

Exploration of Value-added Evaluation of Architecture Majors Based on Higher Vocational Colleges and Universities

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Received: 12 March 2024; **Accepted:** 2 April 2024; **Published:** 22 April 2024

Abstract:

This study addresses the exploration of value-added evaluation methods in the architecture programme of higher vocational colleges and universities, aiming to respond to the needs of educational evaluation reforms, especially in terms of enhancing the quality of education and promoting the all-round development of students. By reviewing the theoretical background and practical challenges of value-added evaluation, the study clarifies its position and role in the educational evaluation system, with particular emphasis on the importance of promoting individual learning progress and educational equity. The study identifies the main challenges in practice, such as the setting of evaluation criteria, the selection of evaluation methods, and the complexity of data processing, and explores the impact of these challenges on the implementation of value-added evaluation. An adaptive value-added evaluation model is proposed to address the characteristics of the architecture programme in higher education institutions. The model takes the comprehensive development of students' abilities as the core, takes into account the multi-dimensional growth of students' abilities such as knowledge mastery, skill application, and innovative practice, and emphasises the combination of process evaluation and outcome evaluation, aiming to accurately reflect the actual effects of educational and teaching activities. In addition, the study explored specific strategies for implementing value-added evaluation, including the construction of a diversified evaluation index system, the adoption of mixed evaluation methods, and the strengthening of teachers' evaluation competence training. It is emphasised that in order to achieve a long-term mechanism, it is necessary to establish a sound evaluation feedback and improvement system, form a university-wide consensus on the concept of value-added evaluation, and strengthen the connection with the construction industry to ensure that the evaluation content is closely aligned with the needs of career development. This study provides theoretical significance and practical value for the reform and development of the educational evaluation system of construction majors in higher vocational colleges and universities, aiming to optimise the quality of vocational education, and provides useful references and lessons.

Keywords:

Higher Education Institutions, Construction Programmes, Value-Added Evaluation, Educational Quality Improvement, Evaluation Implementation Strategies

1. Introduction

In the field of education in the 21st century, with the diversification and complexity of society's demand for talents, the reform of the education evaluation system has become a focus of global attention. Especially in the field of vocational education, how to cultivate technical and skilled talents with both professional skills and innovation ability through a scientific and reasonable evaluation system is an important challenge faced by educators. In October 2020, the Overall Programme for Deepening the Reform of Educational Evaluation in the New Era issued by the Central Committee of the Communist Party of China and the State Council clearly pointed out that it is necessary to improve the system and mechanism of establishing a moral character, improve the evaluation of the results, strengthen the process of evaluation, and establish a more scientific and reasonable educational evaluation system. evaluation, explore value-added evaluation, and establish a more scientific and reasonable education evaluation system [1]. The release of this policy not only points out the direction for the reform of China's education evaluation system, but also provides important theoretical support for the evaluation reform in the field of vocational education.

In this context, the education evaluation reform of higher vocational colleges and universities, as an important part of the vocational education system, is particularly crucial. In particular, the evaluation reform of the construction profession, as one of the important professions in higher vocational education, is not only related to the overall development of students, but also to the improvement of the quality of vocational education and the social demand for highly skilled personnel [2]. Therefore, this study aims to explore the implementation scheme of value-added evaluation for architectural majors in higher vocational colleges, and through the theoretical research and practical exploration of value-added evaluation, it aims to provide scientific and practical strategies and methods for the educational evaluation reform of architectural majors in higher vocational colleges.

Value-added evaluation, as an emerging mode of educational evaluation, pays more attention to the process and development of evaluation than traditional result-oriented evaluation, and stresses the attention to the growth of students' ability in the learning process rather than the single learning result. This evaluation model is conducive to promoting students' personalised development, stimulating students' learning initiative and creativity, and helping to cultivate students' comprehensive quality. In construction professional education, value-added evaluation can better evaluate and promote the improvement of students' professional skills, innovation and practical ability, which helps students adapt to the development needs of the construction industry in the future.

However, the application of value-added evaluation in the construction majors of higher vocational colleges still faces many challenges and difficulties. How to scientifically define and quantify "value-added", how to establish effective evaluation indexes and evaluation system, how to deal with various subjective and objective factors in the evaluation process, and how to effectively integrate value-added evaluation into daily teaching and student evaluation are all issues that need to be thoroughly explored and solved [3]. In addition, the implementation of value-added evaluation requires the joint efforts of teachers, school administrators and policy makers, and it is necessary to jointly promote the implementation of value-added evaluation in higher vocational colleges and universities in the field of architecture

through a variety of measures such as policy guidance, professional training and system design.

