Effect of Using Microteaching Strategy on Nursing Students' Self-Regulation and Teaching Skills

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Abstract

Background: Microteaching is an organized, scaled-down teaching training strategy. That provides an opportunity to practice teaching skills by breaking them into smaller parts. Parallel to this novelty microteaching practice for nursing students, it requires them to be more responsible and independent in their learning process, considering cognitive, motivational, and behavioral variables of self-regulation to practice these skills effectively. Aim: To determine the effect of microteaching strategy on nursing students' self-regulation and teaching skills. Design: pre-experimental one group pre-test post-test research design. Settings: this study was carried out in the Faculty of Nursing, Alexandria University, Medical Surgical Nursing department. The application was done in faculty classes, medical surgical nursing labs, and information technology (IT) labs. Subjects: It included 132 nursing students who represented all nursing students enrolled in the "Medical Surgical Nursing III Course" during the first semester of the academic year 2022-2023. Tools: Two tools were used. Tool one: "Self-Regulation Assessment Questionnaire ". Tool two: "Students' teaching Skills Assessment Checklist". Results: The study showed that there was a significant improvement in students' self-regulation level after the application of microteaching program than before (P<0.001[*]). Furthermore, significant improvement in students' teaching skills level was found after the application of the strategy than before it(P<0.001[*]). Conclusion: Microteaching played an important role in enhancing the students' teaching skills, which include planning the lesson, presenting it, managing classroom and handling difficulties. Also, it helped students regulate their learning by encouraging them to set learning goals, use different strategies for achieving it through self-efficacy, interaction with their colleges, teachers, and evaluate to what extent these goals where achieved. Recommendations: Educational workshops should be conducted for all nurse educators to raise their awareness about microteaching when preparing their curriculum.

<u>**Keywords:**</u> Microteaching Strategy, Nursing Student, Self-Regulation, Teaching Skills.

Introduction

Nurse educators play a key role in the development of the future nurses' manpower resource. This manpower is useless if it is not competent enough in performing those tasks in which they are supposed to be competent. The ability to teach considers the most important competency that must be achieved for multiple reasons; some of them are being effective health educator, effective communicator with health team, patients, family, and community. In addition to being better learner, and an effective teacher in the future (Lateef&Mhlongo, 2019).

To achieve these competencies, nurse educators should provide opportunities to their students to learn how to be a good teacher. Nowadays, microteaching is one of the strategies that train the students to gain knowledge of pedagogic skills. It considered the most useful method in delivering teaching theory and practice (Shekharappa et al., 2020).

It was originally developed in the early 1960s at Sanford University as a type of scaled-down simulation activity to help trainee teachers learn how to teach. It was

intended as a brief and organized practice by planning and presenting microlesson to apply specific teaching skills. Recently, it has been incorporated into various curricula as an effective tool for self-learning for undergraduate and post graduate students. (Ramanatha et al.,2021; Tuyen, 2022).

Most recently, it was defined as a scaled down teaching situation in which the complexity of actual classroom is reduced in terms of class size (3 to 10 students), the duration of lesson ranged from four to twenty-minutes, and the range of activities is teaching a single topic and practicing one or two teaching skills at a time, that reflects micro-activity at all steps of this strategy (Subur, 2022).

The main purpose of microteaching is the employment of proper communication, presentation, interpersonal relationship, and classroom management skills to the maximum extent. Therefore, there is a chance of listening, observing, and practicing in small pits of teacher-student interactions. (Muthukrishnan& Metta 2019).

Additionally, the significance of micro-teaching mainly stems that teaching and learning are interlocking processes that result in changes in the students' behavior and experiences by enhancing their self-confidence in non-threatening environment. Also, giving them opportunities to teach which have a positive impact on their understanding and knowledge retention through simple, brief, and limited small-group activities (Rahayu& Siregar, 2018; Sagban et al.,2021).

The fundamental components of microteaching strategy include: the trainee teacher; the student who gets the training as a teacher, teaching skills, micro lesson, classroom environment, evaluators, and feedback devices (Afarah, 2019; Muluk et al., 2020).

