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# Effectiveness of feedback type on performance quality and satisfaction of nursing student: A comparative interventional study

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## Abstract:

**BACKGROUND:** Although feedback has a major impact on teaching and learning, the type and way of providing it can have diverse effects. The purpose of this study was to compare the effect of two types of verbal and written feedback on nursing students' performance quality and satisfaction.

**MATERIALS AND METHODS:** This experimental study, that carried out in 2019, has a crossover design. The participants included 30 bachelors of science in nursing at Shushtar Faculty of Medical Sciences, who were assigned to two groups of 15. The first group received first verbal feedback and then written, during basic nursing skills training. The second group received first written feedback and then verbal. At the end of each half of the training sessions, students' performance and their satisfaction were assessed by, researcher-made observational checklists, and a satisfaction questionnaire, respectively. Data were analyzed using SPSS16 software and analyzed using Chi-square and paired *t* test. Significance level  $< 0.01$  was considered.

**RESULTS:** The mean scores of students' performance in the stages of verbal and written feedback were  $15.7 \pm 2.5$  and  $17.7 \pm 2.3$ , respectively. Written feedback was more effective in students' performance ( $P = 0.001$ ) and students were more satisfied with this type of feedback ( $P = 0.001$ ).

**CONCLUSIONS:** According to the present study, using written feedback can improve the quality of students' performances and is associated with high satisfaction. Thus, professors should pay more attention to feedback in their educational processes and use different types of feedback, especially written feedback, in line with the context.

## Keywords:

Baccalaureate nursing, feedback, nursing education, performance, students' satisfaction, teaching

## Introduction

It is usually difficult for students to learn and acquire practical skills, particularly those related to psychomotor, cognitive, and affective learning.<sup>[1,2]</sup> These skills are acquired through a complex process in which students should combine functional performance with knowledge and critical thinking.<sup>[3]</sup> One of the tools helping students learn these practical skills better and more effectively is providing feedback on

their performance. Feedback is essential in all kinds of efficient clinical training programs.<sup>[4]</sup> It is a vital element in acquiring clinical skills to improve techniques.<sup>[5,6]</sup> Providing feedback to the student in learning professional performance and combining theoretical learning with practical learning has the same function as standing in front of a mirror in learning sports movements.<sup>[7,8]</sup> The concept of feedback was developed by Rocket Engineers (1940)<sup>[9]</sup> and expanded rapidly in the early 1980s.<sup>[10]</sup> Today, feedback is a significant factor in the learning process so much that the UK Quality Assurance

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Agency for Higher Education considers it a criterion to evaluate the quality of teaching.<sup>[11]</sup> Many experts believe that an authentic and influential professor should regularly, consistently, and effectively provide feedback to students<sup>[12]</sup> as receiving high-quality feedback is essential in learning new practical skills.<sup>[5]</sup> Providing constructive feedback has helped develop the teaching-learning process and is essential for the growth of students and directing them, increasing their self-confidence, and motivating them to learn.<sup>[13]</sup>

Although there is no comprehensive definition of feedback in medical education studies, it has also been defined as providing specific information about a learner's observed performance and comparing it to the existing performance standards to improve the learner's performance.<sup>[14]</sup> Accordingly, the objective of feedback is primarily to help learners identify their strengths and weaknesses to promote the learning process and keep the student on track to achieve the learning objectives.<sup>[9]</sup> Without providing and receiving feedback, professors cannot decide whether the training has been practical or not, and students do not know whether or not learning has taken place.<sup>[15]</sup> However, various studies have shown that in educational processes, often no feedback is provided, or it may be presented ineffectively and incorrectly.<sup>[16,17]</sup> In this regard, students in some studies indicated that despite receiving accurate feedback, they described it as inadequate and inappropriate.<sup>[18,19]</sup> Studies in Iran show the lack of appropriate, adequate, and organized feedback from professors.<sup>[20,21]</sup>

However, the evidence shows that although feedback has fundamental effects on teaching and learning, the type and method of presentation can also have different effects.<sup>[20]</sup> For example, it has been shown that the effect of providing positively structured feedback on students' performance, satisfaction, and self-efficacy is more significant than negatively structured feedback.<sup>[4]</sup> Therefore, professors should decide on the more effective type of feedback for a particular situation and a particular student during teaching.<sup>[22]</sup>

Feedback can be generally divided into individual, group, formal, informal, verbal, written, positive, and negative.<sup>[9]</sup> An effective presentation requires knowledge and adherence to relevant principles and rules<sup>[23]</sup> since if feedback is provided incorrectly or inappropriately, it will have more adverse consequences than failing to provide feedback.<sup>[24]</sup> However, professors are generally unfamiliar with the types of feedback and their applications and presentation skills.<sup>[25]</sup> Despite decades of emphasis on the significance and the role of feedback in medical education, not enough efforts have been made to identify the most effective type of feedback.<sup>[26]</sup> This study aimed to compare the effect of two types of verbal

and written feedback on nursing students' performance quality and satisfaction.