In summary, this study aims to provide new ideas and methods for solving the current problems in vocational education evaluation through an in-depth exploration of the theory and practice of value-added evaluation in construction majors in higher vocational colleges and universities [4]. By exploring the scientific and reasonable implementation scheme of value-added evaluation, it aims to promote the comprehensive development of students in construction majors in higher vocational colleges, improve the quality of vocational education, and cultivate more high-quality technical and skilled talents in the construction industry for the society.

2. Related Work

In the process of exploring the implementation plan of value-added evaluation for the construction profession in higher vocational colleges and universities, an in-depth understanding and analysis of related work has become an indispensable part of the process. This involves not only extensive sorting out of value-added evaluation theories and practices at home and abroad, but also critical thinking about current evaluation methods in vocational education and a deep understanding of the unique needs and challenges of architecture majors [5]. Through the comprehensive analysis of these related works, this study aims to provide an operational and practical value-added evaluation model for the construction profession in higher vocational colleges.

First of all, international research and practice on value-added evaluation already have a relatively mature theoretical foundation and rich experience. In developed countries such as the United Kingdom and the United States, value-added evaluation is widely used in the public education system, aiming to more accurately assess the effectiveness of school education, especially its important role in improving the fairness of education. By constructing complex statistical models and attempting to remove the influence of external factors such as family background and socio-economic status from students' learning outcomes, these countries seek to evaluate the enhancement of students' abilities by schooling itself [6]. Although there are certain controversies and challenges in the operation of this method, it is of great significance in guiding the formulation of education policies and promoting the improvement of education quality.

Second, in China, with the deepening of educational evaluation reform, more and more researchers and educational practitioners have begun to pay attention to the value-added evaluation model. In the field of general higher education and primary and secondary education, there is a gradual increase in value-added evaluation-related research, but there is still relatively little research in vocational education, especially in the field of architecture in higher vocational colleges and universities [7]. Domestic scholars mainly start from the perspectives of education fairness and education quality improvement to explore how to build a value-added evaluation model in line with China's national conditions, and how to promote teachers' teaching reform and improve students' comprehensive quality through value-added evaluation. These studies provide important theoretical support and practical guidance for this paper.

Furthermore, in view of the specificity of architectural professions, the related work also includes the analysis of the unique needs of architectural education. Architecture professional education not only requires students to master solid theoretical knowledge, but also needs to have strong practical ability and innovation ability.

Therefore, the evaluation system needs to be able to comprehensively reflect the growth of students in terms of professional knowledge, practical skills and innovation ability [8]. In addition, the rapid development of the construction industry has also put forward new requirements for the education and evaluation system, and how to integrate the latest industry needs and technology development trends into the evaluation system has become a key consideration for related work.

Finally, the related work also involves how to overcome the challenges that value-added evaluation may encounter in the process of implementation, including the scientific setting of evaluation indicators, the effectiveness of evaluation methods, and the application of evaluation results [9]. This requires combining successful experiences at home and abroad, and constantly optimising and improving the value-added evaluation model through the combination of scientific research and educational practice.

In summary, through the in-depth analysis of the theory and practice of value-added evaluation at home and abroad, combined with the characteristics and needs of professional education in architecture, this study seeks to build a scientific, practical and effective value-added evaluation model for architectural majors in higher vocational colleges and universities. This will not only provide new perspectives and methods for the evaluation of architecture professional education, but also provide theoretical and practical support for promoting the improvement of the quality of vocational education and the deepening of education evaluation reform.

3. Specific Reform Elements

The introduction of value-added evaluation in the educational evaluation system of construction majors in higher vocational colleges and universities is not only a supplement to and improvement of the existing educational evaluation model, but also an important measure to promote the reform of vocational education, realise educational fairness and improve the quality of education. The specific reform involves both teacher evaluation and student evaluation, aiming to build a more comprehensive, fair and developmental evaluation system.

Firstly, for the reform of the teacher evaluation system, the traditional evaluation method over-emphasises scientific research results, such as thesis publication and project application, while neglecting the importance of teaching quality and teaching input. To solve this problem, the reform should focus on establishing an evaluation system that balances research and teaching [10]. Specific approaches may include increasing the weight of teaching effectiveness in teachers' performance evaluation, such as assessing teachers' teaching effectiveness through student feedback, peer review and teaching observation. At the same time, indicators such as teaching innovation and textbook development should be introduced to encourage teachers to contribute to improving the quality of teaching and promoting the all-round development of students. In addition, the evaluation of teachers' contribution to students' value-added should also be considered, i.e. teachers' teaching effectiveness should be evaluated indirectly by comparing students' academic progress, so as to promote teachers to pay more attention to students' individual development and improve teaching quality [11].