Three structured phases covers microteaching practice, starts with knowledge acquisition phase; which involve receiving theoretical knowledge about the skill, its' concepts, purpose and demonstrating it by the instructor, followed by skill acquisition phase, redemonstration by trainee teacher through microteaching cycle which include; three basic steps from plan for microlesson, teach it, and get feedback from the instructor and their peers, and three recycling step; replan, reteach, and re feedback according to time available and degree of performance. Finally, transfer phase by integrating all skills to actual classroom teaching situation (Popat,2020; Tulgar, 2019).

The basic technique involved with microteaching is based on the fact that teaching can be analyzed using a variety of simple teaching skills, which are a set of behaviors or teacher's action to facilitate direct or indirect learning. That include planning the lesson, presenting it using effective lesson introduction, explanation, illustration, stimulus variation, questioning, appropriate audiovisual materials, and reinforcement skills to achieve comprehensive lesson conclusion in manageable classroom environment (Muthukrishnan& Mehta 2019; Ojo, 2021).

All the previously mentioned teaching skills require the trainee teachers to use self-regulation skills from two aspects. The first aspect as a learner is to acquire these skills. The second one is as a teacher to implement these skills in real teaching situation.

The process of the development of self-regulation comprises three cyclical phases: forethought, performance, and reflection. Firstly, the forethought phase involves an action plan, integration between different aspects of self, and perception of the problem to be solved. Secondly, the performance phase which consists of actions taken through self-control and self-observation. Thirdly, the reflection phase consists of two separate processes; the evaluation of the results obtained and the detection of the cognitive and motivational responses to the results performed (Pandero, 2017; Sugitani,2020).

Aims of the Study

This study aims to determine the effect of microteaching strategy on nursing students' self-regulation and teaching skills.

Research hypotheses

- Nursing students who are instructed by microteaching strategy exhibit higher self-regulation skills than before it.
- Nursing students who are instructed by microteaching strategy exhibit higher teaching skills than before it.

Materials and Method

Materials

<u>*Design:*</u> A pre-experimental one group pre-test post-test research design was used for conducting this study.

<u>*Settings:*</u> The study was conducted at the Medical Surgical Nursing Department at the Faculty of Nursing, Alexandria University. The application was done in faculty classes, medical surgical nursing labs, and information technology (IT) labs.

<u>*Subjects:*</u> It included 132 nursing students who represented all nursing students enrolled in the "Medical Surgical Nursing III Course" during the first semester of the academic year 2022-2023.

<u>*Tools:*</u> To collect the necessary data for the study two tools were used:

Tool one: Self-Regulation Assessment Questionnaire: It was divided into 2 parts.
Part I: Sociodemographic data and academic profile: It encompasses; student name, age, sex, nationality, area of residence, term time employment, marital status, last GPA, computer level, and English level.

Part II: Self-regulation assessment questionnaire: It was developed by Fontana et al., (2015). It was adapted by the researcher to be applicable for measuring nursing students' self-regulation. It consisted of 39 items with 5 points Likert scale ranging from strongly disagree (1) to strongly agree (5). The scale was divided into three dimensions: **First,** Self-regulation forethought (21 items) which was divided into goal setting (4 items), planning for learning (5 items), task interest/value (3 items) and self-efficacy (9items).

Second, Self-regulation performance dimension (14 items) which was divided into task strategies (4 items), elaboration (2 items), critical Thinking (3 items), help seeking (3 items), interest enhancement (2 items). **Third,** Self-regulation reflection dimension (4 items) which was divided into self-evaluation (2 items), and self-satisfaction (2 items). The total scoring system of this scale ranges from 39 to 195. It was distributed as follows; low self-regulation level: $39 < 91$ (Less than 50%), moderate self-regulation level: $\geq 91\text{-}143$ (50- 75%), and high self-regulation level: $>143 - 195(>75\ \%)$.

