



The Exploration and Practice of Process Assessment of the Online Teaching: A Case Study on Specialty English for Environmental Science and Engineering

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Abstract. Process assessment was one of the important assessment modes which has been put more emphasis in The Overall Plan for Deepening Reformation of Education Assessment in a New Era. This paper summarized the design and implement of the process assessment based on the course of Specialty English for Environmental Science and Engineering. The process assessment was practiced by resetting the assessment time, changing the evaluation methods, and altering the assessment purpose in this course during online teaching. In addition, the effects of process assessment in this course were discussed and the further studies in the future need to conduct were listed in this paper.

Keywords: Process assessment · Online teaching · Specialty English

1 Introduction

The Central Committee of the Communist Party of China and the State Council of China issued The Overall Plan for Deepening Reformation of Education Assessment in a New Era in October 2020, where it states implementing the fundamental task of strengthening moral education and cultivating people, following the education law, and promoting education evaluation reformation systematically (Xinhua News Agency 2020). We should improve outcome assessment and reinforce process assessment for different objects, different study phases, and education types. In order to develop a good learning style, the academic evaluation system of combined outcome assessment and process assessment should be improved (Weng 2021). The exploration and practice of course assessment according to the characteristics of the curricula is not only a need for the reformation of university curriculum teaching, but also an indispensable part in the process of building first-class curricula in the context of information technology.

As one mode which corresponds to outcome assessment, process assessment is also known as formative evaluation that uses feedback to improve the quality of education by diagnosing teaching program and problems in the teaching implementation (Davidson 2004). In the previous teaching process, course assessment was based on outcome

assessment, and the one-off assessment result was used as the criterion for student evaluation at the end of the course. Although the assessment of the usual learning outcome has been introduced in the final curriculum assessment as the education reformation progresses, the process assessment has become a dispensable auxiliary component of the curriculum assessment due to the irregularity and arbitrariness of the assessment in practice (Pan et al. 2020). In the outcome assessment, the learning effects of the course are evaluated through a final examination, which makes students less motivated and more cramming in the usual learning process. This limits the comprehensive, objective, scientific and accurate assessment of student learning outcomes in the curriculum. In response to the shortcomings of traditional summative evaluation, scholars from all over the world have researched and practiced process evaluation from various aspects (Mao 2019). Online teaching mode by means of “Internet + IT” has become the necessary choice for many universities to complete their teaching tasks under the epidemic outbreak condition (Yang et al. 2021). How to effectively implement process assessment in the online teaching process has become a new challenge in the online teaching reformation.

Specialty English for Environmental Science and Engineering is a language extension curriculum offered in addition to University English. It covers the environmental problems in various environmental mediums, the effects of the environmental problems on the human being, and the dominant methods and technologies which were used in the problem-solving at present. This course will help the students to understand the characteristics of professional English and to master large vocabularies in environmental field. In addition, this course helps the students to learn translation methods, translation strategies and translation skills for academic papers based on their professional knowledge that they have learned. It also guides the student to be familiar with the structure and thinking of writing and to improve the students’ ability in the reading and translation. This course is for the students who majored in environmental science and environmental engineering our course group has explored the curriculum assessment based on online teaching.

2 Design and Implementation of Process Assessment

The course of Specialty English for Environmental Science and Engineering has been opened for the major of Environmental Science and Environmental Engineering for more than twelve years in University of Jinan. We have implemented online teaching for two semesters due to the pandemic disease of Covid-19. Our teaching group explored the process assessment reform and practice of this course in the past two years based on the requirement of course assessment reform of Chinese Education Ministry and University of Jinan. Our reform has carried on during the online teaching. We put the emphasis on the assessment time, assessment methods and assessment purpose during the course reform. The detailed rout map is showed in the Fig. 1. Then we will give the detailed introduction about each section in the following paragraph.

