



THE IMPACT OF TEACHERS' CARING BEHAVIOURS ON STUDENTS'
LEARNING ENGAGEMENT IN SHANDONG

ZHAOSEN XU

AN INDEPENDENT STUDY SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENT FOR THE DEGREE OF MASTER OF EDUCATION IN
EDUCATIONAL ADMINISTRATION (INTERNATIONAL PROGRAM)
SOUTHEAST ASIA UNIVERSITY
ACADEMIC YEAR 2022
COPYRIGHT OF SOUTHEAST ASIA UNIVERSITY



THE IMPACT OF TEACHERS' CARING BEHAVIOURS ON STUDENTS'
LEARNING ENGAGEMENT IN SHANDONG

by

ZHAOSEN XU

AN INDEPENDENT STUDY SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENT FOR THE DEGREE OF MASTER OF EDUCATION IN
EDUCATIONAL ADMINISTRATION (INTERNATIONAL PROGRAM)

SOUTHEAST ASIA UNIVERSITY

2022

COPYRIGHT OF SOUTHEAST ASIA UNIVERSITY

Independent Study Title	The Impact of Teachers' Caring Behaviours on Students' Learning Engagement in Shandong Vocational Colleges
Author	Zhaosen Xu
Program	Master of Education in Educational Administration (International Program)
Advisor(s)	Asst. Prof. Lui Laibing, Ph.D.

Graduate School, Southeast Asia University, was approved as partial fulfillment of the requirements for the degree of Master of Education in Educational Administration.
(International Program)

 Dean, Graduate School
 (Puttithorn Jirayus, Ph.D.)

 Director, Master of Education in Educational
 (Asst. Prof. Smithirak Jantarak, Ph.D.) Administration (International Program)

Independent Study Committees

 Chairman
 (Prof. Narin Sungrugsa, Ph.D.)

 Committee
 (Asst. Prof. Smithirak Jantarak, Ph.D.)

 Advisor
 (Asst. Prof. Lui Laibing, Ph.D.)

Title	The impact of teachers' caring behaviours on students' learning engagement in Shandong
Number of pages	68 pages
Author	Zhaosen Xu
Program	Master of Education in Educational Administration (International Program)
Advisor	Assistant Professor Lui Laibing, Ph.D.
Academic Year	2022

ABSTRACT

The purpose of this study was to understand how teachers' caring attitudes affect students' engagement in learning in higher vocational colleges and to suggest ways to improve teachers' caring attitudes in higher vocational colleges. Data were collected from 258 education students (freshmen, sophomores and juniors) at Technological Vocational College of Dezhou in Shandong Province using a two-dimensional code sweep to fill in a questionnaire. The data were subjected to statistical analysis methods such as descriptive analysis, correlation analysis and regression analysis using SPSS 26.0 to test the relationships between data variables and test hypotheses. Data analysis revealed that: 1. Caring behaviour of teachers in higher vocational colleges was positively correlated with students' engagement in learning and had a positive predictive value for engagement in learning; 2. Female students had a higher impact on the caring behaviour of teachers in higher vocational colleges and student engagement in learning than male students; 3. Sophomore students had a higher impact on the caring behaviour of teachers in higher vocational colleges and engagement in learning than freshmen and juniors.

The findings of this study suggest that a key strategy to improve student engagement in learning is to improve the caring behaviours of teachers in higher vocational colleges. The author makes the following suggestions for optimising the caring behaviour of teachers in higher vocational colleges: 1. Improve the professionalism of teachers' caring behaviour. 2. Create a good caring atmosphere in the classroom.

Keywords: Teacher caring behaviour, Student learning engagement, Optimization strategies

Acknowledgement

We are grateful to Dr. Puttithorn Jirayus, Dean of the Graduate School of the University of Southeast Asia, Thailand, Assoc.Prof.Dr. Samithirak Jantarak, Head of the MEA Department, and Associate Professor Dr.Laibing Liu, supervisor of the MSc thesis, for their great support and assistance throughout the writing process. They also provided comments and suggestions on some important issues and other relevant literature during the preparation of this thesis.

