Feedback Literacy of Pre-Service English Teachers in Guangxi from the Perspective of Educational Informatization 2.0

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Abstract. Feedback has long been recognized as one of the potentially most powerful means of enhancing student achievement. In the context of Educational Informatization 2.0, this study conducts a questionnaire survey among 375 pre-service English teachers from four different grades in Guangxi to explore the current level of student feedback literacy (SFL) of pre-service English teachers in this region. It is found that the pre-service English teachers' SFL is at the upper-intermediate level. They recognize the value of feedback practices but have trouble in handling emotional challenges encountered in the feedback processes and acting upon feedback information. Suggestions are made from both the digitalization of feedback mode and support of digital services to tackle the above-mentioned issues in the information age. The study is of great significance in providing directions for future educational interventions to promote the specific dimensions of SFL.

Keywords: Feedback Literacy; Pre-service English Teachers; Informatization

1 Introduction

Information technology has altered the learning and teaching ecology since its presence. It has dominated the innovations in education since Educational Informatization 1.0. The relationship between teachers and students changes from knowledge imparter-receiver to knowledge-co-constructors. How to make the most of information technology to best facilitate learning has long been attracting scholarly attention from various educational aspects, one of which is feedback literacy. In feedback practices, the presence of information technology provides conveniences such as traceability, emotion mobility, multi-modes etc., which offers more potential to explore. Previous studies have focused on the effectiveness of different types of feedback (i.e. teacher feedback, peer feedback, computer-assisted feedback). Recent years have witnessed a shift of research focus from how the teacher-centered feedback can better facilitate student writing [1-2] to a student-centered approach in which much has been done to explore the traits students should possess to be feedback literate [3-4]. This shift represents the change of students from passive recipients of information to active constructors of knowledge.

Student Feedback literacy is more than a tool for better student writing but a core capacity which is conducive to workplace productivity and lifelong learning [5]. In this regard, pre-service English teachers merit special attention because of their dual identities. On the one hand, feedback literacy enhances their learning as students; on the other hand, feedback literacy empowers them

to become feedback literate teachers, thus more likely to cultivate feedback literate students in the future. However, the majority of SFL studies have taken the overall undergraduates or postgraduates as research subjects; the SFL of pre-service English teachers remains underexplored. That being said, it is necessary and significant to analyze the current level of SFL of pre-service English teachers so that future interventions can be involved to promote the specific elements of SFL.

In spite of the proliferation of student-centered feedback studies, most of them have remained conceptual in nature. There is scant attention to the real measure of SFL. Without knowledge of the current development of SFL, it is unlikely that anything can be done to enhance it accordingly.

Based on student feedback literacy framework, the present study attempts to shed light on the current level of SFL of pre-service English teachers in Guangxi and make tentative suggestions to enhance it against the backdrop of Educational Informatization 2.0. Specifically, this study addresses the following two questions: (1) the current development of SFL of pre-service English teachers in Guangxi; (2) the demographic differences in SFL of pre-service English teachers.

2   Student Feedback Literacy

Previous studies on SFL can be classified into three categories: definitions and theoretical frameworks, enhancing strategies of SFL, and scale development and validation of SFL.

Regarding the definitions and theoretical frameworks of SFL, Sutton [6] first defined feedback literacy as "the ability to read, interpret and use written feedback" (p31). Carless and Boud [5] extended the definition to include "the understandings, capacities, and dispositions needed to make sense of information and use it to enhance work or learning strategies" (p1316). A framework featuring four-interrelated aspects was proposed underpinning SFL: appreciating feedback; making judgments; managing affect; and taking action (see fig. 1). Appreciating feedback refers to students' recognition of the value of and their active role in the feedback process; making judgments is about students' evaluative judgment ability; managing affect concerns students' handling of emotions, especially when receiving critical feedback; taking action requires students to act on the basis of feedback from different sources. On the basis of Carless and Boud's work, Molloy, Boud and Henderson [3] expanded and identified the components of SFL as comprising seven groupings based on empirical evidence. The four-component and seven-component SFL frameworks pave way for the subsequent refined feedback literacy framework.
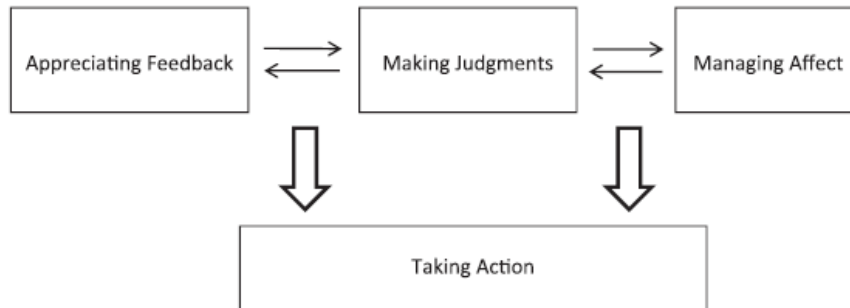
Fig. 1. Features of SFL by Carless & Boud, 2018

