



ISSN: 0975-833X

Available online at <http://www.journalcra.com>

International Journal of Current Research  
Vol. 11, Issue, 09, pp.7142-7147, September, 2019

DOI: <https://doi.org/10.24941/ijcr.36602.09.2019>

INTERNATIONAL JOURNAL  
OF CURRENT RESEARCH

## RESEARCH ARTICLE

### EVALUATING THE QUALITY OF TRAINING WORKSHOPS DELIVERED TO CLINICAL NUTRITION UNDERGRADUATE STUDENTS

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#### ARTICLE INFO

##### Article History:

Received 19<sup>th</sup> June, 2019  
Received in revised form  
11<sup>th</sup> July, 2019  
Accepted 16<sup>th</sup> August, 2019  
Published online 30<sup>th</sup> September, 2019

##### Key Words:

Program Evaluation,  
Student Evaluation,  
Academic Skills,  
Self-Development Skills.

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Citation: Noura M S Eid. 2019. "Evaluating the quality of training workshops delivered to clinical nutrition undergraduate students", *International Journal of Current Research*, 11, (09), 7142-7147.

#### ABSTRACT

It is essential that students in higher education are provided with academic support to gain enough medical and clinical expertise to empower their academic competence. This study is cross sectional qualitative study conducted for the first time in King Abdul-Aziz University to evaluate the quality of training sessions provided by Tanmia program. Tanmia program is a continuous learning program newly developed in the Faculty of Applied Medical Sciences to support students learning. We used interview based questionnaires applied on a focus group to assess quality of sessions and its association with several factors such as the topic, difficulty rate and trainer. Our findings shows that courses related to self-development, such as goal achievement and time management, were highly desired by almost 100% of the attendees. Surprisingly, there was a significant association between the difficulty of the courses and the students' desire to attend them, in comparison with courses at a beginner level. No association was seen with the selection of trainers, where all attendees were satisfied. Our future plan is to focus on the programs impact on students grades and successful rates

#### INTRODUCTION

In recent years higher education in Saudi Arabia has evolved due to the National Commission for Academic Evaluation and Accreditation. It evaluates and monitors the quality of academic teaching and student learning using the Quality Assurance and Accreditation Standards for Higher Education Institutions (Office, 2017). Recognition as a quality institution is dependent upon both the teachers and students (Bryson, 2016). Supporting students is the responsibility of every existing educational organisation, where more attention must be given to support students with academic needs (Library, 2019) and interpersonal skills (Sandars, 2014). Such support can be provided by improving academics' teaching or enhancing student learning. Teachers quality of teaching relies on their use of suitable teaching strategies and assessment methods which are aligned with the desired learning outcomes for each domain of learning (Kandlbinder, 2014). According to the literature, teachers improve students' learning via activities and changing behaviour such as flipped classrooms (Xiao, 2018). Other teaching strategies that are believed to support student learning including buzz groups, discussion sessions, focus groups and debates, which must be associated with aligning students' knowledge, cognitive, and interpersonal. This is called "Constructive alignment (Biggs, 2011)". According to Warren Houghton (2004) in Teaching for Quality Learning at University (Biggs, 2011).

*"Constructive Alignment is one of the most influential ideas in higher education."*

What makes constructive alignment possible and teaching experience successful is student competence and ability to learn (Wang, 2013). Therefore, students' academic and interpersonal strength is essential to higher education. This can be improved by strong students supporting other students through tutoring, peer mentoring, and training (Mason, 2019) According to previous studies on student mentoring, the learning abilities of students do improve, however, they still face several limitations. Students supporting students via training courses and workshops has been seen to be powerful (Clark, 2011). One of the main skills discussed in the literature to improve learning is communication and presentation skills, which teachers target in their PBL (problem based learning) classes or when dealing with the community (Bell, 2010). Another important skill is academic writing, which improves students' academic skills (Wilmot, 2018) in several aspects of learning such as assignments and written exams, which again supports the teachers' strategies if the writing domain is targeted (Biggs, 2011). Furthermore, several domains of learning must be empowered, including interpersonal skills (Canboy, 2016), research (Chatterjee-Padmanabhan, 2018) and creativity (Jahnke, 2017). According to Ralph W. Tyler (1949) in Teaching for Quality Learning at University (Biggs, 2011):

“Learning takes place through the active behaviour of the student: it is what he does that he learns, not what the teacher does.”

