

## RESEARCH ARTICLE

# Effectiveness of peer-assisted-learning model in teaching physical examination in Otorhinolaryngology to clerks and postgraduate interns

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### ABSTRACT

**Background and Objective:** Peer-assisted learning (PAL) is an established concept in which students obtain mutual benefits by teaching and learning from each other. In the clinical environment, this often occurs intentionally or unintentionally in various formats such as same level or cross level peer tutoring, peer mentoring, cooperative learning and the like. This study determined the effectiveness of Peer Assisted Learning in achieving identified program outcomes in the curriculum for clerks and postgraduate interns rotating in Otorhinolaryngology specialty.

**Methodology:** Study has 2 parts. Part 1 was a one-group pre-test and post-test design that involved teaching training of 16 PGI to be peer tutors in Otorhinolaryngology Physical Examination (ORL PE) to clerks. Video recorded pre-training baseline and post-training actual skills demonstrations of the PGI were rated. Scores were compared using Wilcoxon Signed Ranks test with p value at 5% level of significance. Part 2 was a randomized controlled single-blind trial of Peer-Led vs. Expert Faculty-Led ORL PE training of 55 clerks. Tutees performed a post training video-recorded skills demonstration assessed by a faculty rater who was blinded as to who among the clerks underwent the PAL-Led or Expert Faculty-Led training. Scores of the tutees in the 2 models of instruction were compared using the Mann-Whitney U-test at 5% level of significance.

**Results:** Part 1 results showed significant improvement in the post-training scores of the 16 PGI in the identified micro skills and ORL PE skills. For Part 2, 33 and 22 clerks underwent PAL-Led and Expert Faculty-Led instruction respectively. Comparison of performance scores of the clerks in the 2 models of instruction showed no significant difference.

**Conclusion:** Teaching training for PGI improved their knowledge, skills and attitude in teaching ORL PE skills to clerks. There was no significant difference in the performance outcomes between clerks that underwent PAL-Led and Expert Faculty-Led model of instruction.

**Keywords:** Peer Assisted Learning, Teaching Training

## Introduction

Peer-Assisted-Learning (PAL) is defined as the active assistance and support from status equals or matched companions to enhance learning and help develop skill [1]. Students obtain mutual benefits as teachers and learners occurring often intentionally or unintentionally in various formats of implementation such as same level or cross level peer tutoring, peer mentoring, cooperative learning and the like [1,2,3,4,5]. It is a state where people from comparable social groups who are not teaching professionally facilitate each other's learning and learn themselves by teaching or 'to teach is to learn twice' [1]. Several advantages have been

demonstrated in the PAL educational model which are unique to the set-up of peers learning from each other. Peer-tutees reportedly felt less anxious when performing psychomotor skills, were more self-confident when practicing with peer tutors than with lab instructors, had increased collaboration and camaraderie with other students [3]. Students conveyed increased sense of responsibility and independence as well as enjoyment of problem-solving with their peers [4]. Pairing of junior and senior undergraduate students provided psychological support with peers considered as influential role models aiding in professional and personal development of other peers [6]. Peer teaching

enhanced intrinsic student motivation, preparing physicians for their future role as educators [7]. Studies comparing peer-led tutorial groups versus expert or faculty-led tutorial groups in clinical skills teaching-learning undertakings show that peer-led tutorial groups were as effective or nearly as effective as faculty-led tutorial group in terms of learning outcomes for the peer-tutees [3,8,9]. Medical students engaged in peer teaching showed better study habits and attitudes towards the subject matter, better communication skills and enhanced self-confidence [10].

Despite the benefits and mostly positive appraisal of the different applications of the PAL model of instruction, there have been some perceived shortcomings and criticisms of the process [11,12]. Peer tutees, who participated in the program perceived that they have been shortchanged as peer tutors were considered inferior source of training or knowledge compared to the expert clinical faculty counterparts [3,4,12,13]. These peer tutors could impart wrong information to students. This setup could also be used by schools to rationalize the reduction in teaching staff [12].

Close supervision by clinical teachers is important so that correct concepts are taught and proper techniques are imparted by peer tutors to their peer tutees. The challenge is to properly train PGI on teaching skills and to ensure that they themselves have mastered the technique they will teach the tutees.