In exploring the enhancing strategies of SFL, it has been found that teachers' support on the cognitive and social-affective levels could enhance learners' performance in giving peer feedback and appreciating the value of critical peer feedback [7]. Teachers' intervention in facilitating SFL has also been identified in the study of Han and Xu [8], Hill *et al.* [9], Tai *et al.* [10]. Carless [11] suggested that student peer review with a written response and using exemplars are two potential learning activities that might help promote SFL.

With the definition and enhancing strategies being the focus, many qualitative studies have been conducted, yet there had been no instrument available to measure quantitatively the SFL of different student groups. In response to this gap, many scholars committed to the development and validation of SFL scale. Two most influential ones are from Dong *et al.* [12] and Yu *et al.* [4]. The latter scale, which is adopted in the present study, consists of five dimensions: appreciating feedback, acknowledging different feedback resources; making judgment; managing affect and taking action.

3 Research Methodology

The research questions of this study are: (1) what are the status quo of feedback literacy of pre-service English teachers in Guangxi? (2) What are the differences of SFL demographically?

3.1 Participants

375 pre-service English teachers from an Independent University in Southwestern China were randomly selected as the participants of this study. They were all English majors, with 50 males and 325 females. They either have finished or have been studying Basic English Writing Course, in which teacher feedback and peer feedback is a norm, thus having considerable experience in providing and receiving feedback. The English teachers working in this university were contacted and informed of the study purpose and questionnaire filling requirements. They helped inform the students and send the relevant information and the link to the online survey to the students.

3.2 Research Instrument

The student feedback literacy questionnaire used in this study referred to the L2 Student Writing Feedback Literacy Scale developed and validated by Yu, Zhang & Liu [4]. The feedback literacy questionnaire consists of 31 items. The first 3 items are about the demographic information (item 1, 2, 3); the rest 28 items are five dimensions of student feedback literacy: appreciating feedback (item 4, 5, 7, 11, 12, 14, 18, 25, 29, 31), acknowledging different feedback sources (item 6, 8, 10, 15, 28), making judgments (item 13, 16, 21, 22, 23), managing affect (item 20, 24, 26), taking action (item 9, 17, 19, 27, 30). Except for the demographic information, the rest 28 items used a 5-point Likert response scale, with 1, 2, 3, 4, 5 corresponding to strongly disagree, disagree, neutral, agree, strongly agree respectively. So the subjects may score between 28 and 140. To reduce misunderstanding, the questionnaire was presented in Chinese.

3.3 Data Collection and Analysis

The data were collected between April 10, 2023 and April 21, 2023 via an online survey platform *Wenjuanxing* (https://www.wjx.cn/). The link and QR code were sent to the teachers teaching Comprehensive English and they were asked to distribute the questionnaire to their students through QQ Group (a popular communication application among University students in China). Students were informed of the purpose of the study and that their confirmed consent was obtained before the questionnaire filling.

375 samples were received. After deleting the ones with less than 50-second completion time and those with the identical answer among 28 items, 305 were recovered, with a validity rate of 81.3%.

Data were processed with SPSS 19.0. The following 5 steps were followed in the data analysis: 1. descriptive analysis was conducted concerning the scoring of the 28 scale items and the scoring of five dimensions of SFL; 2. the relationship among the five dimensions of SFL was analyzed; 3. Independent-Samples T Test and one-way ANOVA were adopted to demonstrate the differences in SFL among pre-service English teachers demographically; 4 the contributing factors to the differences in SFL of pre-service English teachers were examined.