## Material and Methods

### Study design and setting

The present study is an experimental cross-sectional study conducted at Shushtar Faculty of Medical Sciences.

### Study participants and sampling

The research population included all undergraduate nursing students taking the Basic Nursing Skills course (n = 30). The inclusion criteria included taking a nursing skills course for the first time, not attending free nursing care classes, and having no prior work experience as a nurse assistant. The exclusion criterion was an absence in more than one session. However, none of the students were absent for more than one session, so no one was excluded from the study.

The study was conducted in two groups and crosswise. The required ethical approval and official permission were obtained. After clarifying the research objectives to the students, they signed written informed consent letters. The participants were randomly divided into two groups (n = 15). The two groups were trained separately but by the same professor. The training content included basic nursing procedures. The duration of each training session was four hours. The professor taught the procedure in the first hour theoretically and practically. The students were then allowed to practice the procedure individually. The students' performances were supervised directly, and students were given positive and negative feedback on their performance individually. In the first group, students received verbal feedback in the first half of the sessions and written feedback in the second half. In the second group, providing written and verbal feedback was opposite to the first group, meaning that the students received written feedback in the first half of the practice sessions and verbal feedback in the second. At the end of each period, students' satisfaction with the type of feedback was evaluated using a questionnaire. Their performance was evaluated by a practical test. Their performance in the practical test was assessed by a second professor who was uninformed of the type of feedback provided to the students.

### Data collection tool and technique

The data collection tools were a researcher-made demographic information form, observational checklists, and a satisfaction questionnaire. The quality of students' performances in the practical test was evaluated against an observation's checklist. Each procedure had a particular checklist arranged according to the clinical guidelines and nursing reference books.<sup>[27,28]</sup> Corrected

items were each given a score of 1, and incomplete or incorrect items were given a score of zero. The sum of the scores of each checklist consisted of the student's final score in the relevant procedure. The total score of the practical test of each stage was the sum of the total scores of the procedures at that stage, calculated on a scale of 20. The content validity of the observational checklist was approved by 10 faculty members of nursing. Its reliability was examined by the simultaneous observation method. Thus, a pilot study was conducted on ten students other than the main samples, and the students were evaluated simultaneously by two observers. Then, the correlation coefficient was calculated between the scores of the two observers ( $r = 0.81$ ). The feedback satisfaction questionnaire was also designed based on the standard feedback principles.<sup>[26,29]</sup> This questionnaire contained fourteen questions on a Likert scale; a higher score indicated higher satisfaction. Several questions were also designed at the end of the questionnaire regarding feedback reactions and students' opinions about the usefulness and quality of feedback. The validity of the satisfaction questionnaire was confirmed by the content method and a survey of medical education experts, and its reliability was confirmed by the internal correlation method and Cronbach's alpha calculation ( $\alpha = 0.85$ ).

### Statistics

The population distribution was assessed and confirmed using the Kolmogorov–Smirnov Test. Statistical analysis was performed using SPSS software (version 16; SPSS Inc., Chicago, IL, USA), and the level of  $P < 0.01$  was considered statistically significant. To compare students' performance scores and satisfaction after the intervention paired  $t$  test was used.

Furthermore, Chi-square was used to compare the students' opinions about the quality and its consequences according to the type of feedback received.

### Ethical consideration

This research was obtained ethics approval from the Tehran University of Medical Sciences. In addition, written informed consent was obtained from all participants.

## Results

Most students in this study were male (53.3%), and the mean age was  $20.17 \pm 1.4$  years. The average grade point average of all students was  $16.5 \pm 1.14$ , and half of them (50%) expressed their level of interest in the field of study as average [Table 1]. Comparing the quality of performance between the two groups showed that students receiving written feedback performed significantly better than those receiving verbal feedback ( $17.7 \pm 2.3$  vs.  $15.7 \pm 2.5$ ) [ $P = 0.001$ ] [Table 2].