2.1 Assessment Time Resetting

The evaluation of the course Specialty English for Environmental Science and Engineering was redesigned based on the existing curriculum resources on the Learning

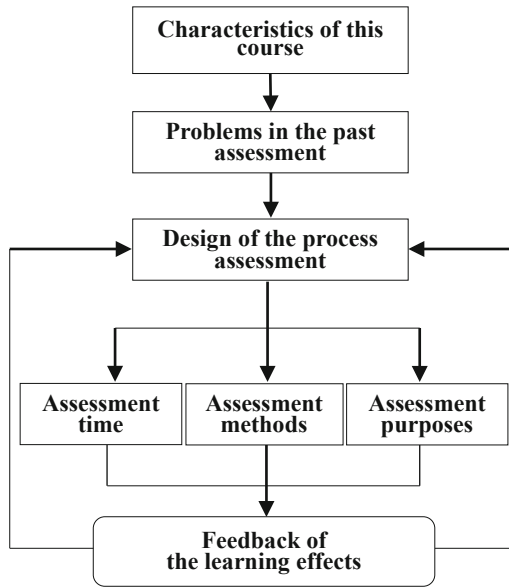


Fig. 1. The road map of assessment reform

Application platform and the online teaching in this semester. We have cancelled the final assessment method and integrated the course assessment into the whole teaching process. The teachers will clearly provide students with the course assessment methods, assessment contents and the proportion of each part before the beginning of the course. Moreover, the teachers should design the assessment time according to the teaching task of the course, the progress of the course and the difficult levels. And the teachers should summarize the situations how the students have completed assessment evaluation. In our course of Specialty English for Environmental Science and Engineering, the course assessment consists of usual assessment and phase assessment. Usual assessment includes attendance, interaction in the classroom and course homework. Usual assessment runs through the whole process of the course learning. The three phase assessments were arranged according to the course teaching tasks. The first phase is after the unit study of “environment”, “environmental science and engineering”, and atmospheric chemistry and air pollution control”; the second phase is arranged after the contents of “water and wastewater treatment”, “solid waste and solid waste disposal study”; the third section is after “other pollution and control technology” and “environmental management and strategy study”. The students can timely understand the learning effect and adjust the learning methods in the following stage study through the summary and analysis of the phase assessment and evaluation. It can also provide feedback for our teaching work so as to adjust our teaching strategies in time.

Table 1. This composition of the different task modes

Composition	Proposition
Phrase mastering	20%
Translate into English	20%
Writing	20%

2.2 The Change of the Evaluation Method

The traditional curriculum evaluation method is single and usually implemented by a final assessment. It has certain limitations to evaluate students' learning effect by the single assessment. For example, it neither comprehensively, objectively and scientifically evaluate the effect of students' usual learning process, nor can it stimulate students' initiative and enthusiasm in daily learning (Wang 2019) (Table 1). In this course, the evaluation methods including attendance and the classroom interaction were introduced into Specialty English for Environmental Science and Engineering in the usual assessment. Combined with the characteristics of the online teaching, In order to examine students' classroom participation with the exception of the irregular signing in the course, we have used the teaching platform of "Rain Class" to ask the questions and check the students' answers. In order to monitor the students' class effect, we interacted with the students through the irregular connection of microphone. Then we took the assessment results into the students' whole assessment. The changes of the evaluation method guide the students put more emphasis on process learning. The diversification of evaluation methods makes the evaluation of the learning effect of each student more comprehensive and reasonable (Table 1). At the same time, the students' learning initiative is enhanced. In addition, the course assignment is also regarded as one of the contents of process evaluation during teaching process. The assignments were altered after the course reform and they are various (Fig. 2). We divided the assignments into mutual translation of basic vocabulary, the long difficult sentence translation and text composition to examine the students' acquisition levels of professional vocabulary, long difficult sentence translation method and writing ability, respectively (Table 1). The contents were integrated into the phase tests.

2.3 The Change of the Evaluation Purpose

In the final assessment, the assessment mode in which the single test score was used as the evaluation of students' learning effects leads to the "utilitarian" of students' learning (Zhang et al. 2017). It is not conducive not only for the cultivation of students' learning interest but also for the cultivation of students' comprehensive quality and ability. There