I would also like to thank the leaders and colleagues of my workplace, Technological Vocational College of Dezhou in Shandong Province, for their support and assistance. They have provided invaluable advice on the use of the thesis in educational management.

Finally, I'd like to thank everyone in my family and friends who helped me through my postgraduate studies. I would like to express my gratitude to them for their tremendous understanding, assistance, and support.

Zhaosen Xu

Table of Contents

Abstract.....	IV
Acknowledgement.....	V
Table of Contents.....	VI
Chapter 1 Introduction	1
1.1 Statement of the Problems.....	1
1.2 Research Objectives.....	3
1.3 Scope and Limitation.....	6
1.4 Research Benefit	8
Chapter 2 Literature Reviews.....	10
2.1 Concept and Theories	11
2.2 Literature reviews	13
Chapter 3 Research Methodology	19
3.1 Population and Sampling method.....	37
3.2 Data collection.....	38
3.3 Data Analysis.....	39
Chapter 4 Results	44
Chapter 5 Discussion and Conclusion	50
References.....	63

Chapter 1

Introduction

1.1 Statement of the Research Problem

Through literature analysis, this study examined the situation of caring teachers and student learning engagement in Shandong Province's higher vocational colleges. SPSS was used to conduct the reliability, validity descriptive, and correlation analyses of teachers' caring behaviours and students' learning engagement. The study aims to clarify the differences in the impact of teachers' caring behaviours on students' engagement in learning in higher vocational colleges to emphasize the significance of caring teachers in higher vocational colleges for student learning engagement behaviours. To clarify that teachers' caring behaviour is both an important part of building a harmonious teacher-student relationship and an effective means to increase student's engagement in learning.

The quality of the relationship between teachers and students is critical to the success of education. The study of teacher care and student learning engagement from the perspective of higher vocational colleges will be expanded upon in this one. Targeted strategies of teacher care and teacher-student relationship building can enable students to feel the diversity of care and promote their holistic and healthy development.

1. Exploring the variability of caring behaviour among teachers in higher vocational colleges

In higher vocational colleges, there are a variety of caring behaviour models. Some higher vocational colleges emphasize teachers setting an example by requiring them to finish their teaching responsibilities and listening intently to what students have to say; Investing time in encouraging and accepting students, some higher vocational colleges emphasize respecting students and supporting their holistic development; some higher vocational schools emphasize fostering a harmonious relationship between teachers and students, prioritizing students' feelings over their intellect, and valuing and embracing them; In higher vocational

colleges, a variety of approaches to teacher care have varying effects on students' learning motivation, concentration, and engagement in learning.

2. Exploring the impact of teachers' caring behaviour on students' engagement in higher vocational colleges

In higher vocational colleges, student's behaviour in the classroom primarily reflects their level of engagement. In addition to encouraging students' motivation and stimulating intrinsic motivation to learn, teachers who provide adequate care and support while helping students construct knowledge and meaning develop positive relationships with them. In the classroom practice of higher vocational colleges, student subjectivity is best explained by student participation. For students to benefit from each other's strengths, teachers should treat all students equally and tailor their teaching to their needs. Understanding the emotional characteristics of students at their stage of psycho-emotional development and the emotional goals of learning, to properly evaluate the actual level of emotional engagement of each student throughout the development of learning, is essential for teachers in higher vocational colleges to set up education according to the state of students' emotional engagement with learning.

3. Exploring the development of strategies to optimise the caring behaviour of teachers in higher vocational colleges

An important external factor that influences student engagement in higher vocational colleges is the caring behaviour of teachers. A significant factor in determining student outcomes is student engagement, which is one of the intrinsic characteristics of the learner's personality. Students are more engaged in classroom learning when sound teacher-care strategies are developed.

