



The Construction of Formative Assessment Model for College English Writing in "Internet+"

Wenjing Chen

School of Education, Yunnan College of Business Management, Kunming, Yunnan, China,

95554967@qq.com

Abstract. "Internet +" has brought unprecedented changes to the education sector, and pigai.org is widely used by colleges and universities as an automatic online correction system for English essays. In the field of education, formative assessment is becoming popular as a new assessment method. Based on the background of the times and teaching reform, this study innovatively combines the "Internet+" teaching environment with formative assessment and applies it to college English writing teaching, constructs the "Internet+" college English writing formative assessment model and tests it empirically. The model of "Internet+" formative assessment of college English writing is constructed and empirically tested, aiming to provide a solution to the current problems in college English writing teaching.

Keywords: College English writing; Formative assessment; Pigai.org; Internet+.

1 Introduction

With the rapid development and wide application of Internet technology, the field of education is experiencing unprecedented changes. Especially in the field of English writing teaching, the introduction of Internet technology has provided a broad space for the innovation of teaching methods and means. Traditional English writing teaching often focuses on summative assessment, which often neglects the development and progress of students in the learning process and is not conducive to cultivating students' independent learning ability and innovative thinking. Therefore, it is particularly important to construct an Internet-based formative assessment model for English writing. Formative assessment is a kind of assessment that pays attention to students' learning process and aims to promote students' development. It stresses the immediacy, interactivity and feedback of evaluation, which helps teachers understand students' learning status and adjust teaching strategies in a timely manner, and at the same time helps students recognise their own strengths and weaknesses and clarify the direction of their efforts. Under the background of Internet+, the use of big data, cloud computing and other modern information technology means can achieve real-time monitoring and data analysis of the process of students' English writing, which provides strong support

© The Author(s) 2024

I. A. Khan et al. (eds.), *Proceedings of the 2024 3rd International Conference on Humanities, Wisdom Education and Service Management (HWESM 2024)*, Advances in Social Science, Education and Humanities Research 849, https://doi.org/10.2991/978-2-38476-253-8_17

strong support for formative evaluation. Constructing an Internet-based formative assessment model for English writing helps to promote the reform and innovation of English writing teaching.

2 Background and Significance of the Study

As one of the largest basic courses in China's college and university curriculum, English has long been a chronic problem in education^[1]. Although China's English teaching reform has been implemented for many years, in the actual teaching process, both teachers' "teaching" and students' "learning" cannot completely get rid of the influence of the traditional teaching mode of "teacher-centered" and "test-focused". The traditional teaching mode of "teacher-centered" and "test-centered" can't completely get rid of the influence of^[2].

"Internet+" education has changed the way of education and promoted educational reform, and it has also changed the English classroom^[3]. As shown in Figure 1, the information flow of English teaching in the era of "Internet+", the network provides a platform for interaction between teachers and students, between humans and machines, and between students and students. In recent years, the popularity of pigai.org in colleges and universities is a well-known case. pigai.org is a cloud computing-based online service system for automatic evaluation of English compositions, which calculates the gap between students' compositions and the standard corpus, gives instant scores and feedbacks on students' compositions, and aims to stimulate students' interest and motivation in learning foreign languages. As the mobile software corresponding to pigai.org, Mobile pigai.org also came into being. As of January 2018, pigai.org has been widely used in primary and secondary schools and colleges, with close to 400 million essays corrected cumulatively. Learning platforms such as pigai.org are characterized by easy operation, mobility and monitoring, and can monitor and record the whole process of students' learning; teachers can check students' learning records and provide timely feedback anytime and anywhere, and teachers and students can also participate in discussions and exchanges anytime and anywhere.