4 Findings

4.1 The Feedback Literacy of Pre-service English Teachers

Descriptive Results.

This part reports the descriptive results of the overall scoring of the participants with regard to feedback literacy. The 305 valid data do not correspond to normal distribution. The mean of SFL is 116.02(116.02±13.354), with the maximum score at 139, the minimum score at 30; the scoring rate is 82.87%. It can be seen that the scoring rate of student feedback literacy passes 80%, indicating that the feedback literacy of the subjects reaches the upper-intermediate level.

The data results show that the current situation of the five dimensions of SFL does not vary considerably. Arranged in descending order, the scoring rate of the five dimensions is as follows, appreciating feedback (84.62%), making judgments (83.8%), acknowledging different feedback sources (82.8%), taking action (80.24%), managing affect (80.07%). It can be concluded that

the pre-service English teachers perform the best in appreciating feedback, and that they are weakest in managing affect in terms of feedback literacy. Overall, the five dimensions of SFL of pre-service English teachers in Guangxi are up to an intermediate level, with all scoring rates over 80%.

Results of Correlations Among Five Dimensions of SFL.

All the five dimensions are highly correlated with the mean of SFL with the following coefficents respectively, with dimension 1 (appreciating feedback) the highest ($\rho=0.937^{**}$), dimension 3 (making judgments) the second ($\rho=0.879^{**}$), dimension 5 (taking action) ($\rho=0.830^{**}$) the third, dimension 2 (acknowledging different feedback sources) ($\rho=0.818^{**}$) the fourth, dimension 4(managing affect) ($\rho=0.733^{**}$) the fifth. There is a significant positive relationship among the five dimensions of student feedback literacy ($p<0.05$).

Correlation results show that the five dimensions of SFL are all positively correlated. Dimension 1 and Dimension 2 ($p=0.000$, $\rho=0.741^{**}$), Dimension 1 and Dimension 3 ($p=0.000$, $\rho=0.794^{**}$), Dimension 1 and Dimension 5 ($p=0.000$, $\rho=0.714^{**}$); Dimension 3 and Dimension 5 ($p=0.000$, $\rho=0.708^{**}$) are highly correlated ($\rho>0.7$). Dimension 1 and Dimension 4 ($p=0.000$, $\rho=0.606^{**}$), Dimension 2 and Dimension 3 ($p=0.000$, $\rho=0.655^{**}$), Dimension 2 and Dimension 5 ($p=0.000$, $\rho=0.612^{**}$), Dimension 3 and Dimension 4 ($p=0.000$, $\rho=0.659^{**}$), Dimension 4 and Dimension 5 ($p=0.000$, $\rho=0.694^{**}$), Dimension 2 and Dimension 4 ($p=0.000$, $\rho=0.486^{**}$) are moderately correlated ($0.3<\rho<0.7$).

Taken the scoring rate of the overall SFL (82.87%) as the yardstick to measure the five dimensions, it can be found that the scoring rates of pre-service English teachers in appreciating feedback (84.62%) and making judgments (83.8%) both exceed 82.87%, contributing more to the overall level of pre-service English teachers' SFL and that those in taking action (80.24%) and managing affect (80.07%) are below 82.87%, thus being less satisfactory contributors.

The highest scoring rate of pre-service English teachers in appreciating feedback can be attributed to the following aspects. First, in the new era, when education shifts from teacher-centeredness to student centeredness, students' sense of being active players would be accentuated in the learning process. Second, in the feedback practices, to encourage students' participation, teachers would inform them of the potential benefits of feedback. These practices are conducive to their appreciation of feedback. Hill *et al.* [9] also reported an enhanced appreciation of feedback purpose after teacher interventions: students tended to understand and value feedback better, change from the initial nervousness and apprehension to relief and happiness after the relational feed-forward processes with teachers.

