

Qualitative Analysis of Resident as a Teacher Module in Post Graduate General Practice Residency Program

Sumana Bajracharya,¹ Ashis Shrestha,¹ Arabind Joshi,¹ Rony Maharjan¹

¹Department of General Practice and Emergency Medicine, Patan Academy of Health Sciences, Lalitpur, Nepal.

ABSTRACT

Background: Residents need to show their proficiency in clinical and teaching skills. A good amount of their time during residency is spent teaching their juniors. Moreover, once they graduate, their roles will be clinician and teacher. Therefore, the “Resident as a teacher” module was included in the curriculum of the general practice residency program at Patan Academy of Health Sciences. This study was designed to evaluate the change in the teaching skills of residents after going through the module.

Methods: This was a qualitative study where three groups were interviewed. The first group was residents who underwent ‘Resident as Teacher Training’ and were involved in teaching their juniors. The second group was junior residents who were involved as learners and the third group was faculties. The questionnaire was used for interviewing and the thematic analysis was done and the findings of these three groups were analyzed.

Results: There was a total of 25 general practice residents who were interviewed. The residents who were involved in teaching (N=11) stated that the training program increased their confidence 8(72.7%) and communication skills 8(72.7%). The residents who were learners (N=9) stated that they are more comfortable with the seniors in teaching and learning sessions. Faculties (N=5) stated that residents interacted well. Barriers to effective teaching were, difficult to manage time for preparation and supervision by faculty.

Conclusions: General practice residents who went through the Resident as Teacher module stated that they were confident and had improvement in their teaching skills.

Keywords: General practice resident; Nepal; postgraduate program; resident as a teacher; student as a teacher.

INTRODUCTION

The residency program helps to shape the career as a clinician and a teacher. During residency, as much as one-fourth of their time is spent in teaching juniors.¹ Teaching residents how to teach will enable them to become more efficient teachers.² Duality of teacher and a resident will help reinforce their learnings and understandings.³

Resident as a teacher (RaT) program began to emerge in the 1960s and 1970s but was not common until 1990. General practice (GP) residency programs offering RaT curricula has increased over the year.⁴ There are

multiple subjective and objective assessments of the program suggesting its effectiveness. However, there is no clear consensus on the format, length, timing, and content of the course.⁵

Patan Academy of Health Science (PAHS) started a one-year longitudinal RaT program in the GP curriculum since 2018 September. This study has qualitatively analyzed the change in the teaching skills of residents after going through the module.

METHODS

This is a qualitative phenomenographical study to

Correspondence: Dr Ashis Shrestha, Department of General Practice and Emergency Medicine, Patan Academy of Health Sciences, Lalitpur, Nepal. Email: ashishshrestha@pahs.edu.np, Phone: +9779851061846.

investigate qualitatively the experience of study participants that was conducted at the General practice and emergency medicine department of PAHS, Lagankhel, Lalitpur, Nepal in 2020 May. This study analyzed the subjective experiences of the study participants (respondents) in the following groups:

Group A: This group consisted of postgraduate general practice (PGGP) residents of batch 2017 and 2018. Resident as a teacher program is conducted in the second year of general practice post-graduate education. It is a longitudinal program that runs throughout the second year. During this study batch of 2017 was in the third year and had undergone the RaT module. Likewise, the batch of 2018 was in the second year and had undergone six months of the RaT module. These two batches of residents (batch of 2017 consisting of seven residents and a batch of 2018 consisting of 9 residents so a total of 16 residents) were interviewed to know the changes that they have observed in themselves.

Group B: This group consisted of faculty who had observed PGGP residents. They were interviewed to understand the changes they have observed in the batch of 2017 and 2018 PGGP residents (who would graduate in 2020 and 2021). To minimize the personal biases, four faculties who were involved in the training and this research were excluded.

Group C: This group consisted batch of 2019 PGGP (who would graduate in 2022) residents (nine residents) who had not taken the RaT module but were exposed to PEER teaching by the batch of 2017 and 2018.