Tool two: Students' Teaching skills Assessment Checklist: This tool was developed by the researcher after reviewing the related literature (Chaudhary, et al., 2015; Dayanindhi & Hegde, 2018; Zaidi & Arshad, 2015) to assess the performance of nursing student through the microteaching process by the instructors, peers, and student self-evaluation. It consisted of 91 items with 3 points observational checklist ranging from not done /incorrect (0), done but incomplete (1) complete and correct performance (2). The checklist was divided into four phases: **First,** the assessment phase, which includes the following: student assessment (3 items), content assessment (3 items), environment assessment (6 items), and trainee teacher assessment (5 items). **Second,** the planning phase which includes lesson plan writing skill (7 items). **Third,** the implementation phase which includes introduction skills (5 items), explanation skills (7 items), illustration with examples (4 items), questioning skills (8 items), using audio- visual materials skills (nontraditional methods 7 items, traditional methods 8 items), stimulus variation skills (8 items), reinforcement skills (7 items), and classroom management skills (7 items). **Finally,** the evaluation phase (skill of achieving closure 6 items). The total scoring system ranges from zero to 182. It was distributed as follows; poor performance: zero< 36 (Less than 40%), fair performance:

36 < 72 (40 < 55 %), good performance: 72 < 108. (55 < 70%), very good performance: 108 < 144 (70 < 85%), and excellent performance 144 – 182 (85- 100 %).

Method

An approval from the research ethics committee of the Faculty of Nursing was obtained. An official approval to conduct this study was obtained from the dean and head of medical surgical nursing department after providing an explanation of the aim of the study. An informed consent was obtained from the students. The study tools were tested for their content validity by 7 experts in nursing education and medical surgical nursing fields, and then the necessary modifications were done. A pilot study was carried out on 10% of the study sample to test the clarity and applicability of the research tools. Tools reliability were tested using Cronbach's Alpha test, tool I, tool II =0.963, 0.983 respectively.

Data collection phases: The study was carried out through three phases: preparation, implementation, and evaluation.

Phase I: Preparation: During this phase the researcher, microteaching sessions content, students, and environment were prepared.

1-Researcher preparation: The researcher reviewed research and textbooks concerning microteaching strategy and its' application and trained five educators in medical surgical nursing III course to help in students' evaluation.

2-Content preparation: the researcher selected two units of the clinical part of " Medical Surgical Nursing III course", namely: Urological and Neurological surgery to be the content to which the microteaching strategy was applied. Each selected unit was delivered through planned microteaching lesson plans/ sessions. Each lesson plan consisted of objectives, content, microteaching skills, strategies, media, and evaluation. Each session included an explanation of one or two skills applied based on the researcher's integration between principles, phases, and cycle of microteaching strategy.

3- Nursing students' preparation: The researcher explained the aim of the study, process, and the students' role in the sessions. The students divided randomly into 12 subgroups, each subgroup including 11 students. Each student was instructed to prepare a preliminary assignment with audiovisual materials for pretest and present it in 20 minutes only.

4- Environment preparation:
*Physical environment:Ensure that there are adequate seats, clear light, ventilation, and video recording by mobile phone camera.
*Psychological environment: Prepared by constructive feedback, verbal, nonverbal motivation, and reinforcement.
Phase II: Implementation:
The researcher prepared microteaching sessions training program, which included 2 sessions one pre and the other posttest and 7 explanatory training microteaching sessions.
Session 1: pretest was done used tools I and II as follows:
- Tool I: distributed for all students by the researcher.
-Tool II: was applied by the researcher and instructors, each student in each subgroup was instructed to present the preset seminar for 20 minutes, then evaluated by the researcher or the educator, themselves, and their peers.
Session 2: Lesson plan skills were done in faculty classes, explained theoretical by the researcher used different microteaching skills, media, and strategies.
Session 3: introduction and explanation skills, **session 4:** illustration by examples and questioning skills, **session 5:** stimulus variation and reinforcement skills, and **session 6:** classroom management and achieving closure skills. These sessions were applied as follows: The first 20-30 minutes of clinical day was used for teaching the theoretical part of these skills, followed by 60-70 minutes explaining clinical content through these skills by the researcher.
The last 2 hours students redemonstrated the clinical content through assigned skills: as each subgroup consisted of 11 students sat in a circle with their trained instructor, each student

in each subgroup teach micropart of clinical content for six minutes with video recording of their performance, then received feedback by his/her instructor, peer, and by him/herself using formative microteaching skills assessment checklist.

