



# Can students' ability to provide constructive feedback in didactic and simulation courses be improved?

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## INTRODUCTION

- Feedback is a challenging interaction between the provider and the recipient.
- Scholars argue that constructive feedback is beneficial and reflects on teaching plans, objectives and curriculum.
- Coaching students to provide constructive feedback may be beneficial for course improvement.
- There is a lack of studies examining the effect of training on the quality of feedback provided by students.

## OBJECTIVE & HYPOTHESIS

To evaluate the improvement in feedback provided by dental students after teaching them how to receive and provide feedback using two different methods, a written approach (handout) and a media approach (recorded seminar).

The *null hypothesis* is that there is no difference in the improvement of feedback after coaching dental students how to provide it using either a handout or a recorded seminar.

## METHODS

- Second-year didactic and clinical simulation course in Prosthodontics / 4 Modules
- Bonus grade 2%: All student participants –Alternatively, a written assignment to earn the bonus grade (Ethics protocol: #39030)

### Feedback Questionnaire

Participants were anonymously assigned a specific number and asked to answer three questions

- 1- What did you think of the lectures in this Module?
- 2- What did you think of the practical sessions in this module?
- 3- What do you think of the course in general so far?

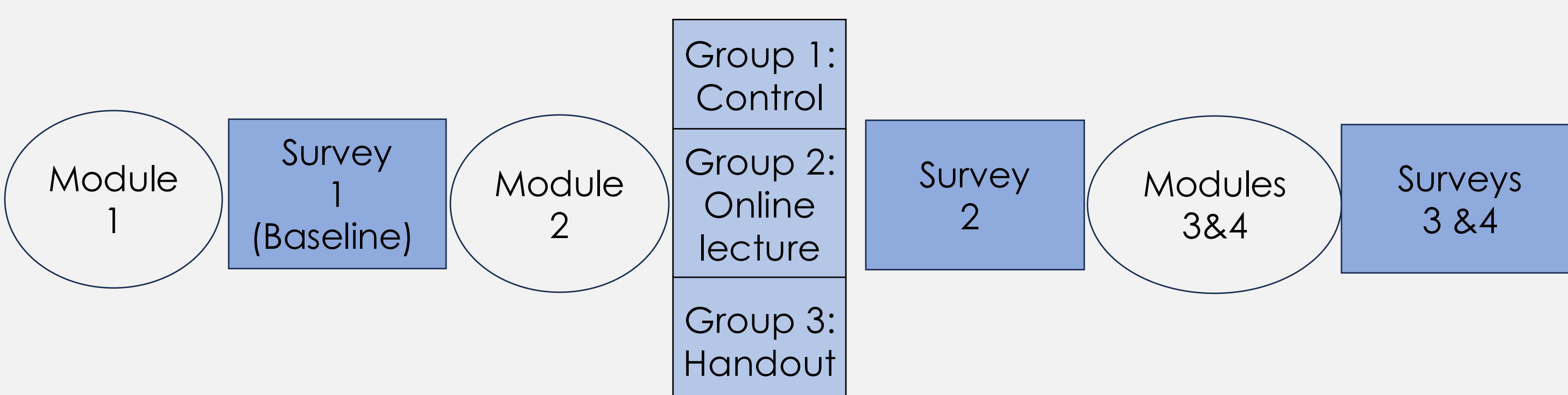


Figure 1: Study design for students' feedback during the course

### Data collection and analysis

- Data was removed for all participants who failed to answer any questionnaire.
- Two independent investigators, who were blinded to the students' coding, group assignment, and randomization, analyzed the data and categorized it as Positive, Negative, Neutral, and Constructive.
- Each student's feedback change was analyzed from the first survey questionnaire (Baseline) to the second, third or fourth survey questionnaires. Each change was coded as either desired or not. **Desired change** is defined as the change from positive, negative, or neutral to constructive feedback. Whereas other changes or lack of change were coded as not desired.

### Statistical analysis

- Kappa statistics were used to assess inter-rater reliability between two "investigator" raters.
- Inferential statistical analysis was employed to assess changes in feedback within groups (using the McNemar test) and between groups (using the Chi-square test). The level of significance is 0.05

## RESULTS

- Ninety-four dental students participated in the study randomized to three groups: control, online lecture, and handout.
- After data analysis, fifty-six participants fulfilled the study requirements. **20 in the control, 18 in the online lecture, and 18 in the handout group**
- The agreement level between the two investigators was 95.2 %

All four questionnaires had a similar proportion of constructive feedback. A higher proportion of constructive feedback was noted in surveys #2 and #4 after attending the online recorded lecture. Similarly, a greater proportion of constructive feedback was observed in surveys #2, 3, and 4 after reading the handout (Figure 2)