This curriculum was implemented at the Department of General Practice and Emergency Medicine of PAHS for PGGP residents as a RaT module since 2018. This was a PEER (In this RaT module second-year PGGP residents are trained to teach the first-year PGGP resident, the second-year PGGP were trained to run, interact and evaluate the session. They helped their PEER in learning) assisted teaching program where PGGP residents were trained to teach their juniors. The GP residency program is a three-year program where RaT program is implemented for one year as a longitudinal curriculum in their second-year residency. During residency program, residents have academic day once a week which was every Friday in our program. This is a part of residency program at PAHS and on this day all general practice residents were taken out from their clinical work so that they can do academic teaching and learning activities. This module was implemented during those academic days. The batch of 2017 was the first to undergo this

curriculum. The batch of 2018 was the second to undergo this curriculum. During this study period, the batch of 2017 had completed this curriculum, the batch of 2018 was in the mid-way, and the batch of 2019 had not have taken this curriculum. Residents (PGGP) have a full day academic week every week, during this academic day second-year residents have fourteen dedicated sessions for this module. Each session is two-hour long. This two-hour session will go longitudinally with practice sessions during academic days. The practice sessions are linked up with the three objectives that are set for this module (Organization teaching skills, improving teaching skills, knowing evaluation, and self-reflection).

There were 26 PGGP residents: seven PGGP residents in the batch of 2017, nine in the batch of 2018, and nine residents in the batch of 2019. There were nine faculties during this study period. Data saturation of all three groups (A, B and C) in this study was considered if there were more than three similar responses in each group. All residents and faculties giving consent were included in this study. Four faculties who are conducting this research were excluded from the study. Therefore, the total study population was 31.

Written Informed consent was taken from the participants. They were informed that their voice would be recorded. They were ensured that the record would not be used for their evaluation. The recording would be used for the analysis of this study only. The digital data was stored in the google cloud (drive) a backup copy was maintained. Ethical approval was taken from IRC-PAHS for this study (Ref: drs2004021360).

The interview was taken by faculty who were not involved in the RaT training module or evaluated the session taken by residents. The interview was recorded using a mobile phone. The interview was conducted in a quiet room during the daytime to avoid distractions. The interview was conducted in the Nepali language and the duration of each interview was approximately 30 minutes. Participants of groups A and C were approached individually and sequentially according to their roll number given by the institution during their enrollment in the post-graduate program. If they were unavailable at a given time, the subsequent participant was informed and interviewed. Participant from group B was approached sequentially based on seniority in the job at PAHS. The interview started with greetings followed by the participant's name and year of residency. If the participant were faculty name of the faculty was mentioned in the record. The interviewer read out semi-structured open questions and gave time for the

participant to reply. There was no interruption in the interview except if the voice was not clear, in such case interviewer was asked to repeat the sentence.

Though there are various PEER teaching modules, this module was specific to PAHS, therefore interview questionnaire was developed which was suitable to address the assessment of the program. After questionnaire was developed content and construct validation of the questionnaire was done by the following process:

Questionnaire for Group A

A set of questions for the in-depth interview was developed, its content and face validity was done by researchers and an external reviewer from different department who was not involved in this study. This questionnaire was translated to Nepali by using google translator. The Nepali version was reviewed by the researcher, 23 words were revised in the consensus of the group. This was further sent to an external reviewer from different departments who were not involved in this study.

Questionnaire for Group B

A set of questions for a depth interview was developed, its content and face validity were done by researchers and an external reviewer. This questionnaire was translated to the Nepali language by using google translator. The Nepali version was reviewed by the researcher, 33 words were revised in the consensus of the group. This was further sent to an external reviewer, who changed further 11 words.

Questions for Group C

A set of questions for a depth interview was developed, its content and face validity were done by researchers and an external reviewer. This questionnaire was translated to Nepali by using google translator. The Nepali version was checked by the researcher and external reviewer.

Relevance of the study was maintained by selecting the participants who were exposed to the teacher module as a resident and teachers. Data validation was done by triangulation, reflexivity, and negative comments. Findings of in-depth interviews of all three groups were triangulated according to the theme. Participants' reaction was recorded by the interviewer using a diary and for every negative statement, an alternative

explanation was explored.