After receiving feedback, the instructor summarized the critiques. Then according to each students' performance, immediately receive the chance to re-plan the performance in the light of feedback correction, re-taught the micropart of clinical content, and received feedback again about second time of performance.

Session 7: How to select and use audio-visual materials were explained at the faculty classes by the researcher, starting with the theoretical part of these skills, followed by practical application of using boards.

Session 8: Brochure and PowerPoint presentation skills were explained by the researcher. Then the students were divided into small groups from 5-10 students to practice in IT lab under the supervision of the researcher.

Phase III: Evaluation

Session 9: posttest was done using tools I and II after microteaching session training program was ended, the same as pretest.

Ethical considerations:

Written informed consent from students to participate in the study and video recording was obtained. Confidentiality of the collected data was assured. The researcher emphasized that participation in the study is voluntary and withdrawal from the study didn't affect the teaching or grades provided.

Statistical Analysis

Data fed to the computer and analyzed using IBM SPSS software package version 20.0. Qualitative data described using numbers and percentages. Quantitative data described using mean and standard deviation. The significance of the obtained results was judged at the 5% level. McNemar, Marginal Homogeneity, Paired t-test and Chi square test were used for test of significance with P values.

Results

Table 1 displays the distribution of nursing students according to their sociodemographic data and academic profile. It can be seen that,

more than three quarters of the students were from 19 to less than 20 years old, did not work, and had good computer skills (75.8%, 76.5 %, 79.5%) respectively. While around two third were females, had good English level, and the last GPA was C (67.4%, 62.9%, 70.5%) respectively. Furthermore, the majority of them were Egyptian, living in urban areas, and single (87.9%, 93.9%, 99.2%) respectively.

Table 2 shows comparison between nursing students' overall self-regulation level before and after the application of microteaching program. The table illustrated that slightly less than three quarters of the students had low self-regulation level before the application of microteaching program (73.5%), that was shifted to be slightly less than two thirds of them had moderate self-regulation level after the application (65.9%). Furthermore, significant improvement has been observed regarding the overall self-regulation level, as the mean and standard deviation increased positively after the application, with statistically significant difference (p = <0.001*).

Table 3 displays comparison between nursing students regarding their overall teaching skills levels and their self, peer, and instructor evaluation before and after the application of microteaching program. The table revealed that, all evaluators gave almost the same observations, where the majority of students had poor teaching skills level before the application (97.7%), that was shifted to be around half of them had very good teaching skills level as evaluated by students themselves, their peers, and instructors after the application (50%, 50%, 48.5%) respectively. Furthermore, a significant improvement has been observed regarding the overall teaching skills level, where the mean and standard deviation increased positively after the application, with statistically significant difference (p= <0.001*).

Table 4 reveals the relationship between the overall levels of students' self-regulation and teaching skills. The findings of this table

revealed that around half of the students who were evaluated by themselves, their peers, and instructors possessed a very good teaching skills performance (50.6%, 51.7%, 49.4%) respectively, who were under the category of moderate self-regulation level, with statistically significant difference before and after the application (p= 0.019*, 0.038*, 0.041*) respectively.

Discussion

Micro-teaching offers an effective opportunity to develop teaching skills through personal practice, self-criticism, confidence development, guidance, support, communication and reflection. Which considered basic requirements for nursing graduates, forces them to take more responsibility and autonomy in their learning process, taking into account self-regulating variables of motivation, cognition, and behavior (Alvi & Gillies, 2020; Wangchuk, 2019).

In regard to the first hypothesis, it was seen that there was statistically significant difference in nursing students' self-regulation level before and after the application of microteaching program, in the favor of the study after. Therefore, the results of the study validated the effect of microteaching on improving students' self-regulation level, therefore the first hypothesis was accepted.

These findings came in congruent with the study of kohen & kramarski, (2014) who stated that microteaching environment help in developing students in major aspects of self-regulation by organizing their learning process metacognitively, motivationally, and behaviorally. In the same line, McKendree & Washurn, (2017) who conduct a study to investigate strategies that hold promise for increasing self-regulation, the findings showed that microteaching considered the best strategy revolved around all phases of self-regulation which involve forethought, performance, and reflection.