Research issues

On Chinese academic websites like CNKI, numerous studies on student engagement in higher education teacher care are available, and numerous academics have offered their perspectives. Humanistic care should be used by educators in higher education, according to scholar Chen (2008), to assist students in developing their talents and becoming successful adults. He argues that they should make adjustments to improve their efficiency and effectiveness in assisting and

directing students. Hao and Zhang (2014), academics, say that teachers should actively work on developing a university teacher care strategy based on respecting and caring for students with the ultimate goal of "developing caring social citizens." Students' academic satisfaction is influenced by their teachers' caring attitudes and enthusiasm for learning, according to scholars Guo and Hu (2022). In conclusion, the following are the three research questions:

1. What distinguishes the variables of teachers' caring behaviors at higher vocational colleges?
2. In what ways do teachers' caring actions influence students' academic engagement in higher vocational colleges?
3. How can strategies be made to make teachers more caring people?

1.2 The Research Objectives

The researchers discovered through in-depth and comparative analysis that some research findings based on studies on the degree of teacher care and student engagement in higher vocational colleges are currently only at the stage of professional theoretical exploration. They did this by looking for research on teacher care and student engagement in higher vocational colleges on academic websites like CNKI in China. Some academics' research focuses on the patterns and levels of teachers' caring behaviours concerning theories and factors of caring. For instance, scholar Wu (2017) utilized Noddings' theory of all caring to comprehend teachers' caring behaviours. In their study published in 2021, Li, Wang, and Yao identified four characteristics of caring online teaching behaviours: accessibility, inclusiveness, engagement, and transparency. Another part of this study's focus is the investigation of a modular model of teacher care dimensions in higher vocational colleges. To demonstrate how teacher care influences student engagement in higher education, this includes research on classroom care and interaction, teacher assessment of students, and teacher role shifts. For instance, Chen (2020), a scholar, contends that classroom instruction is the most prevalent type of education, the most efficient means of achieving educational objectives, and the most direct location for teachers and students to interact with one another and form connections. The teacher's care

is very important when it comes to classroom teaching. It is supported by Lei (2007) that communicative and interactive teaching improves students' language skill acquisition. The use of formative assessment terminology by university teachers, according to scholar Tan (2021), is a good way to increase students' interest in learning, direct their learning, improve the relationship between teachers and students during instruction, energize the classroom, and cultivate teachers' teaching resourcefulness. According to the scholar Zhou (2022), a shift in the role that teachers play in the online teaching model is both significant and beneficial. While other researchers elaborated on fostering professionalism among university teachers and improving the caring behaviour of higher education teachers, they discovered that all were still in the exploratory stage of research philosophy, ideas, and design. For instance, academics Wang and Wu (2013) contend that educators ought to approach care with a blend of compassion and fairness. According to the scholar Yuan (2014), the connection that exists between students and teachers is essential for the efficient operation of educational activities. Scholar He (2012) contends that capacity development in higher education is inextricably linked to teacher generosity. According to the scholar Ouyang (2021), for students' core literacy to rise, teachers must possess core literacy in education. It is true that teachers' core literacy directly affects education and teaching quality.

To develop appropriate strategies for enhancing teachers' caring behaviours, this study utilized a quantitative method to examine the impact of teachers' caring behaviours on student engagement. To achieve this goal, it primarily used a questionnaire on teachers' caring behaviours and a questionnaire on student engagement based on literature analysis. This study's primary goals were to

1. to investigate the variations in the variables that influence teachers' caring behaviour in higher vocational schools.
2. to investigate the relationship between the caring attitudes of teachers and the engagement of students in learning at higher vocational colleges.
3. to investigate the development of strategies to improve the caring behaviour of teachers in higher vocational schools.