Secondly, the reform of the student assessment system should shift from focusing on results to focusing on process and development, and pay attention to the process of adding value to students' abilities. The traditional practice of using scores as the main

evaluation criterion often ignores students' efforts and progress in the learning process, as well as individual differences. The core of the reform is to build a diversified assessment system which includes not only academic performance but also non-academic achievements such as students' skills acquisition, practical ability, creativity and sense of social responsibility. For example, students' practical skills and problem-solving abilities are evaluated through project-based learning, teamwork and social practice activities. Meanwhile, self-evaluation and peer evaluation are introduced to encourage students to self-reflect and learn from each other to promote their all-round development [12]. The introduction of value-added assessment, that is, the assessment of students' progress and value-addedness in the learning process by comparing their abilities at the time of enrolment and at the time of graduation, can reflect the effectiveness of education in a more impartial and comprehensive manner.

In addition, the reform needs to pay attention to the individualisation and differentiation of student assessment. Taking into account the diversity and complexity of the student population in vocational education, personalised learning pathways and assessment methods should be provided in accordance with students' individual characteristics and career development needs. By setting different learning objectives and evaluation standards, students are allowed to choose the learning content and progress that suits them according to their interests and abilities, so as to achieve tailor-made teaching and promote the maximum development of each student.

In conclusion, the reform of value-added assessment of architectural majors in higher vocational colleges and universities aims to achieve educational equity and improve the quality of education by optimising the evaluation system for teachers and students, paying more attention to teaching quality and the overall development of students. This requires the joint efforts of school management, teachers and students to form a new system of student-centred, process- and value-added educational evaluation.

4. Reform Objectives

In the current educational environment, the goal of the value-added evaluation reform for construction majors in higher vocational colleges and universities is mainly to better adapt to the needs of social development and to achieve the high-quality development of vocational education. This reform should not only focus on the improvement of students' knowledge and skill level, but also deepen the education evaluation system to make it more comprehensive and reasonable, thus promoting the overall development of students and improving the fairness and effectiveness of education.

First of all, one of the core objectives of the reform is to achieve diversification and comprehensiveness in education evaluation. The traditional education evaluation system focuses too much on written examinations and the evaluation of theoretical knowledge, neglecting non-academic aspects such as students' practical ability, innovation and social responsibility. Therefore, value-added evaluation reform requires the construction of a more comprehensive evaluation system, which not only includes academic achievements, but also covers students' vocational skills, teamwork, innovative thinking and other aspects of ability [13]. Through such an evaluation system, students' learning outcomes and development potential can be reflected more comprehensively to promote their all-round development.

Secondly, the reform aims to improve the fairness and scientificity of education assessment. Due to the differences in students' backgrounds, abilities and interests, it is often difficult to achieve true fairness with the traditional uniform assessment criteria. Therefore, the reform of value-added assessment requires the introduction of personalised and differentiated assessment methods, and the formulation of more reasonable assessment standards and methods based on the actual situation and personal characteristics of students. For example, by introducing forms of student self-evaluation and peer evaluation, the diversity and participation of evaluation can be enhanced, thus improving the fairness and scientificity of evaluation.

Furthermore, the reform also aims to promote innovation in teaching methods and content. Under the guidance of value-added evaluation, teachers are encouraged to adopt more flexible and diversified teaching methods, such as project-based learning and case-based teaching, to cater for the learning needs and learning styles of different students. At the same time, the teaching content should also focus more on practice and application, strengthen students' vocational skills training, and improve their ability to solve practical problems. Through these reforms, students' interest in learning and potential for innovation can be stimulated, and the effectiveness of education can be enhanced.

Lastly, the reform of value-added assessment also aims at strengthening the humanistic concern and social responsibility of education. Through the reform, schools and teachers are encouraged to pay attention to the personality development and mental health of every student, and to promote students' self-knowledge and self-worth. At the same time, it enhances students' sense of social responsibility and ability to serve the society, and cultivates technical and skilled talents with good professional ethics and social responsibility.

