



Research and Analysis on Process Assessment of Compulsory Courses in Universities

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Abstract

This study aims to explore the implementation of process assessment in compulsory university courses and conduct an in-depth analysis. Through literature review and field research, this study systematically reviews the definition, characteristics, and application of process assessment in compulsory university courses. The study found that process assessment can promote student engagement and learning motivation, help comprehensively assess students' learning situations, and improve teaching quality. However, there are also some issues in practical application, such as unclear assessment criteria and untimely feedback. This study also proposes improvement suggestions for these issues, aiming to provide reference and guidance for the implementation of process assessment in compulsory university courses.

Subject Areas

Educational Technology

Keywords

Process Assessment, Comprehensive Quality, Personal Development, Subjective Awareness

1. Introduction

With the development of society and the rapid advancement of information technology, in order to improve the comprehensive quality of undergraduate students, the Ministry of Education issued the "Opinions of the Ministry of Education on Deepening Undergraduate Education and Teaching Reform and Improving the Quality of Talent Training" in 2019, which pointed out the need to improve the academic evaluation system that combines process assessment and result assessment, comprehensively apply various examination forms, and scientifically deter-

mine the proportion of process assessment [1].

Formative assessment emphasizes the mastery and application of knowledge by students during the learning process, which is a very important assessment method in the field of education. Different from traditional end-of-term exams, formative assessment places greater emphasis on students' daily performance and comprehensive abilities, thus better reflecting their learning situation. Formative assessment reforms the assessment method and guides students to change from passive learning to autonomous learning, enabling them to pay more attention to the understanding and application of knowledge in their daily studies rather than simply memorizing knowledge points. Through formative assessment, students can better identify their shortcomings, adjust their learning strategies in time, improve their learning effectiveness, and better promote their comprehensive development.

Foreign researchers have explored the concept of formative assessment from perspectives such as educational philosophy and curriculum theory. They emphasize the significant role of formative assessment in cultivating students' comprehensive qualities and promoting individualized student development. Various formative assessment methods are introduced, such as performance assessment, portfolio assessment, and classroom observation. The application effects and challenges of these methods in actual teaching are also discussed. These researchers advocate combining formative assessment with summative assessment to better reflect students' learning outcomes.

In terms of evaluation methods, they emphasize the importance of diversification, including questionnaires, interviews, observations, and other forms. They focus on the impact of formative assessment on student development and believe that formative assessment helps to cultivate students' autonomous learning, cooperation, and innovation abilities. Foreign researchers emphasize the crucial role of teachers in formative assessment, arguing that teachers should possess high professional qualities to adapt to the requirements of formative assessment [2] [3].

So far, teachers and educational management departments in major domestic universities have paid increasing attention to the process of assessing courses. They have been formulating reasonable teaching outlines and designs based on actual situations and determining the appropriate proportion of process assessment in the comprehensive evaluation of courses. However, in some courses, the process assessment has not truly played its due role. Instead, some teachers just go through the motions with the students, and the students respond perfunctorily to the teachers. Moreover, in some cases, the process assessment of certain courses only stays at the level of formality. As a result, due to the existence of process assessment, students lack motivation and slack off in their learning throughout the semester, leading to a very low pass rate in the final exams. How to truly achieve the goal of "using assessment to assist teaching and using assessment to promote learning" is worthy of deep consideration by educators. Process assessment is essentially a transformation from the "teaching" to the "learning" para-

digm, not just a change in assessment methods [4] [5].

2. Problems Faced by Process Assessment of Courses

Process assessment is an assessment of students' performance and learning process during the course implementation. The basic premise of process assessment is to change traditional teaching and assessment methods, increase students' participation in the teaching process, transform passive acceptance of learning into active inquiry-based learning, and improve teaching quality and effectiveness through bidirectional feedback between teaching and learning. Process assessment of courses has been widely applied in the field of education in China, but it still faces several major problems, including the following:

1) Unclear assessment criteria: Some schools and teachers fail to establish clear assessment criteria and regulations for process assessment, making it difficult for students to accurately grasp the evaluation requirements during the learning process, thereby affecting the fairness and accuracy of the assessment results.

2) Single assessment methods: Process assessment mostly adopts forms such as assignments and quizzes, which are relatively single and cannot comprehensively evaluate students' overall abilities. Furthermore, these traditional assessment methods are susceptible to cheating and plagiarism, which hinders the objective evaluation of students' learning outcomes.

3) Disconnection between assessment content and course objectives: Some process assessment content does not align with the course objectives, resulting in the inability of assessment results to accurately reflect students' learning achievements. Additionally, the assessment content overly emphasizes form over the evaluation of students' actual abilities.

