Is critical peer feedback better facilitate online interaction than complimentary feedback affective feedback: Social network analysis

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Abstract: Interaction is an essential element for meaningful learning, it is necessary to Strategy to facilitate this even when performing an online assignment. In this study, we are expecting interaction among students is increased, that we can to reduce the burden and difficulty of the assignment of individual learner, to improve academic achievement. We conducted an online peer feedback strategic to facilitate interaction among students, and examined the effect. We separate the students into 2 groups, One for complement peer feedback in affective domain and the other for critical peer feedback in cognitive domain. As a result, interaction of a group of critical feedback showed more strong and substantial network in centralities, node type, and density. Thus, in order to facilitate the interaction was proved that it is possible to utilize the cognitive feedback is more effective.

Introduction

The interaction is required for learning. It is difficult to receive specific feedback from an instructor for individual assignment to a person and this tends to be left as a personal assignment for a learner to achieve credits. To this end, there have been various discussions about stimulating interaction among learners beyond the limit of lectures by utilizing the blended learning based on offline in university lectures(Akkoyunlu,& Yilmaz-Soylu, 2008; Ginns & Ellis, 2007) but there have been few studies on which strategies may be specifically implemented.

Especially, interaction among students play role of the positive stimulus to learning as they feel the intimacy and sense of unity and social presence. Students can have the opportunity of reflection of their own learning process through feedback activities(Hmelo, Guzadail & Turns, 1998). Nelson & Schunn(2009) separated feedback to affective domain and cognitive domain. Cognitive domain contains a critical feedback, affective domain contains a complimentary feedback. In order to know the effect of each feedback on the learning process, I think that it is necessary to how interaction is started, or has changed, to figure out the pattern.

The purpose of the study is to reduce difficulties and burden on individual assignment for learners by stimulating interaction among learners and categorizes feedback into complement feedback for affective domain and critical peer feedback for cognitive domain as strategies to enhance the academic achievement through feedback among learners. In addition, the study investigates subsequent differences from these interactions.

Methods

The experiment was performed for 30 university students who attended 'Education Method and Engineering' class of the education track at university in Seoul and separated the students into 2 groups: one for complement feedback and the other for critical and corrective feedback. Then, the environment was provided for the respondents to perform their individual assignments online and proposed the same assignment completed for 3 weeks. The researcher led the participants to propose their assignments twice, peer learners to form more than 2 feedback results per person and analyzed the study results.

Measures

The researcher inspected the interaction using the logs left online as matrix and analyzed them with

Netminer 4. In addition, SPSS 17.0 Windows was implemented to compare differences between the 2 groups. The summary of the results from the experiment is as follows.

Results

First, analysis of the centralities in the interaction showed that the group with critical peer feedback more evenly exchanged feedback than its counterpart.

Table 1
Results of Centralities

Centralities	Period	Complement peer feedback		Critical peer feedback	
		M	SD	M	SD
Outdegree	First week	0.121	0.108	0.200	0.175
	Secondary week	0.126	0.115	0.117	0.083
	Total	0.247	0.187	0.267	0.317
Indegree	First week	0.121	0.112	0.200	0.139
	Secondary week	0.126	0.107	0.117	0.065
	otal	0.247	0.140	0.317	0.136

In addition, it was found out that the centralities depended on the period of assignment process. The primary concentration of the group with complement reached 0.121 and was lower than that of the secondary one (0.126). Meanwhile, the group with critical peer feedback showed higher concentration (0.200) for the primary assignment and the secondary concentration (0.117).
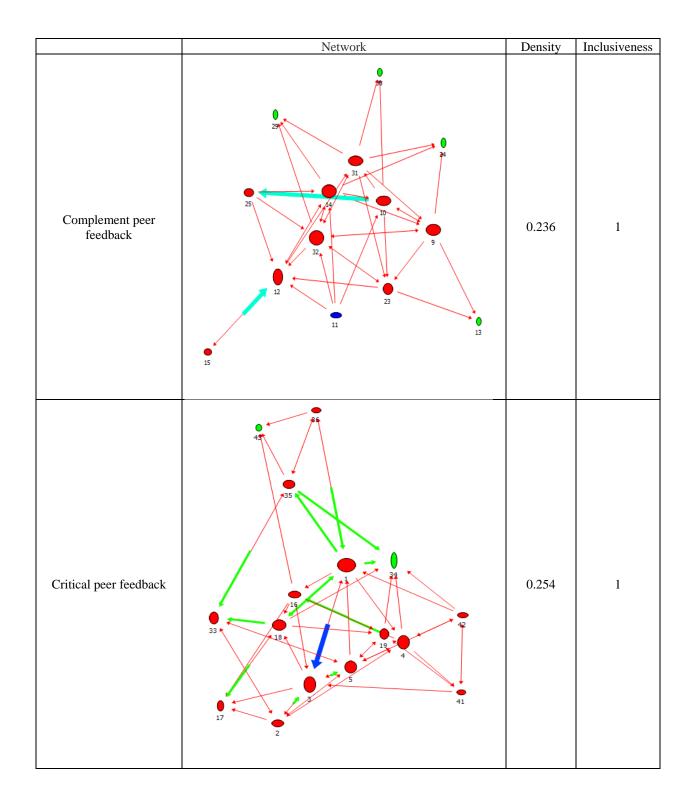
Second, the analysis of interaction node type showed that the complement feedback group had 9 ordinary types (64.28%), 4 receiver types (28.57%) and 1 transmitter type (7.14%) and its counterpart had 14 ordinary types (87.5%) and 2 receiver types (12.5%). It means that the ordinary type was dominated and had stable roles in the group with critical and corrective feedback compared to the complement feedback group in the note type, showing less biased information.

Table 2
Results of Node Type

Node Type	Complement peer feedback	Critical peer feedback
Isolate	.	.
Transmitter	1	.
Receiver	4	2
Carrier	.	.
Ordinary	9	14

Third, the analysis of network density and diversity among interactions depending on feedback types under the blended learning environment showed that the network density of the group with critical and corrective feedback was higher (density = 0.254) than its counterpart (density = 0.236). It may suggest that the critical and corrective feedback stimulated more interactions compared to the complement feedback as shown in the centric and concentration features.

Table 3
Comparison of inclusiveness and density

	Network	Density	Inclusiveness
Complement peer feedback		0.236	1
Critical peer feedback		0.254	1

Conclusion

The conclusion of the study is as follows based on the results above.

The interaction in the group with critical and corrective feedback showed more stronger and substantial

network in the aspects of centralities, node types, density and diversity. This enables to assume that the critical peer feedback, rather than the complement peer feedback, stimulates more interactions in case of providing feedback among learners. Therefore, the study suggests that it is more effective for an instructor to provide critical peer feedback, rather than the complement feedback, to stimulate interaction through feedback among learners in case of providing online assignments.

Reference

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