The results showed that the satisfaction scores of students who received written and verbal feedback were  $37.1 \pm 3.5$  and  $33.63 \pm 4.4$ , respectively, showing a statistically significant difference ( $P = 0.001$ ) [Table 3]. The students believed that the type of feedback affected learning the curriculum and found the written feedback more effective ( $P = 0.004$ ). At the same time, receiving written feedback evoked fewer negative feelings and resistance in them than verbal feedback ( $P = 0.005$ ). The students' opinions indicated that the principles and standards of providing effective feedback were more observed in written feedback. They believed that the verbal feedback was better than the written feedback only in terms of timeliness ( $P = 0.007$ ) [Table 4].

## Discussion

Various studies have investigated the role of feedback in learning, acknowledging that providing and receiving feedback is a determining factor in student learning.<sup>[30-32]</sup> The present study results show that providing feedback

**Table 1: Individual characteristics of students**

Variable	Number	Percentage
Gender		
Male	16	53.3
Female	14	46.7
The degree of interest in the field of study		
Low	1	3.3
Middle	15	50
High	14	46.7
Age (mean±standard deviation)	20.17±1.4	
Average (mean±standard deviation)	16.5±1.14	

**Table 2: The total score of students' performance quality in performing basic nursing skills according to the type of feedback received**

Performance score	Type of feedback	
	Verbal feedback	Written feedback
Low (10–12)	1 (3.3%)	1 (3.3%)
Middle (13–15)	11 (36.7%)	2 (6.67%)
Good (16–20)	18 (60%)	27 (90%)
Total	30 (100%)	30 (100%)
Mean±standard deviation	15.7±2.5	17.7±2.3
Test	df=29, P=0.001	

**Table 3: Satisfaction of students with the type of feedback received**

Satisfaction	Type of feedback	
	Verbal feedback	Written feedback
Low (20–26)	5 (16.7%)	0 (0%)
Middle (27–34)	17 (56.7%)	11 (36.7%)
Good (35–42)	8 (26.6%)	19 (63.3%)
Total	30 (100%)	30 (100%)
Mean±standard deviation	33.63±4.4	37.1±3.5
Test	df=29, P=0.001	

**Table 4: Students' opinions about the quality and its consequences according to the type of feedback received**

	Verbal feedback number (percentage)	Written feedback number (percentage)	Test P-value
Provide feedback frequently throughout the course	27 (90)	29 (96.7)	P=0.52
No delay and timely feedback provided by the professor	27 (90)	25 (83.3)	P=0.007
Simplicity and comprehensibility of the teacher's expression in the provided feedback	28 (93.3)	30 (100)	P=0.25
Express both positive and negative performance points in each feedback	25 (83.3)	30 (100)	P=0.005
Provide feedback to the student in person and with confidentiality	16 (53.3)	28 (93.3)	P=0.001
Provide feedback based on my own performance, not compared to other students	23 (76.7)	30 (100)	P=0.09
Observe politeness and respect for the student in the feedback provided	30 (100)	30 (100)	P=0.57
Constructive feedback and help to eliminate shortcomings	25 (83.3)	29 (96.7)	P=0.003
Avoid generalizations and focus on specific performance	23 (76.7)	29 (96.7)	P=0.7
Provide recommendations for performance improvement along with feedback	19 (63.3)	30 (100)	P=0.001
Feedback Usefulness for better learning	25 (83.3)	29 (96.7)	P=0.004
Stimulating negative feelings and reactions following feedback	27 (90)	21 (70)	P=0.005

is essential, but the type of feedback can also affect student learning. Based on the findings, the quality of the students' performance in the final exam of the basic nursing skills in the case of receiving the written feedback during learning is better than receiving verbal feedback. Studies investigating the type of feedback have reported similar results. A study conducted on radiography students concludes that providing written feedback is effective in learning and improving students' clinical performance.<sup>[23]</sup> Also, Haghani *et al.* (2016)<sup>[33]</sup> indicated that written feedback further improved the performance of the medical students compared to verbal feedback.

However, some studies had different results, and the results showed no statistically significant difference between the two groups of verbal and written feedback.<sup>[34,35]</sup> However, another study on the effect of positive and negative verbal feedback on surgical skills performance and motivation of medical students showed no significant difference in surgical skills (the time and the number of errors) between the two groups receiving negative and positive verbal feedback.<sup>[36]</sup> These different results can be attributed to the differences in research methodology or evaluation process. Still, findings suggest that paying attention to the type of feedback and selecting the appropriate method according to training conditions are essential and can affect the consequences of the feedback. These consequences include students' satisfaction and views. The Kirkpatrick evaluation model holds that the learner's satisfaction is a critical indicator of the program's effectiveness.<sup>[37]</sup> In general, various studies have shown that the average satisfaction of learners receiving feedback is significantly higher than those receiving no feedback.<sup>[4,38-40]</sup> Also, the type and manner of providing the feedback can have a double effect on learners' satisfaction. For example, the study results showed that the students who received personal feedback were more satisfied and performed better than students who received only group feedback.<sup>[41]</sup> In the present study, students were more satisfied with

receiving written feedback than verbal feedback. According to the students, the written feedback they received was more consistent with the standards of providing feedback, and this should have led to their greater satisfaction with the written feedback. However, the study results of Tayebi *et al.* (2014)<sup>[42]</sup> indicated that no difference existed in the level of the students' satisfaction between the two groups of the written and verbal feedback during the clinical internship. Therefore, due to the lack of studies in this field and the inconsistent results, it is necessary to repeat similar research in larger populations.