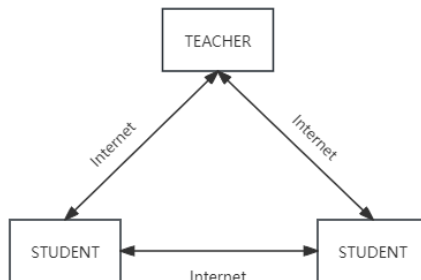


Fig. 1. English Teaching Information Flow in the Era of "Internet+"

Source: drawn by me

This paper proposes to construct a formative assessment model for "Internet+" college English writing on the basis of combing the literature on "Internet+" teaching, formative assessment, and college English writing, and empirically verifies the credibility and validity of the evaluation of batching and correction network relative to manual evaluation, thus providing an empirical basis for the promotion of the model. It empirically verifies the feasibility and validity of the "Internet+" college English writing formative assessment model, improves the insufficiency of the research in the field of automatic evaluation system and formative assessment, and provides an empirical basis for the popularization of the model, so as to provide new ideas and solutions to the problems in college English writing teaching nowadays.

3 The Importance of Formative Assessment and the Current State of Research

Formative assessment is of great significance in the teaching of academic English writing^[4]. Firstly, formative assessment can understand the development of students' writing ability, discover students' problems and difficulties in time, facilitate targeted guidance and counseling, and help students improve their writing. Secondly, formative assessment can promote students' independent learning. Students can understand their own learning situation according to the assessment results and take the initiative to seek help and improvement. Thirdly, formative assessment can provide specific feedback and guidance to help students recognize their shortcomings and take appropriate improvement measures. Finally, formative assessment can also promote the improvement of the teaching process, and teachers can adjust their teaching strategies and teaching resources according to the assessment results to improve the teaching effect^[5]. To summarize, formative assessment is crucial in the teaching of academic English writing, which helps students' learning and progress, and also helps teachers improve their teaching.

Formative assessment models at home and abroad have been widely developed and applied in recent years^[6]. Among them, Bloom's feedback loop model is a classic formative assessment model that emphasizes the importance of students' feedback and guidance to teachers. In addition, the national assessment system in the United States focuses on comprehensive and multivariate assessment, which provides a comprehensive and objective evaluation of students' learning through a variety of assessment methods and tools to help students and teachers understand students' learning effects and progress. In China, with the promotion of education reform, formative assessment has gradually been emphasized. In addition to assessments based on the national evaluation system, many teachers design and apply formative assessment tools and methods, such as writing assignments, oral presentations, group discussions and self-assessments, according to their own teaching objectives and requirements. The development and application of these assessment models all contribute to improving student learning, enhancing the personalization and relevance of teaching, as well as promoting the continuous progress of education^[7].

The experimental and control classes in this study were two classes of undergraduate students in the School of Accounting and Finance, Yunnan College of Economics and Management, class of 2022, with 34 students in the experimental class and 39 students in the control class. The experimental period was in the second semester of the freshman year, and most of the students were preparing for English IV level.

This study utilizes three formative assessment methods, namely, teacher assessment, self-assessment and peer assessment, to construct a formative assessment model for college English writing based on the Internet, and initially determines the model framework: i. The researcher and the teacher confer to draw up the course assessment indexes and assessment criteria; ii. The teacher explains to the students in the classroom and trains the students in grading, so as to make the students clear about the assessment indexes and assessment criteria; iii. The teacher asks the students to complete the first draft of their assignments and submit them to the Critique Network in class; four, students are required to use the Critique Network for self-assessment; five, students are encouraged to revise their compositions with reference to the Critique Network evaluation and make multiple submissions; six, the teacher organizes students to evaluate each other in the classroom under the mutual evaluation mode of the Critique Network, in which students point out the strengths and weaknesses of their peers' compositions, discuss them and express their opinions; seven, students revise their own compositions to submit them to the Critique Network once again; and eight, the teacher and the researchers refer to the Critique.com evaluation; ix, teachers and researchers manually correct students' compositions; x, teachers give feedback and explanations in class for the individual and common problems in the manual correction; xi, teachers make adjustments and refinements to the assessment indexes and assessment criteria, and ask students to reflect, summarize and practice according to the feedback of the manual evaluation, and make timely adjustments in the next stage of learning.

