

## Flipped Class Challenges and Experience of Junior Trainers in the Family Medicine Residency Program

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### Abstract

**Introduction:** Flipped class learning is an innovative method for Health professional education, that yields active learning, interactive group learning, and more retained knowledge by trainees. Flipped Classroom (FC) has been approved by our training department in to be applied widely within the Saudi Family Medicine Residency Program (SFMR), especially for junior residents. Junior trainers are encouraged to take their part of responsibility in applying this new technique and gaining benefit from expert staff under their observation.

**Methods:** From this study, we are looking at the perception of junior trainers in the Family Medicine training Program at PSMMC, Riyadh, Saudi Arabia towards the benefits and drawbacks of using FC in FM training. A mixed methods study in which opinions of junior trainers were compiled by three senior trainers in the FM training program. So, A Qualitative study design using a mixed method of data collection tools: Narrative survey and direct observation.

**Results:** A non-random comprehensive sample of 8 junior staff involved in Family medicine training and 2 senior trainers were included. All participants affirmed the positive attitude towards FC in FM training, basically, it encourages the engagement of residents, improves attention, it provides trainees with a sense of ownership of the Class activity.

**Conclusion:** Wide use of FC is recommended, and introduction of the concept of the FC early in the training program. Flipped class learning is an innovative method for Health professional education, that yields active learning, interactive group learning, and more retained knowledge by trainees, yet it's not short of challenges such as the need for huge time and efforts resources by instructors, needs to think as students and needs for strong organizational skills and the fact that there is always a need to ensure students have prepared prior to class.

**Keywords:** Flipped Class; Family Medicine Training

### Introduction

Since Malcolm Knowles shed light on the uniqueness of adult education (Andragogy) [1], It goes without saying that active learning is one of the main principles in recent pedagogy concepts. New educational techniques have evolved last decade to foster this principle, e.g, flipped learning, team-based learning, Technology Enhanced Learning and blended Learning [2].

Flipped Learning (FL) is one of the new education technologies that has been adopted extensively hoping for more engagement of target adult attendees, more fruitful interaction, deeper learning reaching a higher level in Bloom's taxonomy and trying to approach more to individualized learning.

Also, there is a pressing need for more educative innovation especially after COVID-19 time while there is a paucity of local evidence in Post Graduate medical education and more specifically when it comes to instructors' perspectives.

### Objectives

- To probe deeply into the opinion of junior trainers about the Flipped Classroom as a new educational tool for fostering active learning.
- To investigate the new experience of application of FL in the training department of FMC in terms of benefits, barriers and recommendations.

In terms of FC effectiveness:

- Khe Foon HEW and Chung Kwan LO proved in their meta-analysis published in BMC Medical Education 2018 involving 28 comparative studies that FL yields a significant improvement in student learning in health Profession education (HPE) compared with traditional teaching methods [3].
- Another Systematic Review (SR) published in BMC Med Educ. 2019 by Chun Ding and others proved that FC is effective for teaching ophthalmology programs [4]. and so many articles discussed its effectiveness in Cardiology, General Practice, Pediatrics, Medical education and even emergency medicine.

### From Student perspectives

Su Wu., *et al.* in their SR highlighted that the application of FL in Radiology course proves many advantages for the student level from their points of view [5]. And so many other articles for ophthalmology, dental, nursing and many other medical fields.

### When it comes to the instructors

TaoTao Long and his colleague has studied the instructors' perspectives on the definition, benefits, challenges and recommendations for this new modality in higher education and they have recommended it plus peer assistance as valuable support for implementation [6].

Saud AlBishi in his qualitative case study tried to investigate the math instructor perspectives about FC in Saudi Arabia Universities and it was clear that the instructor involved were supporting this educational strategy and they mention a lot of benefits like

increased students' engagement and better use of time inside the class plus approaching more students in need [7].

### Research design

A Mixed study design using a mixed method of data collection tools:

- Narrative survey and direct observation.