The verbatim data was collected via recording. All digital data was transcribed, phrases collected in Nepali were translated by google translator and verified by two independent researchers. An inductive process of coding the data and identifying thematic categories as they emerge from the data was done. Data were examined line by line to identify as many codes as possible, open coding of the data was done. Wherever applicable, axial coding was then used to identify relationships between codes, and selective coding was being done to move towards the development of thematic categories. The process of constant comparison was used to check or compare each coded data item with the rest of the data to establish these thematic categories. Coding was done by two independent researchers. After the consensus of the two researchers, findings from Group A, B, and C was triangulated (open and axial coding from each group) and inductive as well as the deductive analysis was done.)

RESULTS

Out of 31 target populations for interview 25 participants were interviewed. In group A, out of 16 PGGP residents, the interview was stopped after interviewing 11 PGGP residents due to saturation of data. In group B all five faculties were interviewed and in group C all nine PGGP residents were interviewed. The data from group A was the core of information and data from groups B and C was used for triangulation.

Residents from group A stated that they improved in confidence to teach 8(72.7%) and skill of communication with colleagues and patients 8(72.7%), Table 1. Upon analyzing data of Group A PGGP residents, phrases identified for open coding were: 'Feels better prepared', 'confidence to teach', 'could make juniors understand', 'improved my skills of communication', 'helpful for patient counselling', 'easy for me to talk with patient', 'friendly relationship with juniors', 'better relationship', 'gained trust', 'improves collaboration with colleagues', 'feels comfortable', 'less nervousness', 'less anxious', 'can control my nerve', 'friendly environment', 'was clear after teaching', 'helped me understand the content', 'helped me clarify my doubts on content', 'helped me to build up concept on the topic easy to express yourself', 'was clear after teaching', 'helped me understand the content', 'helped me clarify my doubts on content', 'helped me to build up concept on the topic', 'less faculty supervision', 'more guidance from faculty', 'more teaching from faculty', 'practical