Managing affect is about students' being emotionally resilient in the feedback processes to make the most of the feedback information and taking action requires students to make pertinent changes based on the feedback information. Pre-service English teachers are relatively weak in these two dimensions. The results suggest that in spite of students' relatively satisfactory appreciation of feedback and evaluative judgment capacity, the learning potentials brought about by feedback process can hardly be realized without proper subsequent enacting of feedback information. Furthermore, to ensure that feedback exert its due influence, interventions should be taken to improve students' emotional resilience, as has been analyzed in Mahfoodh's study [13], where negative emotions were related to the failure of uptake of feedback. It is, therefore, suggested that feedback providers phrase negative feedback in a positive manner, that they strike a

balance between positive and negative feedback and that educators should reveal the shared problem by the whole cohort to relieve the upset felt by individual learners [14].

4.2   Demographic Differences

Gender Differences.

Table 1. Comparison of Different Genders on Feedback Literacy Score & Its 3 Dimensions

Feedback Literacy	Male n=32		Female n=273		MD	t(303)
	M	SD	M	SD		
Score	114.16	10.836	116.24	13.619	-2.086	-0.835
D1	41.44	4.846	42.41	5.188	-0.973	-1.010
D3	20.53	2.462	21.00	2.754	-0.465	-0.913
D5	19.72	2.359	20.10	2.808	-0.384	-0.745

(Notes: Feedback Literacy Score: p=0.404>0.05; D1: p=0.313>0.05; D3: p=0.362>0.05; D5: p=0.457>0.05)

Table 2. Comparison of Different Genders on Dimension 2 of Feedback Literacy

	Male n=32		Female n=273		MD	t(46.467)
	M	SD	M	SD		
D2	20.44	1.777	20.73	2.478	-0.291	-0.837

(Note: p=0.407>0.05)

Table 3. Comparison of Different Genders on Dimension 4 of Feedback Literacy

	Male n=32		Female n=273		MD	t(49.330)
	M	SD	M	SD		
D4	12.03	1.282	12.00	1.934	-0.028	0.108

(Note: p=0.914>0.05)

The gender differences on SFL and among five dimensions of SFL are conducted through Independent-Samples T Test. The ratio of male participants and female participants in this study is 1:8.5, which truthfully reflects the reality of gender imbalance of Pre-service English teachers. Accordingly, the result may represent the gender differences in SFL. Data results show that gender has no significant impact on SFL as a whole (p=0.404>0.05) and its five dimensions respectively (D1: p=0.313>0.05; D3: p=0.362>0.05; D5: p=0.457>0.05 (see Table 1); D2: p=0.407>0.05 (see Table 2); D4: p=0.914>0.05 (see Table 3)). Nevertheless, male participants invariably score lower than female participants in SFL as a whole and five dimensions of it.

Grade Differences.

Table 4. Feedback Literacy Differences Among Different Grades

	1-year students (n=110)		2-year students (n=113)		3-year students (n=76)		4-year students (n=6)		F (3,301)	Post Hoc (Tukey)
FLS	M	SD	M	SD	M	SD	M	SD		

	116.19	14.69	113.98	12.49	119.21	12.43	111.00	6.72	2.65*	3-year >2-year

(Notes: FLS=feedback literacy score, *p<0.05)

Table 4 shows that feedback literacy was significantly varied by grade differences (F (3,301) =2.65, p<0.05). Tukey's post hoc procedure indicated that third-year students scored significantly higher than second-year students (*MD*=5.23). There was not a significant difference in feedback literacy score among the rest groups.

Among the five dimensions of SFL, Dimension 2 (acknowledging different feedback) and Dimension 5 (Taking action) were significantly varied by grade differences (F (3,301) =3.44, p<0.05; F (3,301) =3.69, p<0.05). Tukey's post hoc procedure revealed that third-year students scored significantly higher than both first-year (*MD*=0.97) and second-year (*MD*=0.95) students in Dimension 2. Moreover, third-year students also scored significantly higher than second-year students in Dimension 5(*MD*=1.26). However, there was not a significant difference among different grades in terms of the rest three dimensions of SFL.