### Methods

Document reviewing their confidential reply to a semi-structured questionnaire distributed to junior trainers through the WhatsApp group.

To share our experience, WADA-AM activity for R1 yesterday was conducted as follows:

- We started with a brief introduction for 15 min (review, summary, and connection with pre class materials that were sent through LMS)
- Small group discussion for 2 hours with small breaks in between (using an extended case covering topics of 1<sup>st</sup> 2 sessions in the timetable)
- 2 presenter residents presented their small and focused presentation to highlight the most important points related to the topic (10 min for each) separately in between small group discussions
- During the small-group discussion, we stopped a few times for a few minutes for general discussion, feedback, and analysis with all residents
- Last part of the activity was conducted in a jigsaw method for the last topic (covid-19).

New residents look interested, active, and enthusiastic.

### Results

The reflection of participants was compiled as follows.

#### Reflection #1

- Before the activity I felt uncomfortable, anxious, and hesitated, as it was a new teaching method, I was not experienced with. After I felt satisfied and happy as flipped class technique keep continuous active two-sided engagement.

- Learner were active and participated all the time. They seem aware and comfortable with flipped class way. The presenters were enthusiastic and prepared ahead of time.
- Flipped class is recommended by residents to be the standard teaching method.
- I am with using this method as it seems more effective and assures efficient use of activity hours.
- Learners have a key role in the flipped class technique.
- All supporting system seems useful and enhances the active engagement and discussion between learners and trainer.

### Reflection #2

Was informative, interactive, and enjoyable.

There were 3 parts each part starts with brainstorming then a short concise presentation then back to answering, discussing, and filling the gaps in knowledge.

Brainstorming was three different methods.

- 3 case scenarios distributed to three small groups
- Role play for a real case
- Videos for real and famous people who have different diseases + MCQs about such dis.

We end with an open Q&A really, I like their energy, interaction, attitude, and knowledge

### Reflection #3

I would like to share with you all how we conducted the WADA AM for R1 today: We started our session with a quick review of the basics of ECG interpretation to refresh their memories.

The residents were divided into 4 groups and each group had a file containing short cases with an ECG for discussion and interpretation, during the discussion each one of the 3 residents was acting as a facilitator.

Then we had an open discussion about the challenging cases they faced. Later the 1<sup>st</sup> resident presented her short slides summarizing the approach to tachyarrhythmia.

We took a 10 minute break then continued with the second part: an approach to bradyarrhythmia and heart block.

Lastly, we had the final short presentation on the important ECG changes in MI.

The last 15 minutes were spent on open questions and feedback.

### Reflection #4

Good afternoon dear doctors, To share our experience, WADA-AM activity for R1 last week was conducted as follows:

- Material has been posted on the IHEED Learning Management system including; 2 PowerPoint presentations (each less than 20 slides) for the 1<sup>st</sup> two topic and LMS material (video and small quizzes) for the last topic (smoking cessation).
- We started with a brief introduction about (guidelines, screening tools {USPSTF, Saudi guidelines} grades of evidence, LMS materials).
- Small group discussions for [periodic health assessment age groups ]then share it with the large group.
- First topic PowerPoint presentation by the resident ((short and focused presentation to highlight the most important points related to the topic)) ended by review of MCQs answered by the large group.
- During discussion MCQs; we stopped a few times for r few minutes for general discussion, feedback, and analysis with all residents.
- Coffee break for 15 minutes.
- The second topic was covered by MCQs (small groups) and then shared with a large group.
- 2<sup>nd</sup> topic PowerPoint presentation by the resident (short and focused presentation to highlight the most important points related to the topic).
- Last topic {smoking cessation} started with a brief PowerPoint presentation (including 5 mints video) and ended with small groups [jigsaw method] for the management and available medications.
- Last 10 minutes were for feedback, This was a brief summary of our activity last week. Residents' level was above expectations.