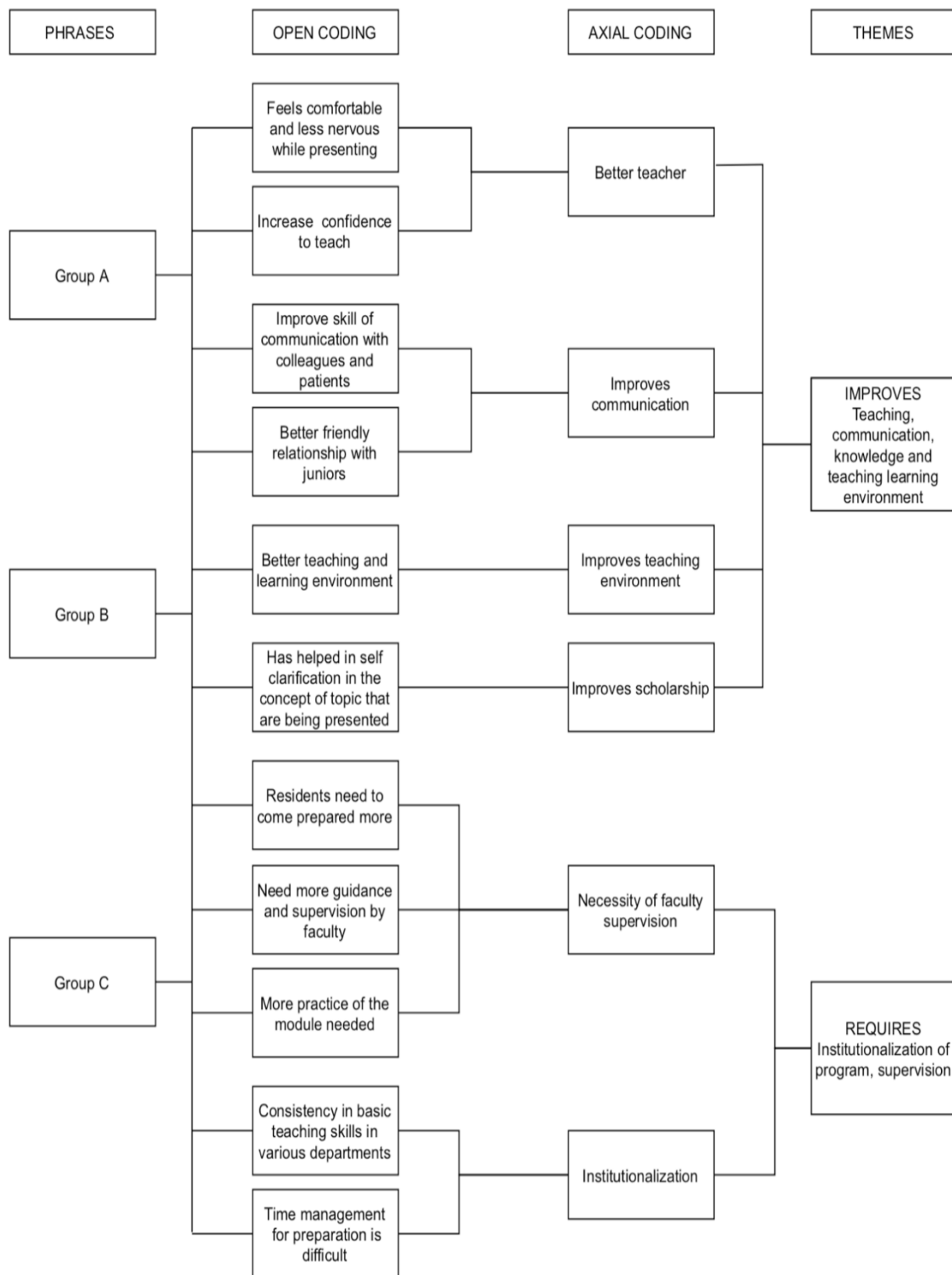


Figure 1. Thematic analysis of verbatim records of group A, B and C (N=25); Group A = 11, Group B = 5, Group C=9.

needed', 'more module needed', 'individual variation', 'departmental variation', 'not enough time', 'time for preparation is not adequate', 'many other things during residency', 'need more time to prepare'. The relationship was explored with axial coding and selective coding is done to come to the themes, Figure 1. Group A PGGP residents stated that they improved in confidence, communication skills, knowledge however they felt that they need more supervision and time for preparation.

Group A PGGP residents were further asked to recall an incident where they used any specific techniques of RaT training, out of 11 PGGP residents five (45.5%) were able to describe an event. One of the residents replied that he used "drawing together" techniques where participants are asked to draw what they know about the topic, three residents stated that they have frequently used "three why", which is a technique of interacting by asking what happened? So what? Now what? One resident said that he used "9 Whys" which is an art of asking why till you go to the core of the content. The rest of the PGGP residents from group A gave a long pause to this question and did not seem very confident in replying to the technique that they used for teaching.

Group A PGGP residents were further asked to recall an event where they think that this module has helped in their professional life. Out of 11 PGGP residents in group A, 3(27.2%) were able to recall the event, one of the residents recalled stating: "I had to counsel husband of a lady who had intrauterine fetal death. The husband was aggressive, I used teaching techniques to explain the husband and settled the issue." Another resident stated, "Now when I start my class, I ask the participants what they know so that I can shape my content delivery to match their knowledge gap". Yet another resident recalled, "I took a session on the research topic, my juniors were so comfortable with me that they kept on coming for help long after the class also."

Upon analyzing data of Group C PGGP residents, phrases identified for open coding were: 'guided study', 'feels comfortable', 'less nervous', 'more interaction', 'two-way communication with seniors', 'energized to ask questions', 'need to prepare for session', 'can ask senior even after presentations', 'helped in knowledge and skill transfer', 'less hesitancy', 'less embracement', 'senior needs to prepare before the class', 'faculty needs to intervene'. The relationship was explored with axial coding and selective coding is done to come to the themes (Figure 1). The resident in Group C identified

that teaching and learning activity was better as it was comfortable and less embarrassing with seniors. They were more approachable so there was more interaction, it also created the necessity to read before coming to the class even if not presenting. They expected seniors to come prepared for the session and at times the session needs to be intervened by faculty.