4) Single evaluation entity: Process assessment is often evaluated solely by the teaching faculty, which is easily influenced by the subjective consciousness of the teachers, leading to certain limitations in the evaluation results. Moreover, a single evaluation entity results in a lack of effective supervision in the evaluation process, potentially leading to unfair assessment results.

5) Underutilization of assessment results: Some schools and teachers do not sufficiently apply the results of process assessment, failing to provide timely feedback to students for adjusting their learning strategies. Additionally, the role of the assessment results in evaluating students' comprehensive qualities and talent selection is limited.

6) Outdated technological means: Although process assessment has begun to use modern methods such as online learning platforms, some schools and regions are constrained by technological conditions, unable to fully implement process assessment, thereby affecting the comprehensiveness and fairness of the assessment.

There are still many problems that need to be addressed in process assessment, such as understanding process assessment as segmented examinations, transforming process assessment into de facto non-assessment, the universal application of

process assessment for all courses, the relatively singular nature of the assessment entity, the lack of scientific rigor in process assessment, inadequate quantification of process assessment, and the failure to adjust process assessment based on new teaching reforms (teacher certification, engineering certification, etc.). To address these issues, educational authorities and schools should further improve the process assessment system, explore diversified and personalized assessment methods, fully utilize modern technological means, and enhance the practical effectiveness of process assessment. Additionally, strengthening teacher training and guidance to improve their understanding and implementation capabilities of process assessment is essential to ensure fairness, equity, and effectiveness in assessment [6] [7].

Process evaluation, as an important part of monitoring teaching quality, aims to diagnose problems in the course implementation process and provide a basis for subsequent improvements. However, various issues in the design, implementation, and interpretation of process evaluation often negatively impact actual university courses.

Firstly, the one-sidedness of evaluation indicators may lead to a distortion of course objectives. If the evaluation overly emphasizes quantitative data, such as student evaluation scores, teachers may be forced to simplify teaching content and adopt teaching methods that cater to students' preferences in order to achieve high scores, sacrificing the depth and academic rigor of the course. This "score-oriented" evaluation system can easily lead to the "McDonaldization of teaching," losing the innovation and critical thinking that higher education should possess.

Secondly, the lag in feedback mechanisms may hinder timely improvements in courses. If the results of process evaluation cannot be promptly and effectively communicated to the teaching staff, it becomes difficult for teachers to adjust their teaching strategies during the course to address unexpected issues. For example, if students generally report that a certain part of the content is difficult to understand, but the teacher fails to receive this feedback in time and make adjustments, the problem will continue to affect subsequent learning, reducing the overall teaching effectiveness.

Furthermore, the limitations of evaluation subjects may lead to distorted evaluation results. If the evaluation is solely completed by students, lacking diverse perspectives such as peer reviews and expert interviews, the evaluation results may be influenced by individual biases and personal preferences, making it difficult to reflect the true level of the course. For instance, a teacher who has high expectations for students may receive low evaluations from students due to a heavy workload, but this does not necessarily mean that their teaching quality is poor.

Additionally, the excessive application of evaluation results may lead to a decline in teachers' innovative capabilities. If universities directly link process evaluation results to teachers' promotions and assessments, teachers may choose conservative teaching methods to avoid risks, hesitating to innovate in their teaching, ultimately resulting in rigidity in course content and teaching methods.

3. Better Application of Process Assessment of Courses

Given the challenges faced by process assessment, it is necessary to carefully design the content, forms, and evaluation methods of process assessment and assess students from multiple dimensions, guiding them to focus on the learning process. This approach ensures that grades truly reflect students' actual comprehensive abilities, achieving unity between achievement and capability.

Process assessment should focus on the comprehensive development of students' knowledge, abilities, and qualities, with clear assessment objectives to ensure that the assessment content aligns with the course goals. Based on the characteristics of the course and student needs, a scientific and reasonable assessment plan should be formulated, including assessment forms, score distribution, assessment timing, and other aspects. Taking into account the course's characteristics, various forms of assessment methods should be adopted, such as classroom participation, assignments, group discussions, practical teaching, and online learning, to comprehensively evaluate students' learning outcomes. Clear assessment standards and requirements should be set for different assessment forms to ensure the fairness and accuracy of evaluations [8] [9].

During the assessment process, teachers should provide timely feedback to students on their assessment results, helping them understand their learning status and guiding them to adjust their learning strategies. Process assessment should emphasize the students' active role, encouraging their active participation in teaching activities and leveraging their initiative and creativity. Teachers should strengthen the supervision and management of students' learning process to ensure their active participation in various teaching activities, thereby enhancing the effectiveness of the assessment.