Thus, such skills are necessary to overcome academic challenges and support the teachers’ productivity in class through their chosen strategies and assessment methods, especially for new comers<sup>(16)</sup> who may be overwhelmed by their assignments, particularly if they lack the necessary skills, such as using certain computer programmes (Dawson, 1986). Skills training workshops can be planned to be part of the curriculum or an extracurricular activity. It is important to evaluate the effectiveness of these workshops using well developed methods (Lai, 2009) to draw conclusions and action plans to ensure the successful delivery of learning outcomes to students (Biggs, 2011). This study examines the effectiveness of “Tanmia” program in the Faculty of Applied Medical Sciences, under the Teaching and Continuous Learning Development Unit (Eid, 2015).

## MATERIALS AND METHODS

**Participants:** A total of 137 students joined the workshops during 2017 (January 2017 till January 2018) out of a total of 413 students studying in Faculty of Applied Medical Sciences FAMS; Medical Technology Department (N=103), Physical Therapy Department (N=131), Clinical nutrition Department (N+109) and Diagnostic Radiology Department (N=70).

**Study Design:** An educational programme which studies the operation of nine academic skills workshops (medical Terminology, using Prezi to create presentations, mind mapping, how to conduct a community initiative, will power, skills in academic writing, skills in academic presentation, goal achievements and time management) in FAMS.

**Assessing effectiveness of the program:** We developed questionnaires to be completed at the end of each session to assess the instructors’ efficiency, session quality and trainee satisfaction. The questionnaires describe suitability, difficulty level, quality of session and trainer, which were completed online, using Google surveys.

**Statistical Analysis:** Data from the Likert scale was reported as mean and SE. Other data was reported as a frequency and percentage (%). IBM SPSS statistics for windows version 20 (IBM Corp., Armonk, NY USA) was used to analyse the data. Differences in the Likert scale data were analysed using the non-parametric Kruskal Wallis test. The statistical significance of the difference in the frequency between groups was determined by the Pearson chi-square  $\chi^2$  test. The likelihood ratio was calculated when the assumptions were been violated. A  $P < 0.05$  value (two-sided test) was accepted as statistically significant.

## RESULTS AND DISCUSSION

Our study was conducted for the first time in Saudi Arabia, where we developed a student support program, “Tanmia”, for students in our faculty to serve all departments and enhance students’ learning in the classroom. We run the program via nine courses through the academic year to teach academic skills (medical terminology, academic writing, and academic presentations), communication skills (Prezi, community initiative and mind mapping) and interpersonal skills (will power, goal achievement and time management). It is followed by an evaluation of session duration, difficulty level, session quality and instructor quality using developed surveys. The evaluation was conducted immediately after the intervention to measure the effectiveness of the courses on the day. The aim is to provide higher quality training to offer students the maximum and best training techniques (Booth, 2009). According to the IMAS tool developed by the Canada Global Centre, setting the duration is an important element of the productivity of the session, which must be aligned with level set and the audience’s needs. It must be set according to the tools, topics and levels of involvement (<http://cglobalc.com/?AspxAutoDetectCookieSupport=1>). Our findings show that with regards to course duration, most attendees were happy with all courses provided, which was two hours, given as a course rather than a three- to five-hour workshop. The attendees’ feedback pointed out several limitations in other aspects, such as audio and space, especially with the first workshop on Medical Terminology.

**Table 1. The time required for sessions delivered in the program has been evaluated using interview-based questionnaires (reported as a frequency and percentages)**