Microteaching is one method to develop teaching skills in senior peers. This is a scaled-down teaching session where “teachers” do practice teaching, while being videotaped. They, together with the supervisor and classmates view the session and give feedback. Studies show that microteaching is effective in enhancing the basic delivery skills of teachers [14,15,16]. A study conducted by Sana among health professions education students attending microteaching classes documented the improvement in the students' teaching competency at the completion of their course in microteaching [15]. Hence the Peer Tutor teaching preparation of the PGI through a microteaching session should help ensure the successful and satisfactory implementation of the PAL instructional model.

The study aimed to determine the effectiveness of the PAL model of instruction in teaching ORL PE to the PGI and clerks. Specifically, this study determined the effectiveness of: 1) teaching training of the PGI in improving their teaching skills and, 2) teaching training in improving the psychomotor skills and attitudes of PGIs in performing ORL physical exam.

The study also aimed to compare the performance outcomes in ORL PE skills between clerks that underwent PAL- Led model and Faculty-Led model of instruction.

The study ascertained the potential of a formally designed PAL model of instruction being incorporated in the outcome-based curriculum in ORL-HNS for clerks and PGI. Information shall also be gained on the comparability of the peer-assisted teaching strategy with more traditional Faculty-Led model of instruction on the performance outcomes in ORL PE skills of clerks. It will also reveal if training PGIs to be clinical teachers will make them effective teachers of peers.

## Methodology

### *Population of the Study and Randomization*

#### *Part 1:*

For part 1 of the study, there was a total of 128 PGI (N=128) undergoing their 1-year post-graduate internship training for the Academic Year 2017-2018. The population that were included in the study consisted only of the PGI who were rotating in the Department of ORL-HNS during the study period. Non-probability convenience sampling was performed in which all the currently rotating interns in the department were recruited on the first day of their rotation, where 16 PGI (n=16) were recruited.

Of the 16 that were recruited, 16 consented to take part in the study and were able to complete the teaching training session with the microteaching supervisor (see separate section on session details). Fourteen PGI obtained a rating of satisfactory in both the ORL PE skills and Peer tutor teaching skills after teaching training, hence achieving teaching competence. The two PGIs that did not achieve teaching competence were disqualified from participating as peer tutors in the study although they were given the maximum opportunity to practice the necessary teaching and ORL PE skills within the duration of their rotation in the department. Of these 14 PGIs, ten were able to perform the videotaped Post-Training Actual Demo tutorial session with the clerks (peer tutee) at the designated time. Of the four that were unable to proceed with the Post-Training Actual Demo tutorial session with the clerks, two PGIs were unable to proceed due to the suspension of classes due to inclement weather on the designated day of the tutorial sessions with the peer tutees. The other two PGIs were unable to proceed due to an emergency surgical procedure that had to be attended by the trained PGIs who were also the PGIs on-duty

at that time. The tutorial sessions during these occasions were therefore cancelled.

#### *Part 2:*

There was a total population of 450 clerks or 4th year medical students (N=450) enrolled for the Academic Year 2017-2018. Only the clerks rotating in Department of ORL-HNS during the period were recruited. Non-probability convenience sampling was performed in which all the clerks who were currently rotating in the department were recruited on the first day of their rotation in the department. Of the clerks that were recruited, consent was obtained from 55 Clerks (n=55) to participate as tutees which represented 12% of the total population of clerks for that academic year.

All the clerks who consented to take part in the study were randomly assigned to either of the 2 groups, the PAL-Led or Faculty-Led model of instruction on ORL PE skills on the first day of their rotation at the ORL-HNS OPD prior to their clinical encounters with patients and other teaching staff in the OPD.

Random assignment of the clerks to either the PAL-Led or Faculty-Led arm model of instruction was performed by the Resident-In-Charge (RIC) of the clerks through the Fishbowl method or simple lottery where the name of participants (clerks) written in folded coupon bonds were drawn. The drawn names of the participants were assigned according to a manually generated pre-decided sequence of assignment to either the Peer-Led or Faculty-Led model of instruction.

