

Teacher Characteristics and Teaching Quality and Evaluation

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There is a correlation between teacher characteristics and the quality of teaching. Teacher characteristics have a significant impact on the quality of teaching and learning, highlighting the importance of teacher and curriculum characteristics in improving the quality of education. Other factors such as classroom interactions, communication skills, ability to maintain good relationships, teaching methods and cognitive and affective factors can also play a role in the quality of teaching.

teaching quality

Teacher Characteristics

teaching evaluation

1. Introduction

Improving the quality of undergraduate education requires improving teaching and learning across the curriculum. However, the quality of teaching varies from faculty to faculty and course to course. Scholars [\[1\]\[2\]\[3\]\[4\]\[5\]\[6\]\[7\]\[8\]\[9\]\[10\]\[11\]\[12\]\[13\]\[14\]\[15\]\[16\]\[17\]\[18\]\[19\]\[20\]\[21\]\[22\]\[23\]\[24\]\[25\]\[26\]\[27\]\[28\]](#) have investigated the relationship between the quality of course teaching and the educational background, degrees, titles, gender, age, teaching experience, teaching content knowledge (PCK), technical knowledge (TK), and teaching methods of faculty members, gender, age, teaching experience, pedagogical content knowledge (PCK), technical pedagogical content knowledge (TPACK), teacher burnout, teaching style, academic performance, course difficulty, course type, and teaching evaluations, among other factors. These studies have shown that there is a complex relationship between course instructional quality and characteristics of the instructor and the course object. However, research has yet to reveal the nature and patterns of these relationships due to inadequate computer technology, insufficient data support, and theoretical and practical difficulties in integrating educational technology in the era of offline teaching.

The introduction of the new generation of information technology, particularly artificial intelligence (AI), has had a significant impact on teaching and learning, making course informatics and teaching the norm and generating huge amounts of data. Computational pedagogy [\[29\]\[30\]\[31\]\[32\]\[33\]\[34\]\[35\]](#) is an educational research paradigm based on the computation of massive data, which has become an important method for educational research. It aims to construct educational theories, solve educational problems, reveal the laws of teaching and learning, explore the nature and laws of education in depth, and apply data, algorithms and technologies effectively in educational practice. This shift in the perspective and value of educational research provides new research methods and approaches to reveal the covariation between teacher characteristics and curriculum quality.

2. Correlation between teacher characteristics and teaching quality and evaluation

(1) Teacher characteristics and teaching quality.

Several studies have examined the relationship between teacher characteristics and teaching quality to improve educational outcomes. Saloviita et al ^[1] found a correlation between teacher burnout and teaching quality. Tan et al ^[2] found that teacher age had a significant effect on burnout. Palali et al ^[3] found a non-linear positive correlation between teacher scholarship and teaching quality. Sacre et al ^[4] showed that research active teachers had higher teaching quality. Kulgemeyer et al ^[5] found a correlation between teachers' PCK and teaching quality. Li et al ^[6] observed variations in the PACK sub-dimension based on teachers' level of education. Ma et al ^[7] found significant differences in teaching quality between teachers with different academic titles. Han ^[8] argued that students' ratings of teaching quality are not significantly affected by the gender of the teacher, but vary according to their title. Deng et al ^[9] conducted an ANOVA test on student evaluations and found no significant differences between semesters or between instructors' titles. Gabalán-Coello et al ^[10] analysed the determinants of teaching quality in a master's programme in engineering at a Colombian university and found that students valued the professor's teaching methods and research experience. These studies provide a solid scientific basis for exploring the relationship between teacher characteristics and teaching quality.

(2) Teacher characteristics and teaching evaluation.

Educational researchers are increasingly analysing the relationship between teacher characteristics and teaching evaluation data in order to improve the quality of teaching. Notable findings include Gordon et al.'s ^[11] observation that female teachers have lower teaching evaluation scores than male teachers, and Santiesteban et al.'s ^[12] finding that gender bias in computer science teaching evaluations primarily affects the evaluation scores of professors and, to a lesser extent, student teachers. Arrona-Palacios et al ^[13] found that students rarely consider gender when evaluating professors and prefer male teachers to recommend the best professors. Flegl et al ^[14] found that experience had a greater impact on evaluation scores than gender, with age having a greater impact in some areas. Bianchini et al ^[15] found that students' evaluations of teaching effectiveness were influenced by faculty members' age, seniority, gender, and research output, with seniority having different effects and positively influencing the evaluation. Bao et al ^[16] found that factors such as faculty titles could significantly influence students' evaluations. Joye et al ^[17] showed that faculty age and gender influenced their evaluation of teaching. Han et al ^[18] found that faculty education and titles had a significant effect on students' evaluation scores. However, their interaction is not insignificant. Tian et al ^[19] found that teachers' age, title, professional background and course credits had a positive effect on evaluation scores, while teachers' educational background had a negative effect on students' evaluations. In addition, the administrative position of the teachers evaluated had no effect on student evaluations. Using a one-way ANOVA, Li et al ^[20] found that gender, age, and title of university faculty did not significantly affect student evaluation scores. Binderkrantz et al ^[21] found no gender bias in Danish universities, but that students tended to rate teachers of the same gender more highly, and that this gender preference may be related to students' different perceptions of teacher behaviour and characteristics. These

studies provide insight into the relationship between teacher characteristics and teaching evaluations, and thus provide guidance for improving teaching quality.

(3) Other aspects.

In addition to correlations between teacher characteristics and teaching quality and ratings, other researchers have examined the relationship between teacher characteristics and other aspects of teaching. For example, Jaekel et al [22] found that teachers' communication skills, ability to maintain good relationships with students, and time spent in the classroom were strongly associated with ratings of teaching quality and students' learning experiences. Rodríguez-García et al [23] found that teachers' pedagogical approaches had a significant impact on students' reading achievement and that a positive teaching style was associated with higher achievement. Zhang et al [24] found that teachers' professional characteristics had a significant impact on job satisfaction, with professional collaboration and teaching self-efficacy being key factors. Aldahdouh et al [25] found that teachers' learning styles and background characteristics were associated with their ability to implement instructional changes during the COVID-19 pandemic. Asare [26] found that teachers' cognitive and affective characteristics as well as their teaching practices had an impact on students' statistical learning anxiety and attitudes. Marici et al [27] found that teachers' appearance had an impact on students' attitudes towards learning and their evaluations of teachers and that students were more likely to accept more attractive teachers. Finally, Khokhlova et al [28] found that students showed gender bias in their ratings of the personality traits of male and female teachers, with male teachers scoring higher on facilitating learning and engagement.

In summary, there is a relationship between teacher characteristics and teaching quality. However, the inconsistency of the findings may be due to the limitations of the classical educational research paradigm, which breaks down complex objects into subordinate components. Empirical research with human subjects often faces challenges such as non-replicability, non-verifiability and limited applicability to real-world settings. Overcoming these difficulties is essential to ensure the consistency of research findings and to meet the needs of contemporary educational research.

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