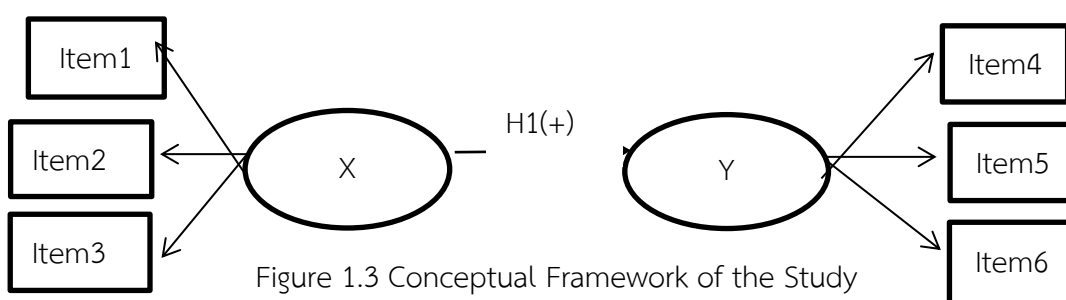
1.3 Conceptual Framework

The research framework, which is primarily based on Lei (2014) and Kong (2014), is built around the independent variable of teacher care behaviour in higher vocational colleges and the dependent variable of student learning engagement in higher vocational colleges. The following ideas served as the foundation for this study's design:

1. Conduct a comparative analysis of the literature to investigate the impact of teachers' caring behaviours on students' learning engagement in higher vocational colleges and the differences between teachers' caring behaviours at home and abroad.

2. Utilizing a questionnaire for education students at Technological Vocational College of Dezhou in Shandong Province, China, investigated the effect that caring teachers' actions have on their students' engagement in learning.

3. investigated the impact of caring behaviours on students' learning engagement in education majors at Technological Vocational College of Dezhou in Shandong Province, China, and provided relevant recommendations for the selection of optimum strategies, the development of harmonious teacher-student relationships, and future teacher caring models.



1.4 The Research Hypotheses

Based on the review and summary of relevant theories and previous empirical studies in the literature review, and taking into account the purpose, research questions and research structure of this study, the basic

hypotheses of this study are summarised as follows.

X: Teacher caring behaviour of teachers in higher vocational colleges

Y: Student engagement in learning in higher vocational colleges

Item1: Teachers' dutiful caring behaviour

Item2: Teachers' inclusive caring behaviour

Item3: Teachers' supportive caring behaviour

Item4: Cognitive engagement in student learning

Item5: Behavioural engagement in student learning

Item6: Students' emotional engagement with learning

H1: There is a direct and significant positive relationship between teachers' caring behaviour and students' engagement in learning in higher vocational colleges, and teachers' caring behaviour in higher vocational colleges has a positive predictive effect on their student's engagement in learning.

1.5 The Scope and Limitation of the Research

Scope of the study

The questionnaires were distributed by random sampling, and the author used the simple sampling principle to ensure the validity of the findings. The sample came from education majors at Technological Vocational College of Dezhou in Shandong Province in the year 2022; The valid sample was divided into two batches by time by the author. The scale item analysis and reliability analysis were examined during the first preliminary questionnaire time (September 1, 2022) with a preliminary sample of N=80, and the confirmatory factor analysis of this scale was tested during the second official questionnaire time (September 20, 2022) with a formal sample of N=258. At Technological Vocational College of Dezhou in Shandong Province, China, the survey was given to 300 students in all grades. Through WeChat groups and WeChat sweeps, a total of 258 questionnaires were distributed. The returns were 86% valid.

Limitations of the study

Our research process and findings will be limited to a certain extent due to limitations at the time level of the study that is influenced by the thesis completion deadline. The limited time frame for the study will have an impact on the overall findings of the student learning engagement survey research sample. The ideal time frame for the study is two semesters. As a result, numerous sample cases of follow-up are required.

Solution: After the research technique on the impact of caring teachers on students' learning engagement in higher vocational colleges in Shandong Province has been further developed and refined, the study may include a more precise and thorough analysis of this research question and sample data based on the results of the current study.