Of the 55 clerks who consented to participate in the study, 33 were assigned to the PAL-Led arm of the study and 22 to the Expert Faculty-Led arm of the study. The greater number of clerks that underwent PAL-Led model of instruction (33) compared to those that underwent Faculty-Led instruction (22) may be accounted for by two occasions in which the expert faculty tutor designated to give the instructional training to the clerks assigned to the Faculty-Led arm of the study was unavailable due to unexpected professional matters that the faculty had to urgently attend to during the designated tutorial sessions with the clerks. On these 2 separate occasions, only the clerks that were assigned to the PAL-led arm were able to complete the instructional session with their designated peer tutors accounting for the 11 more clerks that were included in the PAL-led arm of the study. The eight clerks that were unable to undergo the Expert Faculty-Led instruction during the 2 occasions that the expert faculty was unavailable during the

designated tutorial sessions were excluded from the study. The 3 more clerks in the PAL-Led model may be explained by the occasional odd number of clerks that rotated in the department and were randomly assigned to the PAL arm of the study. There was a ratio of 1 instructor to 3-4 students during the training session.

#### *Instrumentation*

This study utilized several rating scales, developed by the researcher from review of related literature with consideration of inputs from other expert faculty, and were pilot tested on students and faculty who were not participants in the study for clarity and ease of use. The Rating Scale for ORL PE was created for PGI and clerk ORL PE skills assessment and refined based on feedback from faculty experts during the pilot testing of forms and based on the ear and nose exam technique description from the Oxford Medical Education website [17,18]. It is a Likert-type rating scale that required the expert to rate the skills of the subject from 1 (poor) to 4 (excellent) on the following criteria: 1) examination technique and instrument handling on ear, nose and throat exam and 2) professionalism, emphasizing on the constructs of patient consideration, communication and rapport. Similarly, the Rating Scale for Peer Tutor Teaching Skills is a Likert-type rating scale, developed based on literature review, intended to aid the expert in this study to rate the peer tutors from 1-4 (poor to excellent) on their micro skills in explaining, questioning, demonstration, and giving feedback which is essential for teaching in the clinical scenario [14,15,16]. The number of items for each construct is based on the relative importance of the construct.

Minimum Passing Level for clerks for ORL PE skills was established at a score of 12 which is 60% of the perfect score of 20 using the Angoff's method. This was such, as the clerks were assumed to be starting at the competency level of "incompetent", a performance level lower than that of the novice, characterized by initial inability to perform the task due to lack of previous applicable cognitive or psychomotor knowledge and experience in performing the task therefore also signifying the need for further training to bring the performance to at least the novice level [19]. The MPL of 12 represents improvement from the level of incompetent to at least the novice level of performance or the level of guided response in the psychomotor skills domain of learning which represents the initial stages in learning a complex skill [19,20,21]. This stage is characterized by a rules-based performance of a task or reliance on a step by step instruction by the teacher and fraught with trial and error.

### Procedure for Data Collection and Analysis

#### Part 1:

#### *One-group pre-test and post-test design: Peer Tutor Teaching Training in ORL PE and Assessment*

The PGI (peer tutor) underwent Teaching Training through a microteaching session with the microteaching supervisor (researcher) in teaching ORL PE to the clerks (peer tutees). This training included training the PGI on (1) specific clinical skills in ORL PE which included: oral cavity examination, anterior rhinoscopy, external ear exam and otoscopy, and (2) specific clinical teaching skills on explaining, questioning, demonstrating and giving feedback.

At the beginning of the study, orientation of the participating expert faculty and faculty rater for tutees by the microteaching supervisor and calibration of ORL PE skills to be taught and rated was accomplished among the microteaching supervisor, expert faculty involved in the Faculty-Led model arm of the experiment and the faculty rater for tutees to ensure consistency in the skills to be taught and rated.

Microteaching session was administered to the PGI by the microteaching supervisor. Details of the individual segments of this activity is described in Table 1.

#### Part 2:

#### *Randomized controlled single-blind trial of PAL-Led model vs. Faculty-Led model of ORL PE training of Clerks: Tutee Training in ORL PE by Peer vs. Expert Faculty and Assessment*

A single 2-hour instructional session divided into 2 segments was allotted to allow enough time for practice. Tutorial sessions for clerks were purposely done on the first day of their rotation at which time they have not received any training inputs from any sources except their designated tutors (peer or faculty) in an effort to ensure that the assessed performance of the clerks were more or less the effect of the instructional inputs from their designated tutor. This would help reduce the potential confounding effect on the clerks' performance of training inputs from various sources, which would inevitably have occurred should the performance assessment be accomplished only at the end of their rotation in the specialty. The disadvantage however of the attempt to achieve this controlled condition, is the limited time allotment for the training and practice in the ORL PE skills of the tutees.