#### Reflection #4

Record your feeling when you heard 1st time about Flipped Classroom, when we decided FC for the WADA and you were selected to run the activity, while you are preparing for that day (the 2-3 weeks before WADA) and now when you just finished -I hope you start writing immediately post experience.

I thought it would be much easier, but it turns out to be challenging and needed good time management and well preparation by the residents.

Put your experience with the residents either presenters or others including your expectation and what happened really.

It was above expectation.

Put your recommendation and what you want to convey to your colleague.

Prepare well.

Try different learning methods.

Set a (more realistic) timetable for the session.

Take feedback.

Are you with or against it very frankly and why from your experience or maybe you recommend another tool. I'm totally with it.

What was different or unique in this experience from your previous learning experiences (either learner or trainer).

Although This is my 1<sup>st</sup> session as a trainer, it's much more productive and beneficial than the usual lecturing method.

You're feeling and opinions and recommendations regarding WhatsApp and the supporting system for the junior trainer.

#### Reflection #5

I would like to share my experience with you all.

We had 3 main topics (ACS - HF - DVT/PE) all by residents who were excellent in their planning and interaction with the group on the day.

I started by asking them about their impression of the LMS material and what are their expectations for the day so we can be sure to address them.

We then split up the residents into 4 groups that will remain for the whole activity.

For each topic we conducted a small group discussion followed by a large group discussion, and finally a short presentation by the residents as a short summary.

In the small groups each one was given the same case, but with different questions and varying details so they can come up with: Approach - Ddx - Investigations - criteria - treatment-emergent approach - Post MI counseling etc.

Therefore, in the large group discussion, one presenter from each group explained their answers to the group in detail giving us a picture of a full approach to the topic.

Finally, closing each part with a short resident's presentation in which we summarized and filled any gaps that we didn't address earlier.

(This was repeated for 3 rounds for each main topic with breaks in between). We closed the activity with a short Q&A if they had any further questions.

We all have to think to utilize our experience heavily, especially in R1 and to use various techniques that make activities very interesting not just throwing responsibility

#### Reflection #6

To share our experience, WADA-AM activity for R1 today was conducted as follows:

- We set a timeline for the whole activity so we can manage our time smoothly.
- Before 2 weeks material have been sent including PDF files, recommendation guidelines and LMS video which were sent through the WhatsApp group.
- We started our activity with a welcoming introduction, breakfast and brainstorming by using small quick quiz through LMS then we discussed answers by (reviewing, summary and connecting with pre-class materials).

- Small group discussion for 2 hours with small breaks in between (using an extended case covering topics of 1<sup>st</sup> 2 sessions in the timetable).
- 2 presenter residents presented their small and focused presentation to highlight the most important points related to the topic (20 min for each) separately in between small group discussions.
- Last part of the activity was conducted as a role-play for 2 different scenarios. I played the physician role and the 2 other presenter played the patient role then we summarize the topic and discussed the common questions related to the topic.
- Last 15 minutes were for feedback, questions, and ending the day.

#### Reflection #7

- It was a very successful session
- Very organized and excellent time management
- And once again the R1 showed a promising performance
- And Dr shahad was an excellent facilitator
- Thank you Dr shahad
- And good luck for the rest.

#### Reflection #8

Question #1: Record your feeling when you heard 1st time about Flipped Classroom, when we decided FC for the WADA and you were selected to run the activity, while you preparing for that day (the 2-3 weeks before WADA).

Answers: When I have heard about FC and I was selected to run the activity with FC, I was excited to try the new experience as a trainer (since I used to be a trainee in FC before at medical school). It was very helpful for me to have a TOT workshop a few weeks before the activity's time (It gave me a big view about interactive learning strategies). On the other hand, I was afraid of few things during preparation for the activity. One thing was the need for comprehensive preparation of the activity (objectives, timeline, reviewing pre-class materials) Second, the explanation the new method to the presenter residents who are new and just started their academic education. Third, how can I ensure that all residents will touch all essential information while they are discussing in small groups? Fourth, I usually like to talk most of the time during

activities so, might be difficult for me to be silent and wait for small group discussions and act only as a facilitator.

