

Introduction of team-based learning (TBL) at Kilimanjaro Christian Medical University College: Experience with the ectoparasites module

MRAMBA NYINDO¹, JOVIN KITAU¹, ESTHER LISASI², GIBSON KAPANDA^{1,2}, JOHNSTON MATOWO¹, PATRICK FRANCIS¹ & JOHN BARTLETT³

¹Kilimanjaro Christian Medical University College, Tanzania, ²Kilimanjaro Christian Medical Centre Medical Education Partnership Initiative, Tanzania, ³Duke University Medical Center, USA

Why do we teach by the team-based (TBL) mode?

**In order to
enhance active and participatory
learning, and to provoke
critical thinking which enhances
student knowledge application**

How is team-based learning done?

1. We give students enough time to read materials provided on the subject on their own before we teach them pedagogically
2. We set a reasonable exam consisting of 50 to 60 MCQ questions for each student to attempt as an individual. **This exam is the readiness assurance test (iRAT). Whoop, MCQs...?**
3. Students attempt the same MCQ exam in teams consisting of 5 to 8 students per team. Each team provides one answer by consensus for each MCQ question. **This is the group readiness assurance test (gRAT)** exam. Students in each team share the gRAT score they get
4. Students, as teams, attempt 2 or more **Application questions**, usually case scenarios. They share the Application questions score they get

Therefore each student gets his iRAT score and shares the gRAT and Application questions scores of his team. gRAT and Application scores enhance student scores

Therefore in TBL for each subject being tested there are 4 examination processes a student goes through. This examination process may last the whole day

What do students benefit when they learn by TBL mode?

- They improve their grades
- They enhance their critical thinking
- They develop the spirit of collaborative, team effort which they will apply at work after graduating