**Table 1.** Peer Tutor Teaching Training in ORL PE and Assessment

Segment	Activity	Duration
<b>1</b>		<b>1 hour</b>
1.1	<b>Pre-Training Baseline Demo:</b> Demonstration of baseline skills in ORL PE and teaching skills by PGI while being video-taped before Teaching Training	
1.2	<b>Demonstration</b> by Microteaching Supervisor of ORL PE, with explanation on how to explain, question and respond to questions, demonstrate the skills and give feedback	
1.3	<b>Review</b> of PGI pre-training baseline demo video-recorded performance of ORL PE and teaching skills based on lessons learned in the demonstration by Microteaching Supervisor.	
1.4	<b>Rating</b> by Microteaching Supervisor of pre-training baseline demo video-recorded performance of PGI using Rating Scale for ORL PE and Rating Scale for Teaching Skills of Peer Tutor	
1.5	<b>Critique session:</b> Qualitative feedback on what was good and what could be improved with the performance	
1.6	<b>Preparation</b> for return demonstration: practice of peer tutors by themselves or with peers with faculty inputs and feedback	
<b>2</b>		<b>1 hour</b>
2.1	<b>Post-Training Return Demo</b> , video-taped, of ORL PE and teaching skills by PGI after the Teaching Training given by the Microteaching Supervisor	
2.2	<b>Rating of Post-Training Return Demo Performance</b> of PGI by Microteaching Supervisor using rating scale for ORL PE and rating scale for teaching skills of Peer Tutor to assess for teaching competence	
2.3	Only the PGI who received a total rating of SATISFACTORY or have achieved MPL for both ORL PE skills rating (score of 15) and teaching skills rating (score of 42), hence achieving teaching competence were allowed to proceed as Peer Tutors in the PAL-Led arm of the study.	
2.4	<b>Post-Teaching Actual Demo:</b> Trained PGI who achieved teaching competence demonstrate ORL PE skills and teaching skills in tutorial session on ORL PE in a simulated case scenario with Peer Tutees in the PAL-Led arm of the study which were videotaped.	
2.5	<b>Rating of Post-Teaching Actual Demo:</b> Final rating of videotaped performance of trained PGI on ORL PE skills and Teaching skills during the Post-Teaching Actual Demo tutorial session with Peer Tutees was done by Microteaching Supervisor.	

**Table 2.** Tutee Training in ORL PE by Peer vs. Expert Faculty and Assessment

Segment	Activity	Duration
1		1 hour
1.1	<b>Clerk instructional session on ORL PE with designated tutor</b>	30 minutes
1.1a	Explanation and demonstration by the trained peer tutor or expert faculty to their assigned Tutees of the proper procedure and instrument handling in basic ORL PE specifically in ear examination, anterior rhinoscopy and oral cavity/ oropharyngeal examination	
1.1b	Questioning to check for understanding	
1.1c	Giving of feedback and focused corrections as necessary	
1.2	<b>Practice and review of skills:</b> Clerks to practice and review the skills individually and exclusively with their designated tutors during the tutorial session only. There was a ratio of 1 instructor to 3-4 students during the training session.	30 minutes
2		1 hour
2.1	<b>Post-tutorial video-taped ORL PE skills demonstration by Tutees:</b> Post-tutorial videotaped ORL PE skills demonstration was performed by the tutees (Clerks) after undergoing ORL PE skills training under trained peer tutor (PGI) or expert faculty tutor	8 minutes/ Tutee
2.2	<b>Assessment of ORL PE Skills of Tutees:</b> Separately, an assessment of the video-recorded post-tutorial ORL PE skills demonstration was done by a designated faculty rater for tutees using the Rating Scale for ORL PE Skills. faculty rater for tutees was blinded as to which of the tutees underwent the PAL-Led or Faculty-Led model of instruction.	(not included in 1 hour)

Tutee training in ORL PE was administered to clerks by either the expert faculty or PGI as assigned. Details of the individual segments of this activity is described in Table 2.