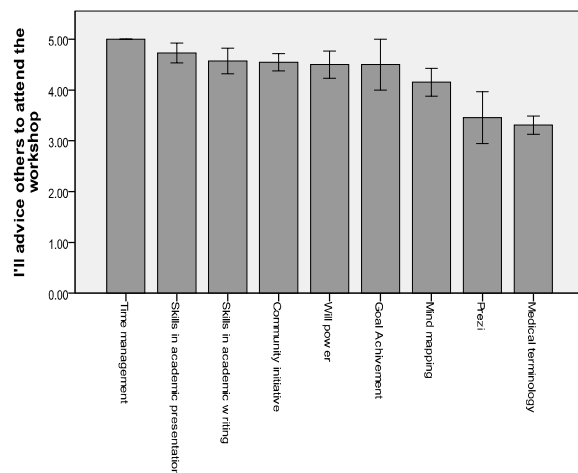
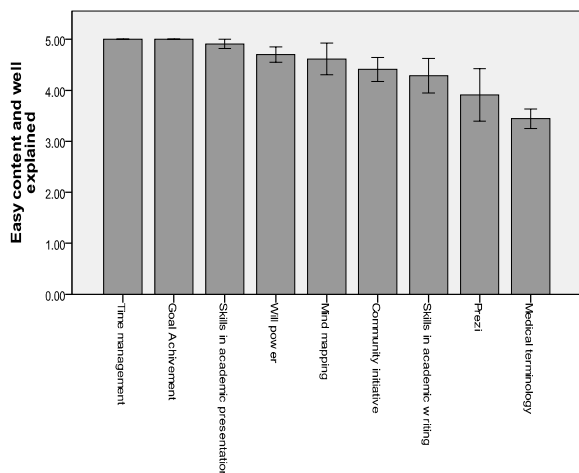
	Very short		Suitable		Very long		P value
	n	N %	n	N %	n	N %	
1. Medical terminology	4	7.70%	47	90.40%	1	1.90%	NS
2. Prezi	1	9.10%	9	81.80%	1	9.10%	
3. Mind mapping	1	7.70%	12	92.30%	0	0.00%	
4. Community initiative	2	9.10%	20	90.90%	0	0.00%	
5. Will power	1	10.00%	9	90.00%	0	0.00%	
6. Skills in academic writing	0	0.00%	14	100.00%	0	0.00%	
7. Skills in academic presentation	1	9.10%	10	90.90%	0	0.00%	
8. Goal achievement	0	0.00%	2	100.00%	0	0.00%	
9. Time management	0	0.00%	2	100.00%	0	0.00%	

**Table 2. The difficulty level of the sessions delivered in the program has been evaluated using interview-based questionnaires (reported as a frequency and percentages)**

	Beginner		Intermediate		Advanced		P value
	n	N %	n	N %	n	N %	
1. Medical terminology	20	38.50%	30	57.70%	2	3.80%	R <sup>2</sup> = 27.904 P= 0.023
2. Prezi	4	36.40%	4	36.40%	3	27.30%	
3. Mind mapping	2	15.40%	9	69.20%	2	15.40%	
4. Community initiative	2	9.10%	14	63.60%	6	27.30%	
5. Will power	3	30.00%	2	20.00%	5	50.00%	
6. Skills in academic writing	3	21.40%	6	42.90%	5	35.70%	
7. Skills in academic presentation	2	18.20%	6	54.50%	3	27.30%	
8. Goal achievement	0	0.00%	1	50.00%	1	50.00%	
9. Time management	0	0.00%	1	50.00%	1	50.00%	

**Table 3. This quality of sessions delivered in the program has been evaluated using interview-based questionnaires (reported as a frequency and percentages)**