After the activity, I liked the experience very much. I was really satisfied. All my previous fears were resolved. However, if I will repeat the activity again, I will stick more to the timeline (the activity was covering a lot of topics might be a reason).

When I heard about Flipped Class, I was excited to try it as a trainer since we were trying it before in medical school as a student. I was optimistic to have a new way with a new batch so they can get the maximum benefit from delivering information in different educational ways according to their needs. However, the TOT workshop which was conducted a few weeks before the activity's time was very beneficial for me and my colleague in reviewing, summarizing, and learning new teaching techniques. when I start preparing for my activity day I was worried about a few things, starting with the need for comprehensive preparation of the activity from different resources and communicating with my presenters' team to explain the new method and make sure they understand and willing, ending by running the session actively as a facilitator.

After the activity, I was happy that all the attendance gave positive feedback, I was satisfied with my teamwork. it was an enjoyable journey.

Question #2- Put your experience with the residents either presenters or others including your expectation and what happened really.

I had a preparatory meeting with the presenters 3 weeks before the activity, I started with an explanation about the idea of FC and interactive learning, and we agreed on the objectives of the activity, the contents of pre-class materials which were sent to other residents 1 week before the activity to enhance the idea of FC and their roles during activity (focused small ppt presentations). They were very active and open to feedback.

I was really impressed by the Other residents, they came very well prepared, very interested to learn, active, and collaborative and it was very easy to conduct small group discussions with them since most of them are graduates from PBL colleges. Their feedback was excellent about the activity.

Four weeks one of the presenters contact me and we discussed the important points that should be covered with the resources the other resident contact me 2 weeks before the activity and he apologize for the delay he didn't understand the process according to him since they are new residents I explained the process again for him and discussed his topic and the recent guidelines regarding his topic, after that I had a physical preparatory meeting with the presenters 2 weeks before the activity, to enhance the idea of FC and their roles during activity. They were very excited and open for discussion.

I was really impressed by other residents, they came very well prepared, very interested to learn, active, and collaborative. Their feedback was excellent about the activity.

Question #3. Put your recommendation and what you want to convey to your colleague.

- To have an excellent overview of Flipped Class and different interactive learning strategies
- To have a clear timeline for the activity (when, how will you start, breaks, end ... etc.)
- Presenter residents to have an active role before and during activity (eg, supervising and facilitating small group discussions)
- To not be frustrated to not saying all knowledge related to that topic since the idea is to induce Rs and help them to search for the knowledge and how to apply it
- To use different educational methods in the same session and in different sessions
- To be open to any comments and feedback
- To have regular training in TOT
- To have an overview of FC and different interactive learning strategies
- To try to make it an enjoyable, friendly educational session so everyone feels safe to share and discussed his\her opinion and get maximum benefit.
- To be active facilitator and good supervisor
- Make sure that Presenter residents have an active role.
- Try to use different educational methods in the same activity.
- To be open for any comments and feedback.

Question #4/ Are you with or against it very frankly? and Why from your experience or maybe you recommend another tool?.

I'm with Flipped class method since it will provide Rs with the basic essential information that they need before the activity and leave activity time for higher learning levels e.g., analysis, and applying knowledge into practice. However, sometimes we might need regular lecturing if we are dealing with a large group of trainees and if we are going to talk about a new and huge but important topic. In general, I prefer FC to be conducted most of the time.

I'm with Flipped Class method since it will provide the basic essential information to review it and memorize it before the session and lead us for a higher level of discussion during the activity day, by following FC we will cover more aspects and let the residents to analyze and apply what they learn. Anyway, sometimes we might need for regular lecturing if we are dealing with a large group of trainees.