4 Findings

4.1 Reliability Analysis of pigai.org Evaluation and Manual Evaluation

4.1.1 Evaluation Reliability of pigai.org.

The researcher registered a new account and logged into pigai.org, accessed Essay No. 339, randomly selected a student's essay, copied and pasted its content exactly and submitted it under a new account, and pigai.org randomly gave it the same score and comment, as well as a mark of "Similar: 100.00%". The researcher also chose other essay numbers and other students' essays to test, and the results were the same. This shows that the consistency of the marking and feedback presented by pigai.org itself is difficult to be achieved by manual marking.

Table 1. Pearson's correlation coefficient

Pearson correlation coefficient	machine evaluation	person's evaluation
machine evaluation	1.000	0.885
person's evaluation	0.885	1.000

Source of data: data from the results of this study

Cronbach's coefficient, expressed as alpha, is currently the most commonly used reliability index in social science research. the larger the alpha, the higher the reliability of the test subject is considered to be. In basic research, a reliability of 0.80 or more is acceptable; in exploratory research, a reliability of 0.70 or more is acceptable; between 0.70 and 0.98 belongs to high reliability, while less than 0.35 belongs to low reliability and should be rejected^[8]. As shown in Table 1, the experimental results of Cronbach's coefficient reached 0.885, which is between 0.70 and 0.98, and it is high reliability, which is a satisfactory result, indicating that the reliability of the machine score in this experiment is high.

4.1.2 Manual Evaluation of Confidence.

The manual evaluation in the study adopts the two-people mutual reading system, that is, the teacher and the researcher evaluate the same paper without reference to each other and separately, and the rating is taken as the average of the scores given by the two people, which is relatively time-consuming and laborious, but theoretically it can reduce the score error in the marking of the paper to a certain extent and ensure the rating reliability^[9]. In this experiment, the correlation test of 34 groups of teachers' scores and researchers' scores is conducted, and according to Table 2, the experimental result is 0.979, almost close to 1, which indicates that the teachers' scores and researchers' scores have a strong correlation in this experiment, thus verifying the reliability of the manual evaluation in this experiment, and providing a guarantee of the reliability of the manual evaluation in the whole study.

Table 2. Pearson's correlation coefficient

Pearson correlation coefficient	Teacher Ratings	Researcher Ratings
Teacher Ratings	1.000	0.979
Researcher Ratings	0.979	1.000

Source of data: data from the results of this study

4.2 Analysis of the Results of Controlled Experiments

The researcher conducted a paired samples t-test using SPSS 22.0 for the four groups of scores obtained from the experiment and obtained the following three tables. In the tables, sig refers to significance, and the sig value is used to measure how likely the means are equal. sig value less than 0.05 means that the means are equal with less

than 5% probability and unequal with greater than 95% probability, which means that the chances of the means of the two groups of data being equal are relatively small, which in turn means that the difference between the two groups of data is significant. $\text{sig} < 0.05$ also means that the correlation coefficients are statistically significant, that is, the variables are indeed correlated^[10].

The results of the pre and post test of the control class are shown in Table 3, which shows that the $\text{sig}=0.052 > 0.05$ of the pre and post test scores of the control class indicates that there is no significant difference between the two scores, which means that there is no statistically significant change in the students' performance in the control class after one semester of teaching.