Demographically, gender does not significantly impact the SFL of pre-service English teachers. Nevertheless, there is a significant impact of grade on SFL as a whole. When it comes to the dimensions of SFL, the score in acknowledging different feedback sources significantly improved from Grade one to Grade three and the score in taking action was also significantly increased from Grade two to Grade three. The result indicates that the more students are exposed to feedback experience, the more likely that they change from regarding feedback as teachers' responsibility to shared responsibility, thus acknowledging feedback from different sources and recognizing their values. The result provides evidence for the course design principles proposed by Malecka *et al.* [15]: it is important to have multiple practices and the development of feedback literacy is a cumulative and progressive process. Additionally, the result also aligns with the empirical study by Hoo *et al.* [16], where learners acted upon feedback information and transferred the outcomes to new learning situations after multiple practices. Correlation results show that acknowledging different feedback sources and taking action are moderately correlated. Taking the less satisfactory development of taking action reflected in this survey and its cumulative development nature into account, it is essential that attention should be paid to taking action in the first year of learning.

4.3   Discussion

Based on the above analysis, the current research investigated the feedback literacy of pre-service English teachers against the backdrop of Educational Informatization 2.0. Results indicate that feedback literacy of pre-service English teachers in Guangxi is at the upper-intermediate level; nonetheless, there is still much room for improvement in managing affect and taking action. With Educational Informatization 2.0 moving on the way to 3.0, it is of urgent need to incorporate information technology to deepen the ongoing innovation in learning and teaching on the one hand and enhance students' feedback literacy on the other hand. The following section presents some tentative suggestions on the promotion of SFL based on information technology.

First, it is important to adopt digitally- recorded feedback mode. Digital feedback has been increasingly proved by literature to be easier to understand, more supportive and more personalized than text-based ones due to the tone, pace, body language and expression conveyed by feedback providers [17]. This is because the mobility of emotion allowed by digital feedback reduces the potential frustration caused by critical comment. Digitalization also makes it possible for learners to communicate thoughts on their writings but not limited by time and space. Moreover, digitalization of feedback rules out the possibility of illegible hand-written comments, a serious hindrance to student's satisfaction of feedback and further improvement of work in Robinson's [14] study.

Secondly, the support of digital services from Schools is essential to the promotion of SFL. The presence of relevant soft wares and hard wares is the prerequisite for the incorporation of information technology in feedback processes. Specifically, schools should ensure the development of feedback management website or the purchase of relevant service. The use of such a website follows the trend of Educational Informatization, not only expanding the learning boundary but also recording feedback data for researchers to analyze. The data generated from the feedback processes can help educators to detect problems, provide evidence, based on which timely adjustments can be made for learners to make the most of the feedback processes. On top of that, feedback management websites can be specially designed so that the whole feedback process would be clearly presented (e.g. who is the feedback provider? who is the feedback receiver? What feedback is provided? On what aspect of the feedback is the writing revised?). The adoption of such a design would act like a guide for learners to finish the whole feedback tour, thus more likely to enhance the taking action dimension of SFL; in addition, the traceability of feedback ensures the ready access to feedback and directed revisions.

5   Conclusion

In the context of Educational Informatization 2.0 and the growing awareness of the learning potential brought about by feedback literacy, this study used a questionnaire survey to reveal the SFL of pre-service English teachers in Guangxi. The significance of the present study is two-fold: it makes the first attempt to measure SFL of pre-service English teachers quantitatively; it directs future effort to promote the SFL of pre-service English teachers in the information age.

It is equally important to empower students with feedback cognitively and social-affectively; nevertheless, the present study indicates that the development of this multi-faceted quality for pre-service English teachers should be designed with more emphasis on managing affect and taking action. In course designs, educational interventions in enhancing students' handling of critical or negative feedback deserve more attention from teachers. In the meanwhile, digitalization of feedback should be adopted to ensure the emotional mobility between feedback providers and receivers so that they can better handle the emotional challenges. Lastly, digital service on the part of schools should go first to make all the above-mentioned potential a reality.

The study has limitations. First, participants were from the same university. To reveal the real picture of SFL of pre-service English teachers in Guangxi, future research can investigate pre-service English teacher from more university types. Second, the use of self-reported questionnaires can truthfully reflect pre-service English teachers' thoughts of their feedback experiences.

However, it may not be the true level of their SFL. Future research can be conducted with the combination of questionnaire survey results, students' feedback process and interviews to allow students' feedback behavior to verify their self-perceived responses.

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