Question #5/ What was different or unique in this experience from your previous learning experiences (either learner or trainer).

For me, it was unforgettable experience when you see that all trainees come very well prepared and this ensured that all trainees are acting actively during educational sessions in comparison to regular lecturing (passive learning).

It was an excellent experience and I was very proud seeing all trainees come very well prepared, ready and open for discussion.

Question #6/ Your feeling and opinions and recommendations regarding WhatsApp and the supporting system for the junior trainer.

The training office and senior trainers are very helpful and available all the time for support and consultation. I would like to thank them really one small suggestion, each trainer to have a scheduled session to discuss the WADA-am plan with a senior trainer eg, Dr. Ghada, Dr. Ayman, Dr. Tarek, Dr. Saad, this will help the junior trainer: To deliver the activity in a different way by giving suggestions for improvement and new ideas from senior trainers.

The training office and senior trainers are very supportive and available all the time for any help and consultation.

We are lucky to have them, many thanks and we are really appreciative.

### Senior trainer reflection #1

Wada yesterday was very educational, we started with a short introduction, and the activities were divided into 3 parts, the first was a small group discussion of two different scenarios. Residents were grouped into four mini-groups; each of the two scenarios was discussed by 2 groups.

This took about 15 minutes followed by a presentation by a member of each group and the other groups had a chance to ask questions and provide explanations followed by some comments from the supervisor.

The second part was discussing 3 different clinical scenarios and the residents were divided into 3 mini groups. Each discussed a different scenario for 15 minutes. Throughout the previous 2 sessions, the supervisor and co-supervisor were rotated between the groups for clarification and encouragement of active residents participation.

This is followed by 3 presentations (short), one by Dr. Raghad regarding types of diabetes and Basic information; second by Dr. Mujib about the new treatment types available for type 2DM and the new clinical trials supporting each. The third presentation by Dr. Hassan who elegantly presented the new techniques for management. The floor was open for discussion and exchange of opinion regarding the 3 activities. Last but not least oral feedback from the residents about the whole session and we barely finished 12:10.

I think the residents are willing to try new educational modalities and obviously build experience based on previous sessions.

They are actively participating and respond positively to motivation and encouragement.

They are also not scared to show gaps of knowledge when due and try to find answers on the spot using mobiles and hand-held tools.

### Senior trainer reflection #2

A typical Flipped Learning session was run today in a v. efficient way by Dr. Lina under the supervision of Dr Ghada. R1 batch looks very enthusiastic cooperative collaborative, active and they did their homework, there was no place for long traditional lecture, I hope we all invest in them and improve more and more through their and your highly valuable feedback.

The qualitative study started with the introduction of the FC concepts and process to junior trainers and then to trainees, and a demonstration was conducted by senior trainers. So, a brief summary of Weekly Academic and Daily Activities with R1 was as follows: -

- 3 heavy diff. topics with 3 very good efforts by 3 residents (have to be expressed and appreciated).
- We tried to go around classic small group activities by open discussion, a safe encouraging atmosphere for questions, demonstrations, role-play, Jigsaw, feedback summary about the most imp. points.
- From time to time remind them of what was there on the LMS.
- This is my 1<sup>st</sup> WADA with R1, they are willing, knowledgeable and a bit professional; I hope they will not be spoiled by time and we help them mature their potential more.

### Learned lessons

- Try to bring the ideas from the presenters as u can (try to be an advisor not supervisor).
- Imagine the lesson 1-2 nights before (better to have a blueprint with time and teaching techniques).
- Give them your time and mind to express supportive, fair and informative feedback even one sentence. Not to mention to see what is there in the LMS (if).

### Senior trainer reflection #3

I've chosen this way to enable the candidate to use their critical appraisal skills and the application inside the clinic. Moreover, it emphasize the role of Family Medicine doctors in the holistic approach of patients, and how to apply it in the real world. The session went smoothly, and the participants were from most of them, nevertheless, the educational material was great.