### Analysis of Data

*Effectiveness of Teaching Training of Peer Tutors in improving their knowledge, skills and attitude in teaching ORL PE to Peer Tutees*

To determine the effectiveness of clinical teaching training of peer tutors in improving their knowledge, skills and attitude in teaching ORL PE to peer tutees, their performance scores using the Rating Scales for ORL PE and Peer Tutor Teaching

Skills during *pre-teaching training* and *post-teaching training*, *i.e.*, actual peer tutee teaching session were obtained. Range and median values from the ordinal data (rating scores) were taken. Pre-training and post-training (during *actual* peer tutee teaching session) performance scores of the peer tutors (PGI) both for ORL PE skills and teaching skills were compared using Wilcoxon Signed Rank test with p-value at 5% level of significance using MedCalc Statistical Software version 18.

The frequency or proportion of peer tutors who achieved teaching competence, *i.e.*, those who obtained satisfactory rating or the MPL both for ORL PE skills and teaching skills during teaching training were also obtained.

*Comparison of performance outcomes in ORL PE skills between the participants (clerks) that underwent PAL-Led model and Faculty-Led model of instruction*

To compare the performance outcomes in ORL PE skills between the participants (clerks) that underwent PAL-Led model and faculty-led model of instruction, rating of ORL PE skills of clerks who underwent training in the 2 types of model were performed using the Rating Scale for ORL PE Skills. Range and median scores were compared using the Mann-Whitney U with p-value at 5% level of significance using the MedCalc Statistical Software version 18.

The frequency or proportion of students achieving MPL after PAL-Led and Faculty-Led model of instruction were also obtained.

## Results

*Effectiveness of Teaching Training in Improving the Knowledge Skills and Attitude of PGI in Teaching ORL PE to Peer Tutees*

Table 3 shows the summary of pre-training baseline demo and post-training actual demo scores of the PGI on the various individual teaching skills observed as well the overall rating score. Nonparametric data analysis using Wilcoxon-Signed Ranks test was performed with a p value significant at 5%. Results based on the computed p-values <0.05 showed that there is a significant difference between the pre-training baseline demo and post-training actual demo scores in all the micro skills rated, implying that the PGI micro skills of explaining, questioning, demonstrating and giving feedback significantly improved after teaching training.

Summary of trained peer tutor teaching scores during post-training actual demo peer teaching session are shown in the

**Table 3.** Median and Comparison of Scores on Microteaching Skills of Peer Tutors Pre-and Post-Teaching Training with p-value using Wilcoxon-Signed Rank Test using MedCalc Statistical Software version 18

Criteria	Micro Teaching Skills			p-value
	Pre-Training Baseline Demo	Post-Training Actual Demo	Difference	
Explaining	11.5	16	4.5	0.0039*
Questioning and Responding	8	16	8	0.0039*
Demonstration	11	15	4	0.0020*
Feedback	4	8	4	0.0020*
Overall	34.5	53.5	19	0.0020*

\*p-value significant at 5% level of significance

3<sup>rd</sup> column of table 3 under the heading post-training actual demo. Albeit results showed a significant increase in the post-training scores in all the micro skills of the PGI, the most dramatic increase in scores after teaching training were noted in the micro skills of questioning and giving feedback. There was a two-fold improvement in the scores, from a median of 8 to 16 for questioning and 4 to 8 for giving feedback.

The median and range of scores for ORL PE skills rating of peer tutors were also obtained. Comparison of the pre-training baseline demo and post-training actual demo scores in ORL PE skills using Wilcoxon-Signed Rank Test with p value significant at 5% level is shown in Table 4. Similar to

the results shown in Table 3 on the significant improvement in the teaching skills of the peer tutors after teaching training, there was significant improvement in the ORL PE skills of the PGI post-training except for the construct of patient consideration where the p-value is >.05. It can be noted that for this construct, the pre-training scores were already high with a range of 3-4, similar to the post-training range of scores.

In the immediate return demo performance of ORL PE and teaching skills during teaching training, all the participants, 16 of 16 PGIs or 100% achieved the MPL in teaching skills and 14 of 16 or 87.5% for ORL PE skills.