Workshop	Weak		Good		Excellent		P value
	n	N %	n	N %	n	N %	
<b>Vision</b>							
1.Medical terminology	9	17.3%	15	28.8%	28	53.8%	R <sup>2</sup> = 31.624
2.Prezi	1	9.1%	0	0.0%	10	90.9%	P= 0.011
3.Mind mapping	0	0.0%	1	7.7%	12	92.3%	
4.Community initiative	0	0.0%	4	18.2%	18	81.8%	
5.Will power	0	0.0%	5	50.0%	5	50.0%	
6.Skills in academic writing	1	7.1%	2	14.3%	11	78.6%	
7.Skills in academic presentation	0	0.0%	3	27.3%	8	72.7%	
8.Goal Achievement	0	0.0%	0	0.0%	2	100.0%	
9.Time management	0	0.0%	0	0.0%	2	100.0%	
<b>Voice</b>							
1.Medical terminology	19	36.5%	19	36.5%	14	26.9%	R <sup>2</sup> = 59.595
2.Prezi	1	9.1%	3	27.3%	7	63.6%	P<0.001
3.Mind mapping	0	0.0%	3	23.1%	10	76.9%	
4.Community initiative	0	0.0%	2	9.1%	20	90.9%	
5.Will power	0	0.0%	2	20.0%	8	80.0%	
6.Skills in academic writing	0	0.0%	3	21.4%	11	78.6%	
7.Skills in academic presentation	0	0.0%	3	27.3%	8	72.7%	
8.Goal Achievement	0	0.0%	0	0.0%	2	100.0%	
9.Time management	0	0.0%	0	0.0%	2	100.0%	
<b>Space</b>							
1.Medical terminology	31	59.6%	12	23.1%	9	17.3%	R <sup>2</sup> = 68.715
2.Prezi	1	9.1%	1	9.1%	9	81.8%	P<0.001
3.Mind mapping	0	0.0%	5	38.5%	8	61.5%	
4.Community initiative	0	0.0%	7	31.8%	15	68.2%	
5.Will power	1	10.0%	4	40.0%	5	50.0%	
6.Skills in academic writing	9	64.3%	2	14.3%	3	21.4%	
7.Skills in academic presentation	3	27.3%	3	27.3%	5	45.5%	
8.Goal Achievement	0	0.0%	0	0.0%	2	100.0%	
9.Time management	0	0.0%	1	50.0%	1	50.0%	
<b>Handouts</b>							
1.Medical terminology	1	1.9%	22	42.3%	29	55.8%	R <sup>2</sup> = 43.208
2.Prezi	1	9.1%	2	18.2%	8	72.7%	P<0.001
3.Mind mapping	0	0.0%	4	30.8%	9	69.2%	
4.Community initiative	2	9.1%	6	27.3%	14	63.6%	
5.Will power	5	50.0%	5	50.0%	0	0.0%	
6.Skills in academic writing	4	28.6%	5	35.7%	5	35.7%	
7.Skills in academic presentation	2	18.2%	6	54.5%	3	27.3%	
8.Goal Achievement	0	0.0%	0	0.0%	2	100.0%	
9.Time management	0	0.0%	0	0.0%	2	100.0%	
<b>The location</b>							
1.Medical terminology	3	5.8%	21	40.4%	28	53.8%	R <sup>2</sup> = 26.858
2.Prezi	1	9.1%	0	0.0%	10	90.9%	P= 0.043
3.Mind mapping	0	0.0%	1	7.7%	12	92.3%	
4.Community initiative	0	0.0%	5	22.7%	17	77.3%	
5.Will power	0	0.0%	4	40.0%	6	60.0%	
6.Skills in academic writing	0	0.0%	2	14.3%	12	85.7%	
7.Skills in academic presentation	0	0.0%	4	36.4%	7	63.6%	
8.Goal Achievement	0	0.0%	0	0.0%	2	100.0%	
9.Time management	0	0.0%	0	0.0%	2	100.0%	