Table 3. Paired samples t-tests for pre- and post-test scores in control classes

average value	(statistics) standard deviation	Standard error of the mean	paired differential (math.)		t	f	Sig. (bilateral)
			95% confidence intervals for the difference				
			lower limit	limit			
-2.778	8.278	1.380	-5.579	.023	-2.013	35	0.052

Source of data: data from the results of this study

Table 4. Paired Sample Correlation Coefficients for Pre- and Post-Test Scores in Experimental Classes

	number of individuals	correlation coefficient
Pair 1 pre-test scores & post-test scores	34	0.901

Source of data: data from the results of this study

The controlled experiment (shown in Table 4) proved that the application of the formative assessment model contributed to the steady improvement of students' performance and narrowed the gap between the performance of the advanced students and the average level. In contrast to the experimental class, students in the control class, which followed a traditional teaching program, performed the same exercises during the semester, but the overall level of improvement was not significant enough, and the researcher found that their writing tended to make the same mistakes they had made before.

5 Conclusions

The results of the experiment were obtained after analyzing the reliability of the pigai.org and the results of the controlled trial. First, the reliability of the pigai.org evaluation is more satisfactory in terms of scoring, but less satisfactory in terms of feedback. This study adopts the combination of pigai.org evaluation and manual evaluation to construct a formative assessment model, which exerts the high efficiency of machine critique and makes up for its feedback defects. Second, the controlled experiment proved that the application of the formative assessment model promotes the

steady improvement of students' performance and narrows the gap between the performance of advanced students and the average level. Third, the questionnaire survey proved that the application of the formative assessment model was accepted by students to a certain extent and improved their learning attitudes. Fourthly, regarding the views of formative assessment model, students and teachers' views are that the advantages are dominant and there are still problems and room for improvement.

References

1. He, K. S. On formative versus invisible assessment - three of the highlights that inspire us from the US Handbook of Research on Educational Communication and Technology (Fourth Edition)[J]. *China Electronic Education*, 2020(1):21-23. DOI: 10.3969/j.issn.1006-9860.2020.04.001.
2. Penghui Bi. A Study on the Incorporation of Formative Assessment Model for Micro-mobile Vocabulary Learning in College English[J]. *Foreign language e-learning*, 2017(1): 35-42. DOI: CNKI: SUN: WYDH.0.2017-01-006.
3. Liu Yanyan, Li Yanmei. Research on the blended writing teaching model of college English based on iWrite 2.0 [J]. *Overseas English*, 2022, (09): 173-174+198.
4. Research on the Application of Cong Yuchan. iWrite2.0 in College English Writing Teaching: A Case Study of Hulunbuir College [J]. *Journal of Hulunbuir College*, 2022, 30 (06): 138-142.
5. Dou W. Research on Online and Offline Hybrid Teaching Mode of College English Writing for Non-English Majors Based on iWrite2.0[C]//Shanghai Shinyu Culture Communication Co. Proceedings of 2022 International Conference on Cloud Computing, Big Data and Internet of Things(3CBIT2022). and Architecture; 2022: 6. DOI: 10.26914/c.cnki-hy.2022.073893.
6. Liu Yanyan, Li Yanmei. Research on Blended Writing Teaching Mode of College English Based on iWrite2.0[J]. *Overseas English*, 2022, (09):173-174+198.
7. Xu W. A comparative study of iWrite 2.0 and Criterion online English writing and assessment system based on feedback function[J]. *English Square*, 2022, (14):31-33. DOI: 10.16723/j.cnki.yygc.2022.14.015.
8. Qi Jing. Construction of Multiple Feedback Models for English Writing in Applied Colleges and Universities under the Perspective of Artificial Intelligence: An Empirical Study Based on iWrite2.0 Automatic Writing Review System[J]. *Journal of Yuncheng College*, 2023, 41(06): 71-77. DOI: 10.15967/j.cnki.cn14-1316/g4.2023.06.010.
9. Maggie M, Gavin B. Implementing continuous assessment in an academic English writing course: An exploratory study[J]. *Assessing Writing*, 2022, 53.
10. Fatemeh L S, Hassan S, Hooshang K, et al. The effect of constructive alignment on academic writing using a virtual flipped classroom: Student learning and higher thinking[J]. *Innovations in Education and Teaching International*, 2024, 61(2):329-342.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