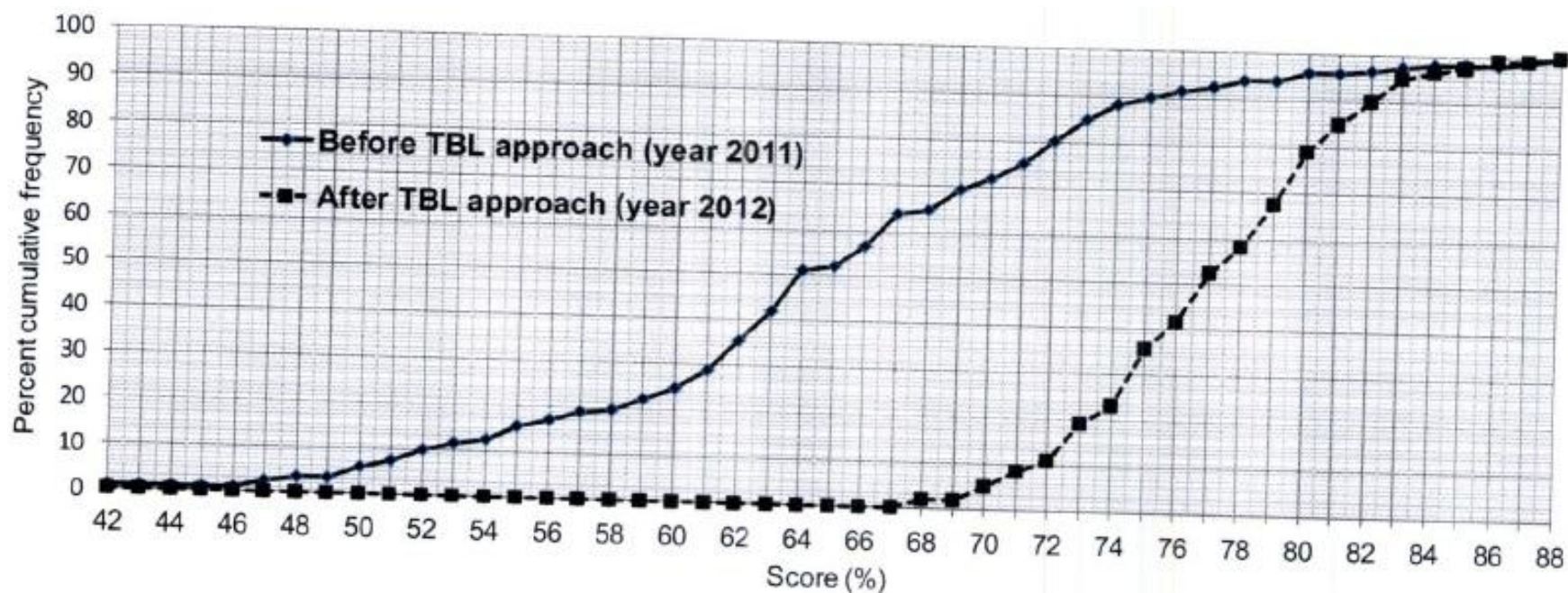


Figure 4. Percent cumulative score frequency distribution of MD class. Before TBL (2011) scores were as follows: first quartile was 60%. The second quartile 64% and third quartile 71%. The median interquartile range was 64 (60–71). After TBL, the percent score cumulative frequency was; first quartile 74%, second quartile 77% and third quartile was 79.5%. The median interquartile range was 77 (71–80).

What do faculty benefit when they teach by the TBL mode?

- We get job satisfaction. Job satisfaction is an important element which all of us attempt to achieve on the job. Job satisfaction nourishes longevity, does it not?
- TBL adds value to your career. During gRAT and Application sessions we also learn from our students...we correct our mistakes
- In TBL we develop the skills of managing groups or teams
- Through TBL we come to know our students at personal level. This nurtures student confidence in their studies

By the end of the day the value of your teaching efforts are summarized as:

- **JOB SATISFACTION.** You feel good that you have performed your responsibilities well after a TBL session
- **Student satisfaction:** Your students are satisfied that they have learnt something from you, their teacher
- **TBL develops proper career development:** We believe that our graduates will perform satisfactorily in their careers after experiencing their education through TBL

This young faculty has taught for 4 yrs at KCMUCo. by the TBL mode. He is serious and has more job satisfaction than before. **Join him, teach by TBL**



iRAT exam in progress. These BScHLS
students are relaxed



gRAT examination in progress. Students display their answers on placards. Faculty announce correct answer. **THIS IS MOMENT OF TRUTH** because students with wrong answer melt away



Students answering application questions. Each student contributes toward correct answer