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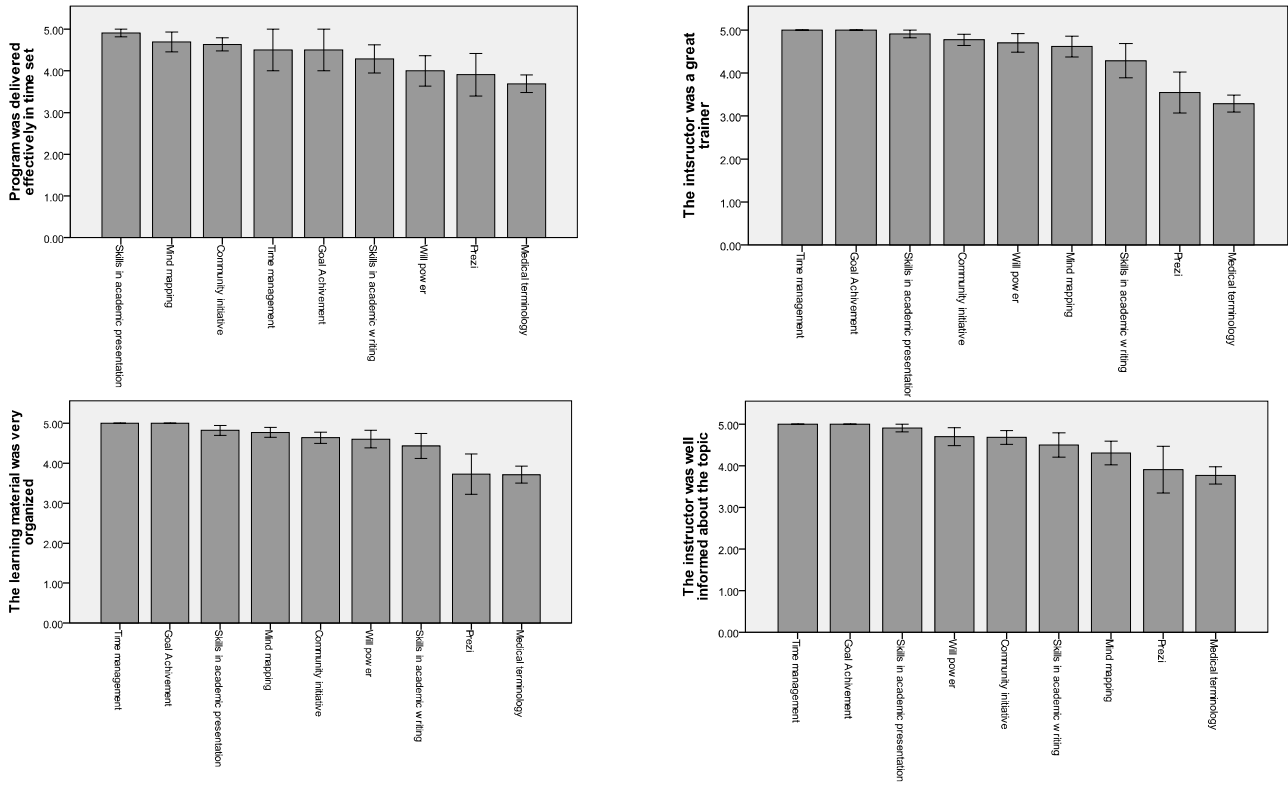


Figure 1. The quality of instructors delivering the sessions in the program has been evaluated using interview-based questionnaires (Data from the Likert scale was reported as mean and SE)