Students also believed that receiving written feedback had a more significant effect on learning than verbal feedback and could improve their learning. It is also believed that the quality of the feedback is more important than the way it is presented,<sup>[43]</sup> and the feedback type can have different effects on training and learning.<sup>[22]</sup> For example, it has been reported that providing constructive feedback using mobile web-based software increases the learners' satisfaction with clinical training, resulting in more effective achievement of learning goals.<sup>[44]</sup> In another study, most students stated that receiving written feedback assisted learning.<sup>[19]</sup> It also has been mentioned that the homework should include more written feedback as it is imperative for better learning.<sup>[45]</sup> However, it has been shown that professors use more verbal feedback.<sup>[20,46]</sup> Due to affordability,<sup>[39]</sup> a large number of students and the short time,<sup>[20]</sup> lack of special training tools, informality, and the conventionality,<sup>[46]</sup> and face-to-face exchange of information.<sup>[35]</sup> However, it should also be noted that written feedback can have several advantages by reducing the likelihood of forgetting the feedback, misconception, and negative resistance.<sup>[47]</sup> As found in the present study, the written feedback, in addition to more satisfaction and learning, also evokes fewer negative feelings and resistance in the students. Despite the undeniable role of feedback in learning, it should be noted that its poor use leads

to failure and causes adverse consequences such as anger, embarrassment, defensiveness, and the feeling of inferiority, rejection, and verbalization in the learner.<sup>[48]</sup> However, it is also believed that providing feedback noticeably decreases students' self-confidence and makes them appear as a critic.<sup>[49]</sup> Therefore, factors such as the fear of disturbing the professor-student relationship, the student's resistance to criticism, and the fear of the negative impact on the student cause some professors to avoid providing the feedback,<sup>[50]</sup> while the written feedback can overcome these barriers to some extent.

The results of various studies have shown that in many cases, the quality of presenting the feedback is not desirable from the students' point of view, and its standards are not well observed by the professors.<sup>[18-20,42]</sup> Therefore, it is necessary to improve the quality of the feedback and observe the standards to give feedback to students,<sup>[20,51]</sup> because only the feedback that is provided efficiently and by the correct principles will be effective on the students' learning process; otherwise, it will have no results but failure.<sup>[24,52]</sup> The present study showed that this is more important in the written feedback than in the verbal feedback, and the correct points of providing the written feedback are more observed, which can show an emphasis on the other results of the study regarding the role of the written feedback in the learning and satisfaction of most students. Therefore, it is necessary to emphasize the role and place of the written feedback and encourage professors to use this method more. Of course, it should be noted that providing written feedback should not undermine the principle of timely feedback. The results of a study conducted by the Iowa University Education Review Committee also showed that the rate of student's learning in the group that had received the rapid face-to-face feedback was significantly higher than that of the online but delayed written feedback ( $P \leq 0.05$ ).<sup>[53]</sup> In this study, the only drawback of the written feedback was the delay in submission, and students stated that the written feedback was often untimely. Therefore, written feedback should be provided promptly and shortly after the performance to maintain its training effect.

### Limitation and recommendation

Since the small sample size was one of the limitations of the present study, it is suggested to conduct a similar study to generalize on a larger scale and include other courses. It is also suggested to investigate the effect of feedback type on other variables, such as self-efficacy and self-esteem, or the extent to which self-directed learning strategies are used. According to the present study results, the written feedback is more consistent with the standards of practical feedback and improves nursing students' performance in realizing the basic

nursing skills, gaining more satisfaction, and learning more efficiently.

## Conclusion

Therefore, it is recommended to teach professors the principles of giving effective feedback, types of feedback, and the advantages and usage of each by holding empowerment courses and continuous professional training. Accordingly, students can benefit from different types of feedback according to different situations, especially written feedback, in the training process, a subject that has been more or less neglected.

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### Declaration of subject consent

The authors certify that they have obtained all appropriate subjects consent forms. The subjects understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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### Conflicts of interest

There are no conflicts of interest.

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