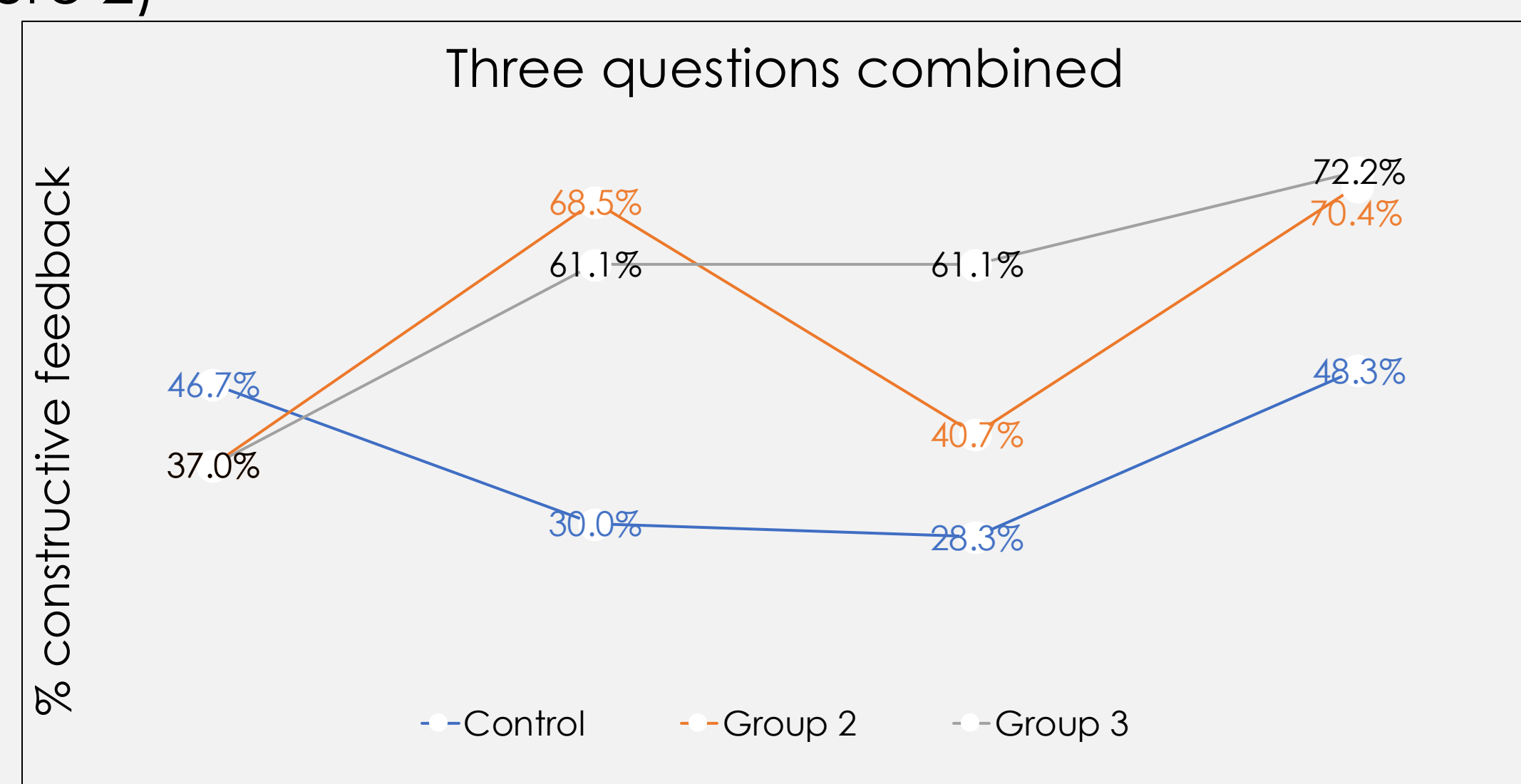


Figure 2: Three questions combined constructive feedback from groups

Regarding the desired change results for all combined survey questions, online lecture and handout groups showed significantly more participants with the desired change than the control group, as determined by chi-square analysis (Table 1)

Table 1: Three questions combined comparison between groups

	Survey #2	Survey #3	Survey #4
Proportion of desired changes			
Control	3.3%	5.0%	20.0%
Group 2	42.6%	18.5%	44.4%
Group 3	29.6%	31.5%	42.6%
Comparison between groups			
Overall comparison	<b>p &lt; 0.001</b>	<b>p = 0.001</b>	<b>p = 0.009</b>
Control vs group 2	<b>p &lt; 0.001</b>	<b>p = 0.023</b>	<b>p = 0.005</b>
Control vs Group 3	<b>p &lt; 0.001</b>	<b>p &lt; 0.001</b>	<b>p = 0.009</b>
Group 2 vs 3	p = 0.161	p = 0.120	p = 0.846

Bolded p-values indicate statistical significance at 0.05 level:

## DISCUSSION

- The *null hypothesis* was rejected. Both coaching interventions yielded significantly higher proportions of constructive feedback compared to the control group, indicating that targeted instruction substantially improves the quality of feedback.
- Constructive feedback proportions remained essentially unchanged across all surveys after both coaching methods, namely online lecture or handout.

## CONCLUSION

Both manuscript-based and online lecture-based teaching produced substantially higher proportions of constructive, actionable feedback than relying on the dental students' knowledge about feedback

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