The significant improvement in students' self-regulation level may be due to the explanation provided in the microteaching

sessions by the researcher, which emphasized the value of planning for the acquisition of new abilities and problem-solving skills, how goal setting contributes to effective task planning, performance, and evaluation, and the criteria of effective goal setting. At the same time, responsibilities taken by students as playing the teacher role, managing classroom, handling difficulties, and timekeeper all of these enhance their cognitive, behavior, and motivation dimensions of self-regulation. Also, collaborative environment encouraged the students to seek help and advice from their instructors and peers.

In regard to the second hypothesis, it was noticed that around half of the students possessed very good teaching skills performance after the application of the microteaching program. The findings also revealed that there was elevation in the mean and standard deviation in all teaching skills phases, including assessment, planning, implementation, and evaluation. Therefore, the results of the study validated that the students who participated in microteaching program, their teaching skills performance have been improved. Therefore, the second hypothesis was accepted.

The result of the current study was consistent with the study of Akkus & Üner, (2017) who revealed that there was significant elevation in mean score of teaching skills after microteaching sessions conduction from self, peer, and instructors' evaluation with slightly differences between their observations, where the instructor observation was a little between them. Furthermore, Dutt et al., (2023) the findings showed that there was a significant improvement of teaching conduction by effective teaching skills practice after the implementation of microteaching program and recommended the application of it in medical faculty development program to bridge the gap between teaching theory and practice.

The significant improvement in students' teaching skills may be due to the distinctive harmony between the five basic pillars of the program, which included: microteaching strategy principles, researcher, instructors, students, and clinical environment. First, microteaching strategy principles as practice of one or two teaching skills only each session, microteaching phases passed through practice the skill first by the researcher, then repeated by each student, video recording of performance, self, peer, and instructor evaluation all of this have better control over this particular aspect, enhance understanding, and mastery of this skills. Second, the researcher effort during the program implementation, as different teaching strategies used to explain the skills, providence of resources as guidance for students, intentionally difficulties faced the students during teaching to be prepared and manage classroom wisely. Third, the instructors and their participation in the training received by the researcher, their evaluation of the students before, during, and after the application of the program, their continuous productive feedback and their professional role model for the students. Fourth, the students where their interest, cooperative peer group activities, their insistence and competitive spirit in passing the observational checklist with a perfect score. Finally, the implementation of the skills through clinical content provided an excellent chance to put these skills into practice.

Regarding the relationship between overall levels of students' self-regulation and teaching skills. The findings revealed that around half of the students possessed a very good teaching skills performance, who were under the category of moderate self-regulation level. This result came in congruence with the study of Karlen et al., (2023) who determined that to become competent in teaching, students should become a successful self-regulated learner. Moreover, Virtanen et al., (2017) results showed that there was significant improvement in the professional teaching performance of the trainee teachers who had moderate and higher self-regulation level.

The possible explanation of the current study result is that microteaching practice which involves; plan, teach, feedback is parallel to self-regulation steps; forethought, performance, reflection. In the planning phase, the researcher asked each student to prepare microlesson which was considered a challenging activity need cognitive strategies from goal setting and planning for this lesson, at the same time need motivation and self-efficacy to conduct the lesson. Additionally, in the performance phase, students start to teach using teaching skills, different task strategies and critical thinking skills to conduct the lesson. Finally, reflection done through self, peer, and instructor feedback about strengths and weakness points, by debriefing students' thoughts, be able to lead instruction and comeback to the forethought phase to replan again based on feedback received. therefore, a positive relationship has been observed between students' self-regulation level and teaching skills.

Conclusion
Based upon the findings of the current study, it could be concluded that the implementation of microteaching strategy is a unique and effective teaching training method that played an important role in enhancing the students' teaching skills: starting from planning the lesson, presenting it, managing classroom and handling difficulties. Also, it helped students regulate their learning, as it changed the students' self-regulation from low to moderate level. Encourage them to set learning goals, plan for it, and evaluate their achievement.

Recommendations
Based on the findings of the present study, the following recommendations are offered:
- Develop microteaching strategy workshops to all nurse educators to raise their awareness about the importance and the application of it.