**Table 4.** Median and Comparison of Scores in ORL PE Skills of Peer Tutors Pre-and Post-Teaching Training with p-value using Wilcoxon-Signed Rank Test MedCalc Statistical Software version 18

Criteria	Physical Examination			p-value
	Pre-Training Baseline Demo	Post-Training Actual Demo	Difference	
1. Examination technique and instrument handling				
Ear Examination	3	4	1	0.0078*
Anterior Rhinoscopy	2	4	2	0.0039*
Oral cavity/Oropharynx	3	3.5	.5	0.0156*
2. Professionalism				
Patient consideration	3.5	4	.5	0.1562
Communication and rapport	3	4	1	0.0156*
Overall	14.5	19	4.5	0.0020*

\*p-value significant at 5% level of significance

### Comparison of Performance Outcomes in ORL PE Skills between Clerks that underwent PAL-Led and Faculty-Led Model of Instruction

#### Performance of Clerks in ORL PE Skills

Performance of the 55 clerks in ORL PE skills as assessed by the faculty rater for tutees had a wide range of scores with the lowest score of 8 and highest score of 17, and median of 13. Overall, 40 clerks or 73% achieved MPL for both groups that underwent PAL-Led and Faculty-Led model of instruction.

#### Comparison of Outcomes between PAL-Led and Faculty-Led Group

Table 5 shows the median and range of scores of all the components of the ORL PE skills rating scale as well as the p-values. The computed p-values were  $>.05$  indicating that there were no statistically significant difference detected between the performance outcomes of the groups that underwent the PAL-Led and Faculty-Led models of instruction, leading to accept the null hypothesis for the second objective.

Of the 33 clerks that underwent PAL-Led model of instruction, 26 clerks achieved the MPL which is 79%. Sixty-four per cent or 14 of the 22 clerks who underwent Faculty-Led model of instruction achieved MPL.

## Discussion

### Effectiveness of Teaching Training in Improving the Knowledge Skills and Attitude of PGI in Teaching ORL PE to Peer Tutees

Based on the results shown in Table 3, there is a significant difference in the knowledge, skills, and attitudes of the PGI before and after teaching training; thus the null hypothesis is rejected. This is consistent with the results in similar studies on the positive effect of microteaching training on the teaching skills of teachers after completing a course in microteaching [14,15,16]. The notable two-fold increase in the scores in skills of questioning and giving feedback after the microteaching session is probably due to the PGI's exposure to the more common pedagogical practice in a traditional educational institution, where the seasoned subject matter-expert teachers are mostly, the source of knowledge on the topic, hence questioning by students may still be a skill that needs to be fully developed. The lack of practice in questioning in the classroom is hence translated to the baseline lack of questioning skills of the PGI acting as a teacher.

Results in Table 4 showed significant improvement in ORL PE skills implying the positive effect of the teaching training on the ORL PE skills of the PGI as shown in the increase in the median of scores, from the median total

**Table 5.** Median and Comparison of Scores in ORL PE Skills of Peer Tutors Pre-and Post-Teaching Training with p-value using Wilcoxon-Signed Rank Test MedCalc Statistical Software version 18

Criteria	Physical Examination		p-value
	PAL-Led (n=33)	Faculty-Led (n=22)	
1. Examination technique and instrument handling			
Ear Examination	2	3	0.4940
Anterior Rhinoscopy	2	2	0.5112
Oral cavity/Oropharynx	2	2	0.9168
2. Professionalism			
Patient consideration	3	3	0.3990
Communication and rapport	3	3	0.0959
Overall	13	12	0.4443

\*p-value significant at 5% level of significance

score of 14.5 during pre-training baseline demo rating to 19 in the post-training actual demo rating. Exception to this is in the construct of patient consideration which is already high to begin with, and may actually reflect the satisfactory baseline bedside manners that the PGI already possess at the initiation of the study. This may also be a valuable consequence of their year-long clinical experience as clerks during the previous year where empathy is encouraged and the values of professionalism internalized.

