing, team-based testing, where learning by teaching appears the first time, and finally application where learning by teaching once again is present. This is congruent with a key element of learning that I mentioned in the very beginning when I was introduced to TBL the first time – spaced repetition. This is a method that has shown to be more effective in consolidating knowledge compared to mass repetition (Smith & Scarf, 2017). The power that lies in this model is that learning by teaching is woven together with spaced repetition. Repetition is not only spaced out over a week of TBL sessions, but also an entire term or even several courses where past topics are being constantly revisited as they lay the foundation for later courses.

Certainly, one can argue that this is something that is adherent to the study of medicine and not TBL itself. Even if one accepts that point, it is impossible to escape the fact that the format is facilitating long-termed repetition. It is an active form of repetition where questions to be answered in RAT or application can depend on past courses as much as new ones, which revitalizes ‘old’ knowledge much more effectively than a passive lecture with a quick recap in the beginning of the presentation. As an example, the past year we have been studying internal

medicine, starting off broadly followed by narrowing down on its subspecialities. This means that when we studied antibiotics and infectious disease a few weeks ago, which is impossible to isolate from its umbrella subject internal medicine, we are exposed to topics we studied the term before. It is easy to get narrow-minded and think zebras[1] when having just read about Chagas and African sleeping sickness[2], but thanks to nuanced discussions in both tRAT and application sessions one can touch on everything from pneumonia, to heart failure to malaria. This is spaced repetition on both new and old knowledge.

The second element to be discussed is the power of complementing on-campus activities with digital tools such as InteDashboard. I am very much an advocate of physical lectures and activities. However, digital tools are not only useful but ultimately necessary to enable a smooth workflow for both teachers and students. Its possibilities include attending sessions digitally when physical attendance is impossible and accessing overviews of past sessions and results. My own experience with TBL has always included InteDashboard in one way or another, but I have never had a reason to prefer another alternative.

InteDashboard is a very effective and intuitive tool to use as a student. The digital setting makes it versatile, allowing me to do the iRAT and tRAT remotely when we are allowed to do so, or when illnesses hinder me to participate physically. This is a powerful advantage compared to more analogue alternatives. Since TBL is very present in our education, any missed attendance means that it is very difficult to catch up on RAT or application. It is not just a lecture where one can read up on the past week's slides. With InteDashboard and any chosen media of communication one can still join in on the discussions in the team and not miss a thing.

One powerful tool that I like to use in revision and studying before an exam are the stored sessions and statistics. It facilitates the opportunity to review and revise areas of weakness and drilling down on key elements. The problems that the teams are tested on are almost exclusively highlighted areas that the professors think are the most important. This is reflected not only in the written and practical exam but also in a professional setting. That way I can improve on the areas that I see are my weakest, as well as understand which parts are the most important to carry with me into my professional career.

Finally, I want to discuss the presence of teamwork and collaboration in TBL and what makes it so useful to a future clinician. Just like how I think TBL is multifaceted in its ways to facilitate learning, I think it also brings a plethora of team-building aspects. It is intricately tied together with the learning element already discussed, but at the same time a lot more comprehensive.

Teams are presented with problems in both RAT and application and are then set out to solve them together. Groups of five, six or sometimes seven people bring at least as many perspectives together to solve one problem. There is seldom a single correct answer, but there is always a single best answer. The trick is then to navigate among the collective ideas and

[1] *"When you hear hoofbeats, think of horses, not zebras".* A frequent maxim in the medical field which roughly means that a symptom explicable by a common disease is more likely than a rare one.
[2] Chagas and African sleeping sickness are two tropical parasitic diseases – rare in western medicine.

attitudes, sometimes quite strong, to single out the best answer. This requires many important traits and skills such as self-awareness and humility but also confidence and verbal prowess, along with people-awareness and team-working. Everyone brings a subset of these clinically important traits to the table from the get-go whilst developing the other traits over time. The traits are easy to see why they are useful in medicine, given that most clinicians work with patients and in interdisciplinary settings. Especially in clinical courses abstract reasoning and teamwork are present and I think TBL fulfills an important role here. I am not alone in these thoughts, a review in BMC found that TBL in clinical courses had positive impact on several of the aforementioned aspects such as clinical reasoning and teamwork (Sterpu et al., 2024).

I am constantly developing in terms of awareness of other people's skills and points of view. A single problem does not always have a single road to solution, which is sometimes difficult to accept for a person with a strong will. The past three years have really taught me how I can find my role in a new setting and enunciate my strengths whilst using other people's strengths to the whole team's advantage. This has prepared me to become a better team worker and leader once I am a certified MD. The skills that I am still developing and looking to master are skills that I can see in doctors that I look up to when I am on rotations in the hospital. To mention a few: respectful and humble consultations, perceptive and effective rounds, and strong leadership in acute situations. These exact situations are not necessarily emulated in TBL but many of the skills required to complete them are.

Over time team compositions are changed and everyone gets to work with new members. Every switch leads to a new dynamic and constellation that everyone must adjust to and develop. Some groups evolve quickly into friends whilst others are more neutral, and some might even hit roadblocks along the way to overcome. As an individual in all these scenarios one gets to practice social navigation in different settings but with the same goal in the end, team-based problem solving. I think this is extremely helpful, and will be of great importance in the future, as the medical team is constantly switched up in a hospital setting. In every team I get to practice how to adapt to varying driving forces and roles, which is a super-power, not just in the medical profession but really in any social scenario. We do not choose our colleagues, but collaboration is mandatory, hence this is essential practice.

One of the earlier and especially memorable examples of TBL was a course in anatomy and histology two years ago. Spanning over roughly six weeks each team were dissecting a human specimen several times a week, working through every major structure from limbs to thorax to abdomen. At the end of each week, iRAT and tRAT were in the form of time constrained quizzes on structures of the actual specimen. I remember this time as very intense, with high demands not only on anatomical knowledge, but also our ability to cooperate as a group. To an outsider it might sound strange, but working through a human specimen is technically difficult and testing of one's patience. Doing it together with five strangers is even more so. Perhaps the peculiar and sometimes uneasy setting of dissection managed to bring our team very close together and we managed to exchange a lot of ideas and lessons learned. Ultimately, we passed the course and some of the team members are still close friends of mine.

Writing this essay was more difficult than I imagined. I thought 2,000 words would be more than enough to cover the main lessons and experiences from TBL. I was wrong. With each new paragraph a new memory and idea arose. However, I think I have managed to catch the essence of what TBL has taught me and what I will bring with me to my professional career. It is an invaluable study method; I would not have remembered half as much from my education so far if it was not to TBL. It is very flexible when combined with a digital solution. Lastly and most of all, it is an incredible way to train and perfect the social aspects of clinical skills. All in all, I think it is the perfect format to foster the next generation's medical doctors.

References

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