In conclusion, the goals of value-added evaluation reform of construction majors in higher vocational colleges and universities are multifaceted, aiming to promote the overall development of students, improve the quality and effectiveness of education, and ultimately realise a high degree of matching between vocational education and the development needs of the society through the establishment of a more comprehensive, fair and scientific education evaluation system.

5. Implementation Programme

The specific programme to explore the implementation of value-added evaluation in the construction majors of higher vocational colleges and universities is aimed at addressing the many challenges facing vocational education at present, such as the singularity of teachers' evaluation, the superficiality of students' evaluation and the incompleteness of the educational evaluation system. This programme is not only in line with the guiding ideology of the Overall Programme for Deepening Educational Evaluation Reform in the New Era, but is also a practical action to deepen the reform of the evaluation system of vocational education.

First of all, this programme focuses on the popularization and cultivation of the concept of value-added evaluation, aiming to change the long-standing evaluation habits of vocational colleges that emphasize research over teaching, and to improve the ability of all teachers to implement value-added evaluation in their daily teaching by enhancing their understanding of the concept of value-added evaluation. Educational administrators need to organise a series of trainings and seminars to gain an in-depth understanding of the meaning and importance of value-added assessment

and how to effectively apply it in teaching practice, paying attention to students' individual differences and personal development trajectories. This process not only requires teachers to make adjustments in their teaching strategies, but also requires them to make changes in their mindset so as to better promote the all-round development of students.

Secondly, this programme proposes to pay attention to students' individual learning process in teaching practice and to reduce simple comparisons of students' learning outcomes. This means that the centre of gravity of educational assessment should shift from the traditional result-orientation to process-orientation, paying more attention to students' progress and growth in the learning process. In concrete implementation, the progress of students in the learning process can be recorded and reflected through the establishment of student learning files, the use of formative assessment tools, and the conduct of peer assessment and self-evaluation, so as to evaluate students' learning outcomes more comprehensively and objectively.

Once again, evaluation reform for teachers is also the focus of this programme. The goal of the reform is to break the traditional evaluation mechanism based on scientific research results and to establish a fairer and more comprehensive evaluation system for teachers. This system will encompass teaching, research, social services and other aspects. Among them, the evaluation of the teaching part will focus more on the quality and effectiveness of teachers' teaching, as well as their contribution to promoting students' value-added. In addition, teachers' personal development and creativity will also be an important part of the evaluation, so as to motivate teachers to continuously improve their teaching and learning.

Finally, this programme emphasises the need to establish a set of scientific and systematic value-added evaluation tools and methods, which includes the use of modern information technology tools, such as big data analytics and artificial intelligence, to collect and analyse students' learning data in order to more accurately capture small changes and value-added in the process of students' learning. At the same time, a corresponding feedback mechanism needs to be established to provide timely feedback of evaluation results to teachers and students as a basis for teaching adjustments and learning improvements.

In summary, by implementing this value-added assessment programme, not only can it more accurately assess and promote the individual development of students, but also motivate teachers to pay attention to the overall growth of students, thus promoting the overall improvement of the quality of education in vocational colleges and universities. This reform will be a systematic project that requires the joint efforts and continuous exploration of all educational participants.

6. Feasibility Analysis

In the process of exploring the implementation of a value-added assessment programme for construction in higher education institutions, conducting a feasibility analysis is a crucial step. This analysis aims to ensure that the proposed programme can be effectively implemented in a realistic educational environment while achieving the desired reform objectives. Value-added evaluation, as an emerging educational evaluation method, faces a series of challenges and opportunities for its application in the architectural profession in higher vocational colleges and universities.

First of all, from the perspective of the support of education policy, in recent years, China's education sector has emphasised deepening the reform of the education evaluation system, encouraging schools at all levels and in all categories to explore and practice more scientific and fair evaluation methods. The release of the Overall Programme for Deepening Educational Evaluation Reform in the New Era provides policy guidance and a theoretical basis for the promotion and application of value-added evaluation. This background not only provides a good external condition for the implementation of value-added evaluation, but also lays a solid policy foundation for its promotion in the architectural profession of higher vocational colleges.

Secondly, from the viewpoint of the capacity of the implementation body, higher vocational colleges and universities have relatively perfect educational and teaching resources, including professional teaching teams, rich educational and teaching facilities and relatively mature teaching management experience. These provide the necessary conditions for the effective implementation of value-added evaluation. In particular, the architecture profession, with its strong practicality and applicability, needs to pay more attention to students' personalised development and ability enhancement, which is highly compatible with the core concept of value-added assessment. Therefore, from the perspectives of resources and capabilities, higher vocational colleges and universities are fully equipped to carry out practical exploration of value-added assessment.