Fig. 2. The writing assignment during normal test

is much disadvantage for the evaluation purpose to detect the learning effects by the single test score. Firstly, this evaluation purpose loses the incentive effect for the students' learning, which causes students to have anxiety about final evaluation. And because of an unsatisfied one-time assessment, there is no chance for the students to make up and improve their assessment results, which can make students feel frustrated. Accordingly, the students will lose their learning interest and self-confidence. Secondly, after the summative evaluation, the students will no longer study the content of the course, thus, they could not get timely feedback on the learning situations and there is no opportunity for the students to adjust the course learning methods and learning means. While, in the process evaluation, the purposes of assessment are to motivate students' study, help students to regulate and control their study process effectively, obtain the achievement and self-confidence and to enhance their exploring spirit by the various appraisements including students' performance, achievements, and learning attitudes and strategies. During the process evaluation of Specialty English for Environmental Science and Engineering, students' learning effects can be supervised by setting required task through the Learning Platform. At the same time, the learning situations were recorded by sending questions and collecting answers during the Rain Classroom (Fig. 3). The teachers give the feedbacks about the learning effects to the students. The evaluation process focuses on students' continuous learning attitude, learning records and developmental evaluation made by reflection in the learning process. The reform of this assessment evaluation process has also cultivated students' ability of self-supervision, self-communion and the adjustment ability to learn. Thus, it could achieve the purpose to improve learning performance comprehensively.

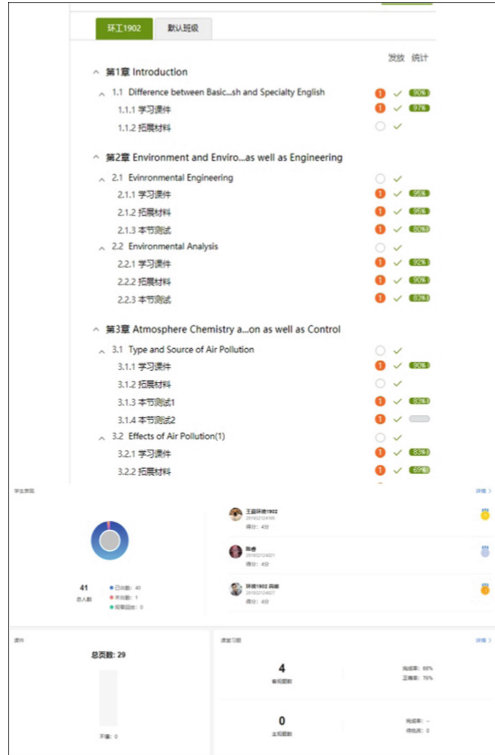


Fig. 3. The Rain Classroom and App Platform

3 Design and Implementation of Process Assessment

3.1 Assessment Time Resetting

As an evaluation method by diagnosing and using feedback information in order to improve the quality of education, the process assessment evaluation has been widely paid concern by scholars at home and abroad because it can diagnose the problems existing in the educational program and process and use feedback information to promote the education quality. Based on educational reform, the CPC Central Committee and the State Council issued a plan to deepen the reform of educational evaluation in the new era, which is enough to indicate that the country put much more emphasis on the process assessment reform. Combined with the practice of current online teaching, we try to design the process assessment for Specialty English for Environmental Science and Engineering and practice it for the students majored in environmental engineering this semester. Through the data collection of the platform website, students' enthusiasm for classroom interaction as well as students' homework and sectional assessment, we can see that the students who have gotten higher total scores are consistent with those with higher enthusiasm for classroom interaction, higher quality of homework completion and excellent performance in section assessment. Students' learning enthusiasm on the

Learning Platform and their ability to learn independently have also been enhanced. The assessment mode has also been popular for the students.

3.2 Further Work for Process Assessment

The process assessment is guided by the thought of formative evaluation and the biggest difference from final assessment is that the evaluation process runs through the teaching process of the course. Moreover, the teachers evaluate the knowledge of the students' learning contents and value-added development of their learned knowledge after completing one teaching task. In addition, the teachers grasp the teaching situation accurately and summarizes the problems that they have found. Therefore, they can take necessary measures to adjust and ensure the realization of teaching objectives and the improvement of teaching quality. In the teaching process of the course of Specialty English for Environmental Science and Engineering, the following work needs to be further carried out and explored:

Firstly, we should rich the teaching resource and rearrange the contents of each phase evaluation scientifically in the process assessment based on the implementation of online teaching. The students could relief from the single examination and pay attention to the learning tasks during process assessment.

Secondly, the teachers should design a more personalized, applied and open-oriented process assessment mode according to the characteristics of language courses, so that the process assessment could play a critical effective role in students' value shaping, knowledge transmission and ability cultivation.

4 Conclusions

The design of the process assessment for Specialty English for Environmental Science and Engineering was implemented combined with the online teaching. The contents of the process assessment including the time, methods and purpose were stated. It will provide the model for the reform of the process assessment.

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