1.6 Terminology

Caring

In Chinese studies, 'care' mostly means 'concern', i.e. 'help', 'love' or 'care'. According to the Chinese Dictionary, "care" means "concern, worried concern, especially when accompanied by caution, pain and unease". Care is not a sign of indifference; on the contrary, it is a state of being, and other things are important in the course of people's spiritual lives. It provides human beings with warmth. Furthermore, how the relationship between teachers and students is handled also reflects the caring of teachers. There are many reasons for the growing tension between teachers and students, one of which is a lack of empathy. From the perspective of teacher care, this paper aims to bring clarity to self-awareness.

Higher Vocational Colleges

higher vocational colleges are referred to by their full name. Their goal is to provide individuals with technical, professional, and specific higher education knowledge. In their instruction, they place a greater emphasis on the application of technical practical operation skills.

School of Education

A specialization that focuses on the study of various subjects is the major in education. It gives students a good understanding of the theoretical and practical

aspects of teaching and helps them develop strong moral and intellectual qualities. Teachers in higher education and colleges that train teachers can also benefit from these qualities.

Student Learning Participation

The student learning participation model emphasizes the integration of the research and teaching processes as well as the equal relationship and extensive interaction between teachers and students. This is done to create a supportive environment that is current, broad, and effective for improving students' abilities to investigate and invent, connect theory and practice, and work in teams.

1.7 The Benefits of the Research

Theoretical significance

Through a questionnaire survey of teachers' caring behaviours on students' learning engagement in higher vocational colleges in Shandong Province, this study aims to comprehend the current situation regarding teachers' caring behaviours and student learning engagement. The correlation between caring behaviour on the part of teachers and students' engagement in learning is thoroughly examined by analyzing the survey results. Additionally, it offers rationalized strategies for improving the caring behaviours of teachers. The quantity and quality of students' engagement in learning in higher vocational colleges, as well as the enhancement of students' learning skills in higher vocational colleges, can only be achieved by finding measures and methods to effectively improve students' engagement in learning in higher vocational colleges.

Practical significance

This study aims to find a connection between students' engagement in learning at higher vocational colleges and teachers' caring behaviours. It also aims to find ways to improve teachers' caring behaviours in higher education so that students' engagement in learning can be improved.

In addition, studying the impact of teachers' caring behaviours on students' learning engagement in higher vocational colleges, will not only assist teachers, parents, and others in realizing the impact of teachers' caring behaviours on

students' learning engagement in higher vocational colleges, but it will also be crucial to students' learning and even the construction of a lifelong learning system. Furthermore, by breaking down the correlation analysis between the dimensions of teachers' caring behaviours and students' learning engagement in higher vocational colleges, the most significant and direct factors affecting students' learning engagement addressing the current issue of student failure behaviour and a lack of enthusiasm for learning in higher vocational colleges may benefit from this insight.

This study is novel in that it combines the current situation regarding teachers' caring behaviour with strategies to improve teachers' caring behaviour in teaching practice. It provides direction for the work that teachers will do in the future.

1. to comprehensively summarize the connection between students' engagement in learning and teachers' caring attitudes in higher vocational colleges

2. to find precisely the measures and approaches that can effectively improve the engagement of teachers and students in higher vocational colleges and to optimize the caring behaviour strategies of higher education teachers.

Chapter 2

Theory and Literature Reviews

2.1 Concepts and theories

2.1.1 Noddings Theory of Caring Behaviour

According to scholar Yang (2017), American educationalist Noddings' theory of caring emphasises the importance of 'caring' relationships in education and teaching. According to Noddings, the benefits and well-being that people derive from education are what make it valuable. In addition, the theory emphasises individual differences and needs. By examining the nature of Noddings' caring theory and its implications for teaching and learning, we explore how teachers' caring strategies can be optimised in higher vocational colleges to enhance student engagement in learning.