Modern means such as online teaching platforms and learning apps should be fully utilized to implement online assessment and interactive communication, improving the convenience and comprehensiveness of process assessment. Combining online and offline teaching expands the time and space of teaching, enriches teaching methods, and enhances the effectiveness of process assessment. Based on the implementation of process assessment, experiences should be continuously summarized, assessment plans optimized, and the continuous improvement of course teaching promoted.

Teachers can better apply process assessment of courses, guiding students to shift from primarily knowledge-based learning to the integrated improvement of knowledge, abilities, and qualities, thereby enhancing the quality of education and teaching. To conduct effective formative assessment, teachers should focus on the following professional skills and training: a comprehensive understanding of various assessment methods, including formative, diagnostic, and summative assessments; the ability to collect, analyze, and interpret assessment data to understand student learning progress; the provision of timely, effective, and personalized feedback to help students improve; effective communication of assessment results and improvement strategies with students, parents, and colleagues; and regular

reflection on their own assessment practices to continuously improve assessment methods.

There are many details and considerations in process assessment. Firstly, teachers need to develop clear process assessment plans, including assessment content, methods, grading criteria, and other aspects. Secondly, teachers need to focus on training students' comprehensive and practical abilities in their everyday teaching, gradually enhancing students' application skills. Finally, students need to take each process assessment seriously, adequately prepare, and continuously improve their learning levels.

The benefits of process assessment lie in its ability to better reflect students' learning situations, helping them identify their shortcomings in a timely manner and improve their learning effectiveness. Additionally, process assessment can encourage students to participate more actively in classroom interactions and learning activities, fostering their comprehensive and practical abilities.

4. Design of Process Assessment Content for Courses

The content of the process assessment needs to be based on the course objectives and characteristics. For the course of Network Technology and Applications, the process assessment content mainly includes discussion and design, as well as basic and comprehensive experiments. The assessment content covers the main knowledge points of the course, is organically integrated with the teaching content, and runs through the entire teaching process.

Discussion and design are the main components of interactive teaching, primarily focusing on the core knowledge points of the course for assessment content design. The design of assessment content needs to consider several key issues: 1) The assessment content should guide students to deeply understand the basic theories and methods they have learned, avoiding simple repetition and memorization of knowledge points; 2) The assessment content should be based on the knowledge points learned by students while leaving room for thinking. It can appropriately set some open-ended questions without standard answers to cultivate students' innovative consciousness; 3) The assessment content should be specific and practical, using specific scenario examples to stimulate students' interest and provide positive feedback [10]-[14].

The process assessment content should be closely aligned with the course objectives to ensure consistency between the assessment content and the course objectives. The process assessment content should adopt various forms, such as classroom participation, assignments, group discussions, practical teaching, and online learning, to comprehensively evaluate students' performance in terms of knowledge, abilities, and qualities. The process assessment content should have certain stages and continuity to ensure effective evaluation of students at different stages of the course. It should emphasize the cultivation of students' practical and application abilities, combining theoretical knowledge with practical application. The process assessment content should encourage students to actively participate

in teaching activities, enhancing their interactivity and engagement. It should provide timely feedback to students on assessment results, helping them understand their learning status and make corresponding adjustments and improvements based on the feedback. The process assessment content should have strong flexibility and operability to adapt to different students' learning needs and teaching conditions. Clear assessment standards and requirements should be set to ensure the fairness and accuracy of evaluations.

During the course process assessment, it is important to clearly plan the overall process assessment, including assessment forms, score distribution, and assessment timing. Based on the course content and teaching objectives, specific assessment tasks should be designed, such as classroom questioning, group discussions, practical projects, etc. Clear assessment criteria should be set for different assessment tasks to ensure the fairness and accuracy of evaluations. The method and basis of assessment scoring should be clearly defined to ensure the consistency and repeatability of the scoring process. The process assessment should be carried out in an orderly manner according to the assessment plan. During the assessment process, feedback on assessment results should be provided to students to help them understand their learning status. Summarize and analyze the assessment results, identify problems, and propose improvement measures to continuously optimize the process assessment plan.

For example, in the teaching of advanced mathematics at the university level, process assessment can be applied in the following ways. Assessing students' classroom participation, including questioning, discussions, and answers, to understand their enthusiasm and understanding of the course content. Periodic comprehensive tests, such as essays, research reports, case studies, and learning summaries, evaluate students' mastery of knowledge and application abilities according to the course teaching arrangement. Assessing the quality of students' completion of homework, including problem-solving abilities, thought processes, and clarity of argument, to understand the effectiveness of students' self-study after class. Organizing group discussions for students to explore advanced mathematical issues, and assessing their teamwork, active thinking, and problem-solving abilities. Arranging practical operations for students, such as using mathematical software to solve real-world problems or completing experimental reports, to evaluate their practical abilities and innovative consciousness. Combining online teaching platforms to assess students' progress and participation in online learning, as well as the quality of online Q & A and discussions. Organizing mid-term and final exams in a closed-book format to comprehensively assess students' mastery of course knowledge.