However, the implementation of value-added assessment also faces certain challenges. Firstly, the concept and methodology of value-added assessment are relatively new, and teachers need to be provided with professional training to enhance their understanding and application of value-added assessment. This process may involve changes in teachers' concepts and adjustments in teaching methods, and requires some time and effort. Secondly, value-added assessment requires comprehensive and detailed tracking and recording of students' learning process, which puts higher demands on schools' teaching management systems. How to effectively collect, process and analyse a large amount of education and teaching data is a technical problem that needs to be solved in the implementation of value-added assessment.

Nevertheless, with the development and application of education information technology, the above challenges can be overcome. Modern information technology, especially big data, cloud computing and artificial intelligence, provides new means and tools for education evaluation. By building an intelligent education evaluation platform, dynamic tracking, analysis and feedback of students' learning process can be effectively achieved, thus improving the efficiency and accuracy of value-added evaluation.

To sum up, from the viewpoint of policy environment, school conditions, technical support and other aspects, the programme of implementing value-added evaluation for architecture majors in higher vocational colleges has high feasibility. Although some challenges may be encountered in the implementation process, they can be effectively solved through systematic training, scientific management, and the support of modern technology. Therefore, it is reasonable to believe that value-added evaluation can be successfully implemented in the architectural programme of higher vocational colleges and universities, providing strong support for improving the quality of vocational education and promoting the all-round development of students.

7. Conclusions

In this study, we have deeply explored the theoretical basis, implementation strategy and possible challenges of value-added evaluation of architectural majors in higher vocational colleges. By comprehensively analysing and summarizing the relevant literature at home and abroad, and combining with the specific teaching practice of architectural majors, this study attempts to construct a value-added evaluation model that meets the characteristics of architectural majors, with a view to providing references and lessons for the reform of educational evaluation of architectural majors in higher vocational colleges and universities.

Firstly, this study confirms the importance of value-added evaluation in promoting the quality of education for architecture majors in higher vocational colleges and universities. By focusing on students' individual progress and learning process, value-added evaluation can evaluate the effectiveness of educational and teaching activities in a more fair and comprehensive way, which helps to discover and cultivate students' potential and promote their all-round development. In addition, value-added assessment can also motivate teachers to pay attention to the teaching process and individual differences of students, thus improving the quality and effectiveness of teaching.

Second, by analysing the practice of value-added assessment at home and abroad, this study finds that, despite the significant advantages of value-added assessment in theory, it still faces many challenges in the process of practical application. These challenges include how to define value-added scientifically, how to construct a reasonable evaluation index system, and how to handle evaluation data. Therefore, this study proposes that higher vocational colleges and universities need to take full account of professional characteristics and teaching practice when implementing value-added evaluation, adopt flexible and diverse evaluation methods, and at the same time improve the scientificity and accuracy of evaluation with the help of modern information technology means.

Further, this study also explores specific strategies for the implementation of value-added evaluation in architectural specialties in higher vocational colleges. These strategies include the establishment of a student-centred evaluation concept, the construction of a diversified evaluation index system, the adoption of mixed evaluation methods, and the strengthening of teachers' evaluation competence training. These strategies are intended to provide guidance and support for the effective implementation of value-added evaluation of architectural majors in higher vocational colleges and universities.

Finally, this study argues that an inclusive educational evaluation culture also needs to be constructed in order to achieve long-term development and sustainable optimisation of value-added evaluation of architecture majors in higher vocational colleges and universities. This requires the participation of school administrators, teachers, students, and relevant stakeholders to form a consensus on the concept of value-added evaluation and to establish a sound evaluation feedback and improvement mechanism. At the same time, it is also necessary to strengthen the connection with the industry, constantly adjust and optimise the evaluation standards, and ensure that the evaluation content is closely aligned with the needs of career development.

In summary, although the value-added evaluation of construction majors in higher vocational colleges and universities faces many challenges, it is expected to become an effective means to promote the quality of education and cultivate high-quality technical and skilled talents through reasonable design and implementation strategies. Future research should further explore the best practices of value-added evaluation, continuously deepen theoretical research, enrich practical experience, and provide solid theoretical and practical support for the reform and development of education evaluation in higher vocational colleges and universities.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

Funding

This work was supported by Guangdong Construction Polytechnic-Special Project on Scientific Research for Deepening Educational Evaluation Reform in the New Era (KY-2022-33).

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