## Discussion

Flipped Classes have been the mainstay of innovative Health Profession education, residents and trainees take responsibility for their learning, and having such ownership comes with a commitment to the achievement of learning outcomes.

Flipped classes are always initiated after giving trainees a solid ground of the topics upon which trainees can go on for more learning outcomes using either print, media, or rehearsal methods for introducing and discussing learning outcomes [8].

There are many challenges in health professional education, clearly, a lack of attention span during traditional lecturing; so clinical educators have to come up with innovative methods to overcome, such as flipped class approach [9]; and so like our trainer's consensus on benefits and advantages of the flipped class, Sattar K., *et al.* [10] agree on these advantages and states that Flipped is an effective teaching modality which enables learners to be independent. Students take ownership of what they learn. Tutors also express their satisfaction with what their learners acquire. In summary, the benefits of FC are robust and likely to augment the learning abilities of the students as well as supplement the learning course content; group activities can deliver added benefits too.

Our findings of reported challenges by instructors on the use and application of flipped classes are in consensus with the challenges and concerns reported by Taotao Long., *et al.* [11], who reported on a qualitative study in which interviewed eight instructors of medical students their perspectives on use and application of flipped class. Instructors reported challenges such as there is always a need to Ensure Students Have Prepared Prior to Class, and to be well organized and requirements from instructors to think as students, which are basically the same challenges identified by our work; in addition to the fact that not all trainees are interested in active learning and the need for resources of time and efforts.

## Conclusion

Flipped class learning is an innovative method for Health professional education, that yields active learning, interactive group learning, and more retained knowledge by trainees, yet it's not short of challenges such as the need for huge time and efforts resources by instructors, needs to think as students and needs for

strong organizational skills and the fact that there is always a need to ensure students have prepared prior to class.

## Bibliography

1. Knowles Malcolm. "The adult learner: a neglected species". (3rd ed.). Houston: Gulf Pub. Co., Book Division (1984).
2. Mohamed Amin Embi. "Blended and Flipped Learning; case studies in Malaysia". Centre for Teaching and Learning Technologies, Universiti Kebangsaan Malaysia, (2014).
3. Khe Foon HEW and Chung Kwan LO. "Flipped classroom improves student learning in health professions education: a meta-analysis". *BMC Medical Education* 18 (2018): 38.
4. Chun Ding., *et al.* "Effectiveness of flipped classroom combined with team-, case-, lecture- and evidence-based learning on ophthalmology teaching for eight-year program students". *BMC Medical Education* 19 (2019): 419.
5. Su Wu., *et al.* "Existing contradictions and suggestions: flipped classroom in radiology courses of musculoskeletal disease under Chinese medical educational mode from medical imaging student perspective". *BMC Medical Education* 20.1 (2020): 75.
6. Taotao Long., *et al.* "Use of the flipped classroom instructional model in higher education: instructors' perspectives". *Journal of Computing in Higher Education* 29 (2017): 179-200.
7. Albishi Saud. "The Use of Flipped Classroom Instructional Model in Teaching Mathematics in Higher Education: Instructors' Perspectives in Saudi Arabia.
8. Tan E., *et al.* "Acceptability of the flipped classroom approach for in-house teaching in emergency medicine". *Emergency Medicine Australasia* 27.5 (2015): 453-459.
9. Hartley J and Cameron A. "Some observations on the efficiency of lecturing". *Education Review* 20 (1967): 30-37.
10. Sattar K., *et al.* "Flipped classroom. teaching modality: key concepts and practice endorsements". *Education in Medicine Journal* 11.1 (2019): 1-10.
11. Taotao Long., *et al.* "Use of the Flipped Instructional Model in Higher Education: Instructors' Perspectives . The University of Tennessee-Knoxville". *Journal of Computing in Higher Education* 29.2 (2017).