Phrases identified upon analyzing data of faculties in group B for open coding were: 'learning opportunities', 'encouraging', 'positive', 'motivating environment', 'improve teaching skill', 'long term memory', 'improves understanding', 'builds up confidence', 'increase in interaction', 'improvement in presenting style', 'chances of misleading information', 'closeness of teacher and learner interrupt learning', 'less intervention by faculty', 'depends on individual knowledge', 'depends on individual presenting skill', 'set objectives', 'need for institutionalization'. The relationship was explored with axial coding and selective coding is done to identify themes (Figure 1). Faculties felt that the presenter increased interaction amongst the participants. There was gradual improvement in presenting style and confidence over time however there was individual variation in presenting skill and individual's knowledge, therefore, there was inconsistency in the delivery of the content. Faculties also felt that did not have to intervene more as residents interacted with each other, however, faculty felt that they need to moderate the session. One of the faculty stated, "This will be like a personal program if it is not institutionalized."

DISCUSSION

In our study, the general practice PGGP residents who underwent RaT module training (Group A) stated that they were more confident to teach their juniors and improved communication skills with colleagues and patients. Residents who learn how to teach will become effective learners and better communicators in physician-patient interaction.⁶ The PGGP residents (Group C) who were in PEER teaching with group A PGGP residents stated that they were comfortable and felt open to ask questions when their seniors took the session. Similar study done in Pune showed that residents felt improvement in their knowledge, cognitive and psychomotor skills along with increase in confidence, enhancement of their clinical decision making and problem-solving skills. It also stated that learners felt more comfortable with the teachers from close age.⁷ In our study residents felt better and friendly relationships with juniors, better and comfortable teaching, and learning environments. The PGGP residents from Group

C reinforced the statement as “less embarrassing” and comfortable with seniors. Three (27.2%) PGGP residents from group A were able to recall an event where they used thought communication skills they acquired helped deal with the patient. One of the residents said that he was able to counsel a husband whose wife delivered a child with intrauterine fetal death. Faculties also felt that residents improved in communication and were more comfortable in giving feedback. This was also evident in a study done in 2019 at United States.⁸ Our study showed that resident improved their confidence and communication skill with this module. A study done in Nepal in 2011 also suggested that medical student’s perception of peer teaching was positive.

A resident must attain level 5 of Dreyfus model⁹ of skill acquisition which states that students can teach, moreover residents spend about one-fourth of their time in teaching juniors¹ and teaching them how to teach will make them an efficient teacher, good learner, and a communicator.^{2,3} Therefore it is essential to teach residents how to teach. The concept of RaT is not new⁴, a study published two decades back has also reinforced the need for the development of a course to improve the teaching skills of residents.¹⁰ A systemic review published in 2009 states that RaT in the curriculum can significantly improve residents’ teaching skills. There was however a limited number of studies.¹¹ A randomized trial conducted in California in 2002-2003 intervened with a group of residents with a 13-hour long teaching module and compared it with those who did not go through the module. The resident with the intervention group have greater enthusiasm for teaching, developed learner-centered approaches, and have a better understanding of teaching principles and skills.²

It is a known practice that post-graduate student teaches their juniors however there are very few training programs that have included a curriculum to train these residents. This is essential as preparing them will expand their role as teachers, mentors, advisors, and role models.¹² A study evaluating emergency medicine programs states that the majority of the program do not have RaT in the curriculum.¹³ However a survey done by Academic Family Medicine Education Research Alliance stated increasing RaT training in general practice curriculum.⁴ Involving general practice residents as teacher increases primary care teaching and at the same time, it helps promote undergraduates to take their career option as GP, moreover, students value learning from the teacher from close age.⁷