- Develop microteaching training guide that includes the ideal technique of using microteaching phases, cycle, and skills and distribute it to all the faculty departments.
- Conduct microteaching strategy workshops in the Faculty Leadership Development Center (FLDC) for developing competent future teachers.
- Study the effect of microteaching strategy on the nurses' teaching skills and patients' satisfaction.

Table (1) Distribution of nursing students according to their sociodemographic data and academic profile

Sociodemographic data and Academic profile	No (132)	%
Age (years)		
▪ 18 <19	5	3.8
▪ 19<20	100	75.8
▪ 20 <21	18	13.6
▪ ≥21	9	6.8
Sex		
▪ Female	89	67.4
▪ Male	43	32.6
Nationality		
▪ Egyptian	116	87.9
▪ Other	16	12.1
Residence		
▪ Urban	124	93.9
▪ Rural	8	6.1
Marital status		
▪ Single	131	99.2
▪ Married	1	0.8
Term time employment		
▪ No	101	76.5
▪ yes	31	23.5
Last GPA		
▪ A	0	0.0
▪ B	33	25.0
▪ C	93	70.5
▪ D	6	4.5
English level		
▪ Excellent	0	0.0
▪ Very good	24	18.2
▪ Good	83	62.9
▪ poor	25	18.9
Computer skills		
▪ Excellent	0	0.0
▪ Very good	15	11.4
▪ Good	105	79.5
▪ poor	12	9.1

Table (2): Comparison between nursing students' overall self-regulation level before and after the application of microteaching program.

Overall self-regulation level	before		after		Test of Sig	p
	No.	%	No.	%		
Low self-regulation level	97	73.5	45	34.1	McN= 50.019*	<0.001*
Moderate self-regulation level	35	26.5	87	65.9		
High self-regulation level	0	0.0	0	0.0		
Min – Max.	86.0 – 148.0		99.0 – 151.0		t= 21.205*	<0.001*
Mean ± SD.	109.55 ± 13.76		122.54 ± 11.29			

t: Paired t-test   McN: McNemar test   p: p value for comparing between pre and post.   *: Statistically significant at p ≤ 0.05

Table (3): Comparison between nursing students' overall teaching skills levels and their self, peer, and instructor evaluation before and after the application of microteaching program.

Levels of teaching skills	Self-evaluation						Peer evaluation						Instructor evaluation					
	before		after		Test of Sig	p	before		after		Test of Sig	p	before		after		Test of Sig	p
	No.	%	No.	%			No.	%	No.	%			No.	%	No.	%		
Poor (Less than 40%)	129	97.7	8	6.1	MH= 285.500*	<0.001*	129	97.7	11	8.3	MH= 275.0*	<0.001*	129	97.7	11	8.3	MH= 270.0*	<0.001*
Fair (40 < 55 %)	3	2.3	16	12.1			3	2.3	19	14.4			3	2.3	19	14.4		
Good (55 < 70%)	0	0.0	31	23.5			0	0.0	28	21.2			0	0.0	34	25.8		
Very good (70 < 85%)	0	0.0	66	50.0			0	0.0	66	50.0			0	0.0	64	48.5		
Excellent (85- 100 %)	0	0.0	11	8.3			0	0.0	8	6.1			0	0.0	4	3.0		
Min – Max.	17.0 – 88.0		34.0 – 170.0		t= 34.870*	<0.001*	18.0 – 93.0		32.0 – 165.0		t= 32.991*	<0.001*	15.0 – 87.0		31.0 –164.0		t= 34.141*	<0.001*
Mean ± SD.	31.29±13.34		123.11±29.38				30.72 ± 13.06		120.07 ± 29.48				29.76±12.47		119.47±29.20			

t: Paired t-test   MH: Marginal Homogeneity Test   p: p value for comparing between pre and post. *: Statistically significant at p ≤ 0.05

Table (4): **Relationship between overall levels of students' self-regulation and teaching skills.**