Effectively integrating online platforms into process evaluation can be considered mainly from the following aspects. Use platforms like Google Forms, Survey-Monkey, or Typeform to create online questionnaires and collect feedback from students, teachers, and parents to understand their perspectives on the teaching process, curriculum design, and learning experience. This is more efficient than

traditional paper questionnaires and facilitates data analysis.

Create dedicated online forums or use the discussion features of existing Learning Management Systems (LMS) to encourage students to share learning insights, ask questions, and answer each other's questions. Teachers can observe the discussion content to understand students' knowledge mastery and learning difficulties.

Use blogs, Google Docs, or dedicated learning log platforms to allow students to regularly record their thoughts, reflections, and problems encountered during the learning process. This helps teachers understand students' learning processes and thinking patterns. Utilize LMS or online quiz platforms (such as Quizizz, Kahoot!) for formative assessment to quickly understand students' comprehension and adjust teaching strategies accordingly.

Spreadsheet Software: Use tools like Google Sheets or Microsoft Excel to organize, statistically analyze, and analyze the collected data. These tools can help teachers identify patterns and trends in the data, thereby understanding the strengths and weaknesses of the teaching process. Use tools like Tableau Public, Google Data Studio, or Chart.js to visualize data, such as creating charts and graphs. This helps to present evaluation results more intuitively and showcase them to stakeholders.

Create online reports or dashboards to display evaluation results and share them with students, teachers, parents, and school management. This can improve the transparency and accessibility of evaluation results. Record videos demonstrating the evaluation process and results and share them on the school website or social media platforms. This can present evaluation results more vividly and attract more attention. Use tools like Zoom, Google Meet, or Microsoft Teams to hold online meetings to discuss evaluation results with stakeholders and develop improvement plans.

For schools with limited resources, the following strategies can be adopted to implement online platforms for process assessment. Utilize free online platforms and tools as much as possible, such as Google Forms, Google Sheets, Quizizz, etc. These tools are powerful and easy to use, meeting most process assessment needs. Provide teacher training to help them master the use of online platforms and understand how to apply them in teaching practice. Experienced teachers or experts can be invited for training, or online tutorials and resources can be utilized for self-study. Encourage students to actively participate in online assessment activities, allowing them to appreciate the value and significance of online assessments. Some reward mechanisms can be established to motivate students to take assessment tasks seriously. Actively seek external resources, such as collaborating with universities, research institutions, or educational technology companies to obtain technical support and training resources.

5. Conclusions

The use of process assessment employs various evaluation methods such as class-

room participation, assignments, group discussions, etc., which helps comprehensively assess students' performance in terms of knowledge, abilities, and qualities. Process assessment focuses on different stages of the course, providing continuous evaluation and feedback to students throughout the learning process, which helps stimulate learning motivation and adjust learning strategies. It emphasizes the cultivation of students' practical and applied abilities, combining theoretical knowledge with practical application, enhancing the practicality and relevance of the course.

Process assessment encourages active participation in teaching activities, enhancing students' interactivity and engagement, and contributing to a positive classroom atmosphere. Timely feedback of assessment results to students helps them understand their learning status and make necessary adjustments and improvements based on the feedback.

Effective process assessment plays an important role in guiding students to engage deeply in the course and cultivating their comprehensive abilities. Process assessment is not an isolated process, requiring a detailed design of assessment content in combination with the objectives and characteristics of the course, integrating assessment methods with teaching content and teaching modes, running through the entire course teaching process. Teaching practice has shown that process assessment can guide students to actively participate in the teaching process, fully mobilize students' learning enthusiasm, stimulate deep thinking and emotional involvement, and enhance students' comprehensive abilities.

In process assessment, unified evaluation standards should be established for different assessment methods to ensure the fairness and accuracy of evaluations. Reasonable process assessment tasks should be designed based on the course content and teaching objectives, ensuring a comprehensive reflection of students' performance in the course. Considering students' learning abilities and stress tolerance, assessment timing should be reasonably arranged to avoid excessive concentration. Improving teachers' understanding and evaluation capabilities of process assessment, strengthening supervision to ensure the fairness and objectivity of the evaluation process. Enhancing communication and feedback between teachers and students to help students understand their learning status and improve learning effectiveness.

By combining the characteristics of the course, exploring more effective process assessment methods such as online learning and practical teaching can enhance the relevance and practicality of assessment. Strengthening communication and feedback between teachers and students helps students understand their learning status and improve learning effectiveness.

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Conflicts of Interest

The authors declare no conflicts of interest.

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