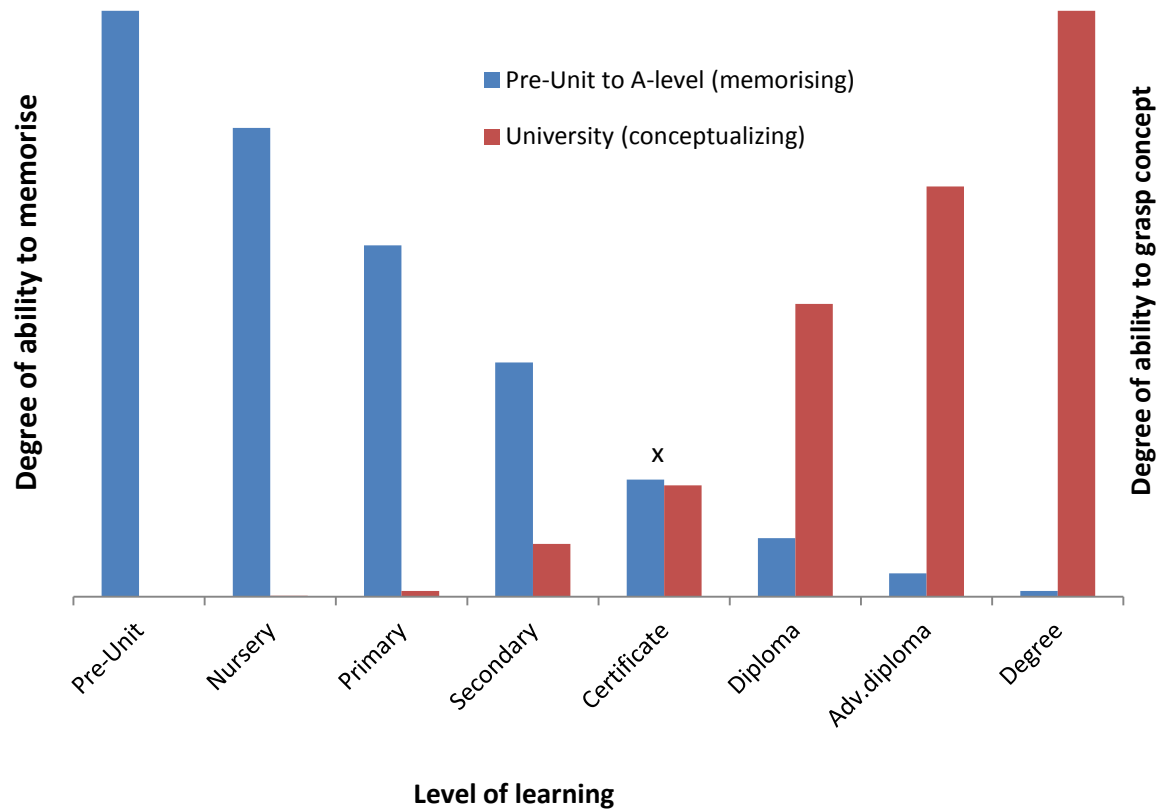


**NUMBER OF MD2, BSCHLSc2, BSc NURSING1 STUDENTS TAUGHT BY TEAM-BASED
LEARNING MODE IN 4 ACADEMIC YEARS**

	ACADEMIC YEAR	NO. STUDENTS	REMARKS
MD2	2011-2012	127	
	2012-2013	149	
	2013-2014	157	
	2014-2015	157	
1. TOTAL MD2 STUDENTS 4 ACADEMIC YEARS = 590			
BScHLSc. 2	2011-2012	39	
	2012-2013	43	
	2013-2014	50	
	2014-2015	37	
2. TOTAL BSc HLSc STUDENTS 4 ACADEMIC YEARS = 169			
BSc Nursing1	2012-2013	41	
	2013-2014	24	
	2014-2015	37	
3. TOTAL BSC NURSING STUDENTS 4 ACADEMIC YEARS = 102			
TOTAL NUMBER OF MD2, BSCHLSc2, BSc. NURSING1 TAUGHT BY TBL TODATE [4 ACADEMIC YEARS] = 861			
Graduate programs			
4. MMED	2012-2013	20	
	2013-2014	32	
	2014-2015	33	
TOTAL NUMBER OF MMED STUDENTS IN 3 ACADEMIC YEARS = 85			
5. MSC PARASIT ENTOMOL.	2011-2012	5	
	2013-2014	5	
	2014- 2015	2	
TOTAL TAL NUMBER OF MSCHLSC IN 3 ACADEMIC YEARS = 12			
Grand total = 958 students			

Take home lesson:

Graph depicts age when didactic and pedagogical teaching should be given



Video on MMED residents answering Application questions

Without fun learning bores



CLIP0036.MP4

Duke UNIVERSITY (/duke)

KCMUC  (<http://www.kcmuco.ac.tz/>)

Tropical Parasitology: Protozoans, Worms, Vectors and Human Diseases

This course provides students an understanding of important human parasitic diseases, including their life cycles, vectors of transmission, distribution and epidemiology, pathophysiology and clinical manifestations, treatment, and prevention and control.

The MOOC

MASSIVE OPEN ONLINE COURSES

operated by

COURSERA

Tropical Parasitology Status Report (June 4, 2015)

Tropical Parasitology: Protozoa, Worms, Vectors and Human Diseases is a session-based, 8-week MOOC with 3-4 hours of class time and 3-4 hours of reading time per week. The MOOC features unique instructional attributes in its authentic approach to learning, while in an online format.

Learning Activities

Digital materials include video footage filmed on-site in Tanzania, which provided a rich learning experience for online participants. Expert practitioner interviews are included. MOOC technologies utilized include: online quizzes, online exams, discussion forums, and in-video quizzes, all accessible via mobile devices.

- 13 modules
- 13 online quizzes
- 3 exams
- 61 videos
- Assessment types & average scores on 1st quiz attempts (see attached file: *Parasitology Course Statistics*)

Course Analytics: Total enrollments, certificates awarded, and global reach

- Enrollments: 8177 from 171 countries
- 40% (3258) are from emerging economies
- Continents represented: North America (35%); Europe (25%); Asia (17%); South America (11%); Africa (10%).
- Largest enrollment by country: United States (27%); Brazil (8%); India (4%); Tanzania (4%); United Kingdom (4%)
- Completers: those who received certificates: 540 to date (note: we will have our final total once the course concludes July 20th)
- KCMUC Students enrolled: 266
- Education status and education level (graphs attached)

Content Activity

- Total number of times course lectures have been streamed or downloaded: 117,721
- Total number of times exams, quizzes, and exercises submitted: 19,578
- Discussion forum posts: 776
- Most watched lectures: “Malaria - Vectors” and “Malaria - Vector Control” by Dr. Matowo. Malaria module overall has the most watched lectures.

Initial course analytics provide evidence of global impact and effectiveness of learning technologies and the learning environment. Initial learner feedback is positive on video lectures, assessments, and overall student satisfaction.