Levels of overall students' teaching Skills	Levels of overall students' self-regulation						χ^2	p
	Low (n =45)		Moderate (n = 87)		High (n =0)			
	No.	%	No.	%	No.	%		
Self-evaluation								
Poor	7	15.6	1	1.1	0	0.0		
Fair	4	8.9	12	13.8	0	0.0		
Good	8	17.8	23	26.4	0	0.0	11.734*	0.019*
Very good	22	48.9	44	50.6	0	0.0		
Excellent	4	8.9	7	8.0	0	0.0		
Peer evaluation								
Poor	8	17.8	3	3.4	0	0.0		
Fair	4	8.9	15	17.2	0	0.0		
Good	8	17.8	20	23.0	0	0.0	10.178*	0.038*
Very good	21	46.7	45	51.7	0	0.0		
Excellent	4	8.9	4	4.6	0	0.0		
Instructor evaluation								
Poor	8	17.8	3	3.4	0	0.0		
Fair	4	8.9	15	17.2	0	0.0		
Good	11	24.4	23	26.4	0	0.0	9.286*	0.041*
Very good	21	46.7	43	49.4	0	0.0		
Excellent	1	2.2	3	3.4	0	0.0		

χ^2: **Chi square test**
p: p value for Relation between self-regulation and students' teaching skills
*: Statistically significant at p ≤ 0.05

References

- Afarah, N. (2019). *The implication of microteaching course on student teachers' competences in teaching* [Published Doctoral dissertation]. Faculty of Education and Teacher Training, AR-Raniry state Islamic university, 12-19.

- Akkuş, H. & Üner, S. (2017). The effect of microteaching on pre-service chemistry teachers' teaching experiences. *Çukurova Unversity-Journal of Education, 46*(1), 202-230. DOI: 10.14812/cuefd.309459.

- Alvi, E., & Gillies, R. (2021) Investigating the individual nature of teacher beliefs and practices about self-regulated learning and how this shapes their practices for supporting student learning. *Educational Studies*, 1-23. http://dx.doi.org/10.1007/s11409-014-9124-0.

- Chaudhary, N., Chaudhary, S., Mahatu, Sh., & Bahita, B. (2015). Microteaching skills for health professionals. *Journal of Universal College of Medical Sciences, 3*(9),59-64. http://dx.doi.org/10.3126/jucms.v3i1.13264.

- Dayanindhi, K. V., & Hegde, S.P. (2018). Effectiveness of microteaching as a method of developing teaching competence among in-service medical teachers. *Journal of Advanced Medical Education Professor. 6*(4), 155-161. https://pubmed.ncbi.nlm.nih.gov/30349826 ./

- Dutt, R., Mishra, N. R., Singh, R., Patel SK., Dukpa, RD, C., & Dutta, AK (2023). Feasibility of including hands-on microteaching in the medical faculty development program in India: a mixed-methods study. *Cureus, 15*(6). doi:10.7759/cureus.40470.

- Fontana, R.P, Milligan, C, Littlejohn, A., & Margaryan, A. (2015). Measuring self-regulated learning in the Workplace. *International Journal of Training and Development, 19* (1), 32-52. https://doi.org/10.1111/ijtd.12046.

- Karlen, Y., Hirt, C., Jud, J., Rosenthal, A.,& Eberli, T.D.(2023). Teachers as learners and agents of self-regulated learning: The importance of different teachers competence aspects for promoting metacognition. *Teaching and Teacher Education*, 125, 1-14. https://doi.org/10.1016/j.tate.2023.104055

- Kohen, z., & Kramarski, B. (2014). Developing self-regulation by using reflective support in a video-digital microteaching environment. *Education Research International*, 1-10. https://www.researchgate.net/publication/258381395.

- Lateef, A., & Mhlongo, E. (2019). Factors Influencing Nursing Education and Teaching Methods in Nursing Institutions: A Case Study of Southwest Nigeria, *Global Journal of Health Science, 11*(13), 13-24. http://dx.doi.org/10.5539/gjhs.v11n13p13.

- McKendree, B., & Washurn, Sh. (2017). Agriculture teacher awareness and application of self-regulation strategies. *Journal of Agricultural Education, 58*(4), 143-160. https://doi.org/10.5032/jae.2017.04143.