The teaching session by our residents (Group A) to juniors (Group C) included small group classroom teaching, informal teachings, and flip classroom where they used various teaching skills. Some of the common teaching skills reported by five (45.5%) residents were: ‘three why’, ‘nine why’, and ‘drawing together’. Resident teaching courses improve teaching confidence however there is no consensus on the best format, length, and content of the course.³ However, consensus guidelines to support resident as a teacher program suggested that providing residents with effective feedback on teaching, teaching active learning methods through higher-order questioning, and enhancing resident small group teaching as the most valuable item on professional development.¹⁴ A study obtaining consensus obtained from 28 medical educators using the Delphi panel identified five essential content areas for inclusion in RaT: feedback, bedside teaching, clinical presentation, small group teaching, case-based teaching, and professionalism.¹⁵ In our curriculum, we also oriented residents on the concept of a flip classroom and asked them to use this method. One of the studies published in 2019 has also recommended flipped classrooms, however, their activities were at least one month with sessions lasting one shift per week.¹⁶ Educational workshop showed positive changes in assessments, teaching ability, confidence, and performance, however, no change was seen in resident’s behaviors, and it did not raise student’s satisfaction or meet their expectations.¹⁷ There is, however, no definite tool to evaluate progression, we used observation and feedback to understand the changes. Observed structural teaching encounters have also been found effective for the detection of changes in residents.¹⁸

Enthusiasm and enjoying teaching are good qualities of a teacher, however, barriers are lack of time, face validation to the faculties and faculties not being available physically for feedback, and poor support.^{1,19} Similar findings were expressed by students of Group A. Residents of group B felt that seniors need to come more prepared. Faculties felt that there was less need for faculty to intervene as residents interact well with each other, however expressed that sessions should be moderated by faculties. As faculties guide residents to be better teachers, it increases faculty’s capacity to teach and mentor residents, therefore co-learning curriculum are beneficial for both faculties and residents.²⁰ A study published in 2017 demonstrated that the flipped classroom approach can be effectively used as a training method to overcome the issue of “no time”.²¹

In our study, the phenomenon of difficulty to open up in front of faculty was observed, however, this module

has given an insight into adult learning to both teaching residents and learners. This can be eliminated by PEER teaching; therefore, the RaT module can be an effective teaching and learning tool. The limitation of this study was that the interview was taken by faculty so it does not eliminate the openness for expression of the thoughts of the residents though faculty interviewing was not involved in RaT training.

CONCLUSIONS

Residents undergoing peer teaching module like RaT show improvement in their confidence, teaching skills and communication. However, it is necessary to provide preparation time to residents for better performance. The positive effect of such programs can be enhanced by supervision by faculties or seniors. This type of peer teaching improves in the learning environment as well as improves the quality of health care, therefore such program can be beneficial for every disciplines in all medical schools