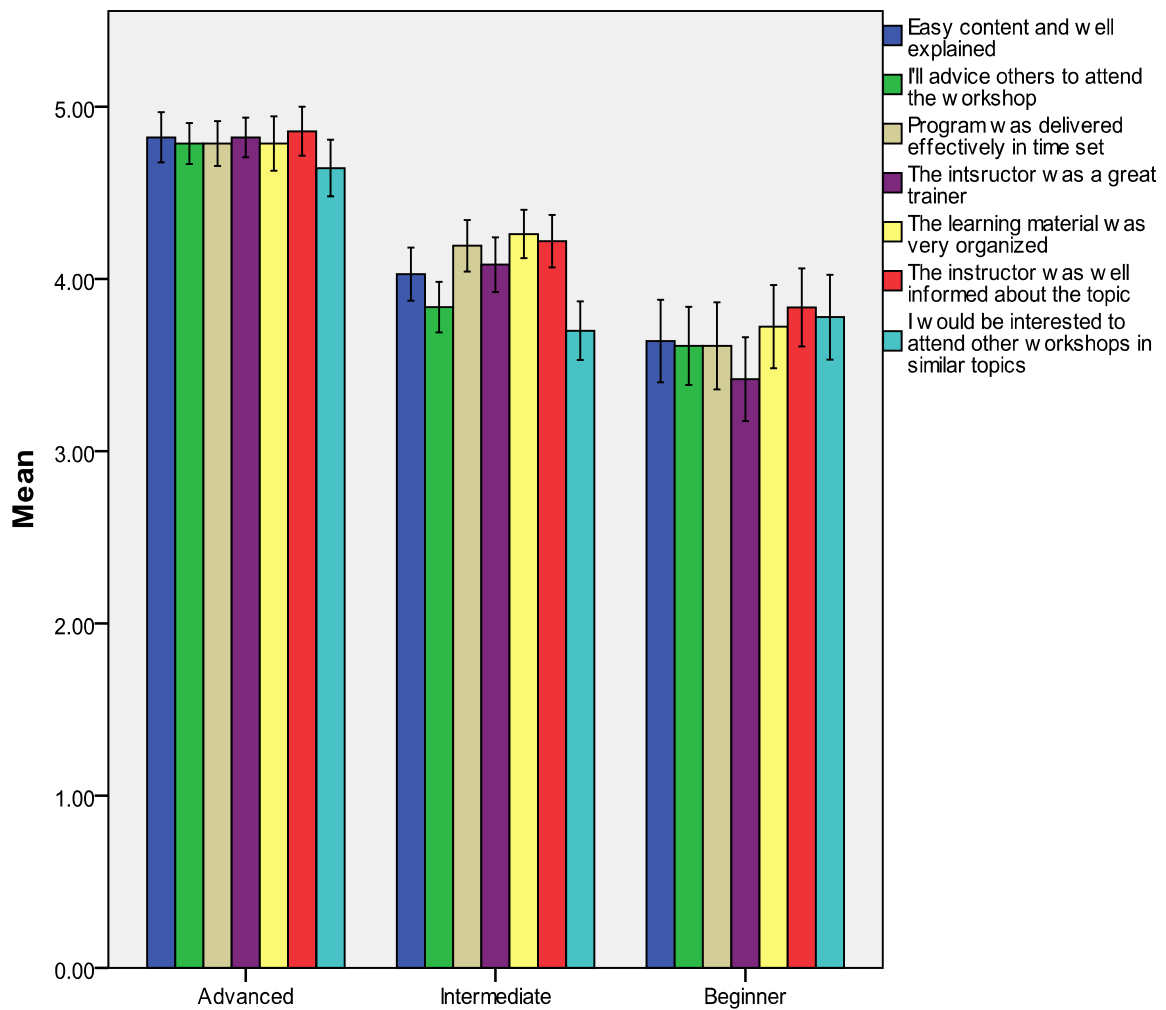


Figure 2. Difficulty Level of session associated with student preferences has been measured

In education, it is recommended that microphones be used in large auditoriums and for students with hearing problems to enhance student learning (Rekkedal, 2014). With regards to space and location, the literature showed that they play a major role in the session quality and student participation. Some teachers tend to take their students outdoors to green spaces rather than stay inside buildings (Bentsen, 2013). Evaluation techniques vary from formative to summative, where data collection and analysis differ too (Biggs, 2011). Most instructors use evaluation methods, however, only a few reflect and improve their teaching strategies (Golding, 2016). In our findings, we used the evaluation throughout the year to improve the session quality regarding voice, vision and classrooms. It was observed that the courses following Medical Terminology improved with regards to session quality. However, one of the main limitations is the low number of attendees and variations between courses. We also evaluated the instructors' quality of course delivery, noting that most of our instructors are beginners who are giving their courses for the first time. In agreement with our findings on session quality, we noticed that the Medical Terminology course was significantly less desired to be advice to other students, not as easy as the other courses, and the instructor was not as strong as the others. Having an excellent teacher to deliver a course is crucial in learning, which is mainly measured by outcomes and assessment methods (Wood, 2017). This did not agree with our study design; we focused on the teachers' ability to teach not the outcome of the session. We developed this approach to create a database of great instructors for our future courses. Another interesting finding was that students tend to like the course more when it was more advanced, which was showed to be statistically significant. This happened with Biggs (2003) when he discovered the "Constructive Alignment" theory; it was based on a story of his students who were studying how to apply psychology in teaching. Biggs used to request straight forward assignments, however, then he asked his students to provide evidence of how to apply psychology in teaching in the form of a portfolio based on experience rather than a written theoretical assignment. Surprisingly, students gave Biggs the best teacher evaluation feedback (Biggs, 2018).

## Conclusion

This study provided preliminary results regarding the session quality Tanmi a provides to FAMS students. The findings show that the courses were of lower quality at the start of the programme and improvements were seen in the later courses, particularly with regards to the classroom and technical limitations. In addition, courses at a higher level of difficulty were reported to be more desired by students. Future studies will cover the impact and effectiveness of the Tanmia programme on students' achievements in class and teachers' teaching strategies, where different measurements will be applied. We aim to continue our work and dedication to the faculty to support our students, by providing courses and empowering the instructors to be better teachers

**Fund:** This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

**Acknowledgments:** I would like to express my sincere appreciation to Tanmia team; Firstly, my mentor Mr Salim Alkully for his guidance and support. In addition to the outstanding students helping in making the program happen at the Faculty of Applied Medical Sciences, Ms. Rawan Al

Zahrani, Ms NoufAlshadadi, Ms Asmaa Kabli, Ms Shaymaa Gari, and Ms Rifalazrae.

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