- Muluk, S., Habiburrahi, H., & Ardiansyah, A. (2020). Microteaching course: does it affect students' teaching ability? Englisia: *Journal of Language, Education, and Humanities, 7*(2), 143-155. https://doi.org/10.22373/ej.v7i2.6712 .

- Muthukrishnan, S., & Mehta, N. (2019). Microteaching enhances teaching skills of resident doctors in India: A pilot study. *National Medical Journal of India, 32*(1), 29-31. http://dx.doi.org/10.4103/0970-258X.272114.

- Ojo, A. (2021). Microteaching experience as a predictor of business education student – teachers' performance in teaching [Published Master Thesis] Kwara State University, Malete, Nigeria, School of Post Graduate Studies, 15-40.

- Pandero, E. (2017). A Review of Self-regulated Learning: Six Models and Four Directions for Research. *Frontiros in psychology*, 8(422), 1-28. https://doi.org/10.3389/fpsyg.2017.00422.

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- Popat, Y. (2020). Microteaching: an effective tool to enhance teaching skills. *International Journal of Engineering Applied Sciences and Technology*, 5(8), 198-206. http://dx.doi.org/10.33564/IJEAST.2020.v05i08.030.

- Rahayu, P., & Siregar, S. (2018). Teaching strategies in students' microteaching performance. *English Language Teaching and Research*, 2(1), 202-211. https://www.researchgate.net/publication/344395247_EFL.

- Ramanatha,R., Narayanan, S., Mutalik, A., Shanmugam ,J ., Padmavath, L., Vaishnavi,C.,& Kathiravan, R.(2021). Impact of microteaching in enhancing teaching skills of medical college faculty. *Journal of Advances in Education and Philosophy, 5*(6), 160-164. https://api.semanticscholar.org/CorpusID:236159949.

- Sagban, A., AlMumar, H., &Hashim, Z. (2021). The effect of microteaching technique of Iraqi EFL student teachers on their teaching performance and attitudes. *Journal of Language and Linguistic Studies, 17*(4), 1984-1997. http://www.jlls.org/.

- Shekharappa, K., Tejaswi, S., Savita, S., & Lakshmikanth, M. (2020). Microteaching revisited! A tool for improving undergraduate student seminars. *Indian Journal of Physiology and Pharmacology, 64*(1),70-75. https://dx.doi.org/10.25259/IJPP_283_2020.

- Subur,S .(2022). Strengthening the micro teaching role in the development of teacher candidates teaching kills. *Jurnal Pemikiran Alternatif Kependidikan, 27*(1), 1-12. https://doi.org/10.24090/insania.v27i1.4681.

- Sugitani, N. (2020). Effects of metacognitive acts of metacognitive training on the academic self- aiming on the academic self-regulation of Japanese college students [Published Doctoral Dissertation]. Seattle Pacific University, 47-61.

- Tulgar, A. (2019). The effects of microteaching practices on pre-service EFL teachers' professional self-efficacy development. *Erzincan Üniversitesi Eğitim Fakültesi Dergis, 21*(2), 15-27. https://www.researchgate.net/publication/335842339.

- Tuyen, P. (2022). Vietnamese students' perspectives on online micro-teaching (OMT) as a technique in English teacher education in the 4.0 era. *Asia Call Online Journal, 13*(1), 40-72. http://eoi.citefactor.org/10.11251/acoj.13.01.003.

- Virtanen, P., Niemi, H. M., & Nevgi, A. (2017). Active learning and self-regulation enhance student teachers' professional competences. *Australian Journal of Teacher Education*, 42(12), 1-20. http://ro.ecu.edu.au/ajte/vol42/iss12/1.

- Wangchuk, S. (2019). Effects of microteaching on the pre-service teachers' teaching competence – a case in Bhutan. *International Journal of Education and Development using Information and Communication Technology, 15*(1). http://ijedict.dec.uwi.edu/.

- Zaidi, M., & Arshad, M. (2015). Microteaching of the students presenting seminars an observational study. *Asian Resonance, IV* (II), 21-24. https://www.socialresearchfoundation.com/upoadreserchpapers/1/44/1506121132131st%20tariq%20zaidi.pdf.