2.1.2 Definition of teacher care in higher vocational colleges

Based on Lei's (2015) view, this study defines teacher caring behaviour in higher vocational colleges as higher education teachers' conscientiousness in doing their job to the best of their ability, inclusiveness in caring for students and support for their development. This study will adopt Lei's (2015) perspective based on Noddings' theory of caring behaviour and his theory of interactivity to illustrate the impact on students' learning engagement in terms of three dimensions of caring behaviour of teachers in higher vocational colleges: conscientiousness, supportiveness and inclusiveness. The following is an explanation of these three dimensions.

Dutiful caring behaviour of teachers in higher vocational colleges: It is mainly reflected in the attitude of teachers in higher vocational colleges toward teaching and learning.

Inclusive behaviour of teachers in higher vocational colleges: It is mainly manifested in the emotional acceptance and understanding of students by educators working in higher vocational colleges.

Supportive behaviour of teachers in higher vocational colleges: It is most evident the time that teachers in higher vocational colleges are devoted to supporting the overall development of students.

2.1.3 Definition of student learning engagement in higher vocational colleges

Student learning engagement in higher vocational colleges refers to the process of engaging students in learning, improving their understanding and increasing the quantity and quality of their participation. Student learning engagement, as defined by Wang Scholars (2020), is based on classroom teaching, encouraging students to explore classroom content step by step according to the teacher's design and actively create a knowledge system, where students should learn to learn independently, give full play to their subjective initiative and actively contribute to the knowledge system. According to Du (2013), learning engagement is the key to the internal construction of higher vocational colleges, the implementation of quality education and the quality of classroom teaching. Scholar Kong(2014) refers to students' mental activities and behaviours while learning as "student engagement in the classroom". Based on this information, the effectiveness of student learning was determined by analysing three patterns of student engagement in the teaching and learning process. Scholar Ma (2013) found that the quality of teaching and learning in schools improves with student engagement.

Based primarily on Kong's (2014) perspective and previous scholars' views, this study defines higher education student learning engagement as students using strategies in their learning and actively participating in various classroom activities under the guidance of their teachers. The main objective of this study was to explore the cognitive, behavioral and affective effects of teacher care on students' engagement in learning in higher vocational colleges. The following paragraphs describe these three areas.

Cognitive engagement in student learning in higher vocational colleges. It is mainly expressed in the learning strategies students use to demonstrate their learning effectiveness and the extent to which they think about what they are learning.

Student's behavioral engagement in learning in higher vocational colleges. It mainly refers to the various classroom learning activities in which students participate under the guidance of teachers.

Students' emotional engagement in learning in higher vocational colleges: students' learning practices and cognitive activities are mainly related to their positive emotions.

2.2 Literature Reviews

2.2.1 The process of research on caring behaviour of teachers in higher vocational colleges

Lei, a Chinese researcher, (2014) defines caring behaviour using Noddings' idea of caring in education. A teacher's commitment to teaching and learning, time spent supporting students' development, and student engagement are all components of caring behaviour.

According to Mahdawi (2019) a renowned international scholar, caring behaviour among educators is characterized as a pleasant, open, and upbeat attitude in which the teacher is patient, organized, decisive, firm, honest, caring, able to relate to the students, and employs engaging teaching techniques. The education system relies heavily on teachers' caring attitudes and interpersonal skills.