The achievement of MPL by all PGIs (16/16) in teaching skills after the teaching training implies the relative ease of imparting basic teaching skills to novices compared to teaching ORL PE skills where only 87.5% (14/16) achieved the MPL. Psychomotor skills such as correct technique and instrument handling in ORL PE will require an amount of practice and training to gain satisfactory proficiency in performing the skills. The slight difference in the achievement of MPL by the PGI in the ORL PE skills compared to teaching skills may also be accounted for by the inherent learner differences in psychomotor skills in which some learners will need more time for training and practice than others to gain proficiency in the performance of a task.

#### *Comparison of Outcomes between PAL-Led and Faculty-Led Group*

The overall achievement of MPL in ORL PE Skills of 73% or 40 of the 55 clerks that underwent instruction from peer and expert faculty show that with minimal but focused training, the skill level of clerks may be improved from “incompetent” to at least the “novice” level.

Taking into consideration the disparity in the training background in ORL HNS of the trained PGI and expert faculty assigned to conduct the tutorial session for the ORL PE for clerks, the result that there is no statistically significant difference in the performance outcomes of tutees in both models of instruction is quite contrary to what is expected that tutees taught by experts have better performance outcomes. This may be explained by the notably short time allotted for exposure to training of the clerks to the trained peer tutor and expert faculty-led tutorial sessions, which is a single 2-hour instructional session. The time for training and practice of the ORL PE skills by the tutees may have not been enough for them to gain sufficient proficiency in the skills to manifest significant difference in the performance outcomes. A longer amount of training exposure under the corresponding tutors may probably reveal some difference in the performance outcomes of the tutees at a certain point. The level of

complexity of the skill should also be taken into account, as the skills being taught in this study are relatively simple basic ORL PE skills that could easily be taught and learned by non-specialists. There is also a relatively smaller number of clerks in the expert faculty-led arm (n=22) compared to the PAL-led arm (n=33) of the study, which might put the expert faculty-led group at a disadvantage. This however may be countered by the fact that the clerks that have been excluded from the study have comparably similar characteristics in terms of entry level skills or background knowledge and experience as those that were able to push through in the PAL-led arm. This is assuredly so, as the clerks' groupings are arranged based only on the order of their surnames and in no way related to their intellectual or psychomotor abilities or any other trait that will make them distinctly different from the rest of the population. Hence the performance of the tutees in both study arms are outcomes of more or less similar ability levels of both populations.

The overall results showing significantly improved pedagogical and psychomotor skills gained by the peer tutors after teaching training and peer tutorial experience compared to the psychomotor skills gained by the tutees, show more promise as to the advantages and benefits of the PAL model of instruction for peer tutors. A proper affirmation to the Active Learning Credo, modified and expanded from the wisdom of Confucius: “When I teach someone, I master what I have learned.” This further supports studies that have shown that peer teaching appears to significantly benefit the peer tutors with greater cognitive gains in that the peer tutors attain a deeper grasp of the subject matter or clinical skill that they are supposed to teach their peers, as deepening of knowledge is inherently required in the act of teaching [4,6]. Peer tutors, as a consequence of the learning and the teaching experience, tend to acquire not only the actual clinical skills that they are intended to teach but also the pedagogical skills necessary to properly communicate information to their peer tutees.

## **Conclusion**

In both models of instruction, a larger proportion of the clerks achieved the MPL implying the effectiveness of both models of instruction in improving the ORL PE skills performance of the clerks. Such conclusion may be surmised despite the lack of measurement of the baseline ORL PE skills of the clerks upon which the performance outcomes after intervention may be compared to, as the assumed entry level skills of the clerks was that of



“incompetent” or unable to do the tasks. Both models of instruction were effective in bringing majority of the clerks' level of performance from “incompetent” to at least the novice level or level of guided response.

For the clerks that did not achieve MPL, 21% and 36% for PAL-led and faculty-led instruction respectively, performance may probably be improved with increasing the length of time of training and practice with tutors or more knowledgeable others [15,18]. The difference in the level of achievement of proficiency in ORL PE skills may also be partly accounted for by the inherent learner differences in psychomotor and cognitive skill levels in which some learners may need less time as opposed to some who will need more time for training and practice than others to gain proficiency in the performance of a task.

There was no significant difference in the performance outcomes of clerks under the PAL-Led and Expert Faculty-Led model of instruction.

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