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

1. Busari JO, Prince KJAH, Scherpbier AJJA, Vleuten CPM van der, Essed GGM. How residents perceive their teaching role in the clinical setting: a qualitative study. *Med Teach*. 2002 Jan;24(1):57-61.[Article]
2. Morrison EH, Rucker L, Boker JR, Gabbert CC, Hubbell FA, Hitchcock MA, et al. The Effect of a 13-Hour Curriculum To Improve Residents' Teaching Skills: A Randomized Trial. *Ann Intern Med*. 2004 Aug 17;141(4):257.[Article]
3. Wamsley MA, Julian KA, Wipf JE. A literature review of "resident-as-teacher" curricula: Do teaching courses make a difference? *J Gen Intern Med*. 2004 May;19(5):574-81. [Article]
4. Al Achkar M, Davies MK, Busha ME, Oh RC. Resident-as-teacher in family medicine: a CERA survey. *Fam Med*. 2015 Jun;47(6):452-8.[Article]
5. Hill AG, Yu TC, Barrow M, Hattie J. A systematic review of resident-as-teacher programmes. *Med Educ*. 2009 Dec;43(12):1129-40.[Article]
6. Dandavino M, Snell L, Wiseman J. Why medical students should learn how to teach. *Med Teach*. 2007 Jan;29(6):558-65.[Article]
7. Alberti H, Rosenthal J, Kirtchuk L, Thampy H, Harrison M. Near peer teaching in general practice: option or expectation? *Educ Prim Care*. 2019 Nov 2;30(6):342-6. [Article]
8. Hoffman LA, Furman DT, Waterson Z, Henriksen B. A Novel Resident-as-Teacher Curriculum to Improve Residents' Integration Into the Clinic. *PRIMER* [Internet]. 2019 Mar 11 [cited 2021 Oct 29];3. Available from: <https://journals.stfm.org/primer/2019/hoffman-2018-0043/>[Article]
9. Dreyfus SE. The Five-Stage Model of Adult Skill Acquisition. *Bull Sci Technol Soc*. 2004 Jun;24(3):177-81.[Article]
10. Dunnington GL, DaRosa D. A prospective randomized trial of a residents-as-teachers training program: *Acad Med*. 1998 Jun;73(6):696-700.[Article]
11. Post RE, Quattlebaum RG, Benich JJ. Residents-as-Teachers Curricula: A Critical Review: *Acad Med*. 2009 Mar;84(3):374-80.[Article]
12. shrivastav SRB, Shrivastav PS. Envisaging the role of residents as teachers in the training of medical undergraduate students. *J Compr Health*. 2021 Jun;9(1):48-9.[Article]
13. Ahn J, Jones D, Yarris LM, Fromme HB. A national needs assessment of emergency medicine resident-as-teacher curricula. *Intern Emerg Med*. 2017 Feb;12(1):75-80. [Article]
14. McKeon BA, Ricciotti HA, Sandora TJ, Ramani S, Pels R, Miloslavsky EM, et al. A Consensus Guideline to Support Resident-as-Teacher Programs and Enhance the Culture of Teaching and Learning. *J Grad Med Educ*. 2019 Jun 1;11(3):313-8.[Article]
15. Rana J, Sullivan A, Brett M, Weinstein AR, Atkins KM, the SaT Delphi Working Group. Defining curricular priorities for student-as-teacher programs: A National Delphi Study. *Med Teach*. 2018 Mar 4;40(3):259-66.[Article]

16. Feijó LP, Fakhouri Filho SA, Ruffini VMT, Nunes M do PT, Augusto KL. Estrutura do Programa em Treinamento de Docência na Residência: Residente como Professor. *Rev Bras Educ Médica*. 2019;43(1 suppl 1):341-8. [\[Article\]](#)
17. Nejad HH, Bagherabadi M, Sistani A, Dargahi H. Effectiveness of resident as teacher curriculum in preparing emergency medicine residents for their teaching role. *Journal of Advances in Medical Education & Professionalism*. 2017 Jan;5(1):21. [\[Article\]](#)
18. Zackoff MW, Real FJ, DeBlasio D, Spaulding JR, Sobolewski B, Unaka N, et al. Objective Assessment of Resident Teaching Competency Through a Longitudinal, Clinically Integrated, Resident-as-Teacher Curriculum. *Acad Pediatr*. 2019 Aug;19(6):698-702. [\[Article\]](#)
19. Cheung WJ, Patey AM, Frank JR, Mackay M, Boet S. Barriers and Enablers to Direct Observation of Trainees' Clinical Performance: A Qualitative Study Using the Theoretical Domains Framework. *Acad Med*. 2019 Jan;94(1):101-14. [\[Article\]](#)
20. Wong BM, Goldman J, Goguen JM, Base C, Rotteau L, Van Melle E, et al. Faculty-Resident "Co-learning": A Longitudinal Exploration of an Innovative Model for Faculty Development in Quality Improvement. *Acad Med*. 2017 Aug;92(8):1151-9. [\[Article\]](#)
21. Chokshi BD, Schumacher HK, Reese K, Bhansali P, Kern JR, Simmens SJ, et al. A "Resident-as-Teacher" Curriculum Using a Flipped Classroom Approach: Can a Model Designed for Efficiency Also Be Effective? *Acad Med*. 2017 Apr;92(4):511-4. [\[Article\]](#)