A CNKI literature search on the China Knowledge Network classified research on the caring behaviours of teachers in higher vocational colleges into two levels: theory and the integration of theory and practice. The theoretical phase of educational care is the focus of the research of some academics, such as Liu, Huang, and Huang (2009). They are of the firm opinion that one of the current issues affecting teacher development in higher vocational colleges is the absence of a philosophy of vocational education, a divergence in teaching orientation, and teachers' lack of awareness of professional development. Schools should encourage teacher professional development, rebuild higher vocational teachers' knowledge, competence, and quality system, and foster a culture of humanistic care in teacher management. Based on Nordin's caring theory, scholars Zhao and Gao (2011)

proposed and discussed caring education for teachers. Scholar Liu (2020) suggests that the initial purpose of talent training in higher vocational colleges is teacher care. She also suggests clarifying the actual situation of vocational education talent training and conducting a feasibility analysis of its development in order to help higher vocational colleges choose the right space for expansion in the competition for education, giving it a new life and revealing the true meaning of education. The integration of teacher care theory and practice has been the focus of some researchers' investigations. From a human-centred perspective, scholar Feng (2011) investigated the factors that influence students' learning emotions. The study demonstrated that teachers' teaching strategies had a significant impact on students' learning emotions. Researchers Liu, Wang, and Li (2017) investigated the connections that exist between academic self-efficacy, career self-efficacy, and teacher care in higher vocational colleges. They also discovered methods for increasing academic and career self-efficacy.

The aforementioned studies suggest that the academic community is increasingly comprehending the use of a combination of teacher care theory and practice. In parallel, the connection between teacher caring behaviours and other variables has emerged as a significant area of research.

2.2.2 Research process on student learning engagement in higher vocational colleges

The process of researching student learning engagement in higher vocational colleges The academically renowned Western psychologist Ralph Taylor was the pioneer of research on student learning engagement. Ralph Taylor, a well-known psychologist in Western academia, was a pioneer in the study of student learning engagement. He was involved in the process of researching student learning engagement in higher vocational colleges. In 1949, he proposed five principles for selecting learning experiences and argued that students are active participants rather than knowledge stakeholders during the teaching and learning process. Therefore, according to scholar Xie (2007), learning experiences ought to be chosen to assist students in developing their level of thinking skills, their ability to absorb information, and their interest in learning. These straightforward ideas serve as the

theoretical basis for the reference level of student learning. Coleman et al. conducted their research on equal educational opportunities in 1996. scholars Zhou and Zhou (2012) contend that students' learning behaviours work through external conditions, and found that it is students' learning behaviours that influence the quality of their final learning and learning outcomes. According to scholar George D. Kuh (2017), American scholar George D. Kuh understood student engagement in terms of learning engagement in the latter part of the 20th century. A variety of factors, including student effort, teacher demands, and institutional support, contribute to learning engagement. Additionally, it positively influences students' abilities to learn. Kong (2014), a Chinese scholar, says that learning engagement is an organic combination of cognitive, behavioral, and emotional engagement, all of which are independent of one another but form a dialectical unity. Based on the relevant theories of previous generations and the characteristics of the students, teachers in higher vocational colleges should develop scientific and reasonable teaching strategies to increase students' motivation and participation in learning. The term "learning participation" in this study refers to this kind of learning participation as well as the three dimensions of students' learning participation in higher vocational colleges: behavioral participation, emotional participation, and cognitive participation.

The China Knowledge Network's CNKI literature search was used to summarize and analyze the domestic and international research on the conceptual model of students' learning engagement. Scholars Hu (2015) examined Jia and Makriyannis' (2011) "fairy ring" model of engagement, Wang's (2008) Cybergogy model of participatory learning, and Hawryszkiewicz's (2002) conceptual model of student engagement as theoretical models. "A new model of student engagement was constructed, providing a strong supporting theory for subsequent research and analysis related to student engagement, and scholar Hu (2015) argues that there is also a new basis for quantitative research on student engagement". In addition to the classroom interaction model and other existing models of student engagement, a new model of student engagement was constructed. Practical research on the quality of vocational education in China can benefit from these theories.

In the end, the author decided to use Kong's (2014) definition of student engagement. In higher vocational colleges' education research, there are three types of engagement: engagement on a behavioural, cognitive, and emotional level.

2.2.3 The influence of teachers' caring behaviour on students' engagement in higher vocational colleges

According to existing research, the level of student engagement with learning is directly related to the caring behaviour of higher education teachers. In this regard, student engagement in the classroom is not satisfactory. Scholar Ren (2022) demonstrates that teachers must alter their thinking, adopt an interactive and collaborative approach, etc., based on a study of teachers in higher vocational colleges on improving students' thinking and learning skills. to reduce passive learning, which is common in traditional English instruction, and to increase students' enthusiasm and motivation in higher vocational colleges. Scholar Xu (2022) contends that in order to improve students' overall literacy, it is essential to assist them in acquiring systematic professional knowledge and instruct them in fundamental vocational skills. In higher vocational colleges, teachers' personalities and teaching methods have a significant impact on students' interest in learning. The impact of various teaching methods on student engagement was analyzed in one study. Students tend to be more tolerant, appreciative, and respectful of teachers who are approachable. The classroom environment was harmonious, and students were more motivated to participate actively because they were motivated to express their opinions. According to scholar Wen (2017), students experience overwhelming fear and resentment toward their teachers when teachers are harsh and aggressive with them. Students are more likely to engage in behaviour when their teachers are inclusive and supportive of their students than when they are in a serious classroom with harsh language. In terms of the effect on students' cognitive and behavioural engagement, this is especially significant. The seriousness of teachers and the lack of interaction with students as the root causes of boredom among students in higher vocational colleges were specifically mentioned as the root causes of boredom among students in higher vocational colleges in another study by scholar Zhu (2016). On the basis of this, he summarizes the methods and

suggestions that can be utilized by students enrolled in higher education to reduce their boredom with learning. It is important to not underestimate the impact that caring teachers in higher vocational colleges have on student engagement. The teacher's mood directly affects the teaching effect in the classroom. The primary method for teaching success is cultivating students' interest in learning. Students will only be continuously motivated if they have an interest in learning, which indicates that the subjective internal factors of learning are at work. The choice of delivery style, teaching characteristics and style, and caring behaviour of higher education teachers toward students all have an impact on student engagement in learning, according to scholar Tang (2014), students' engagement in learning is influenced by a teacher's choice of delivery method, teaching style and characteristics, and caring attitude toward students. He argues that students' low engagement in higher vocational colleges is also primarily attributable to the complexity, repetition, and lack of practice of teachers' teaching methods.

Scholar Wang (2022) suggests in another study that physical education teachers in higher vocational colleges should demonstrate their own practice in order to convey emotions and knowledge to their students, as well as to inspire students' desire to learn by demonstrating what they can do and teaching them according to their ability to achieve. Students' engagement, behaviour, and development depend on supportive and caring teachers in higher vocational colleges. In a similar vein, some researchers have examined students enrolled in higher education.

In conclusion, a review of the relationship between teacher care and student engagement in learning reveals that the majority of researchers have investigated the effects and distinctions. The primary focus is on how teacher care affects students' physical and mental development as well as their ability to learn. The author's study aims to examine the impact on student engagement from multiple dimensions of teacher care because the factors affecting student engagement have not been systematically summarized. However, the author's research only had access to general literature, and the results were not analyzed in depth; instead, immediate judgments were rendered.

2.2.4 Strategies for optimizing the caring behaviour patterns of teachers in higher vocational colleges

2.2.4.1 Improving the professionalism of teachers' caring behaviour

Even though teachers at higher vocational colleges are included in the category of teachers, each thing has its characteristics. In their respective fields of life and work, teachers at higher vocational colleges exhibit a distinct and individual level of professionalism. It is crucial to the growth and improvement of teacher care. Teachers' professionalism has been argued to include professional competence, professional knowledge, and professionalism. He (2012) says that all of these professional literacies look at teachers as competent people and emphasize how important each teacher is to the growth of professional literacy. They emphasize the developmental requirements, motivations, and enhancements in caring behaviours experienced by teachers as a result of professional development. Cao (2018) asserts that raising teachers' core literacy levels in higher vocational colleges will not only assist students in achieving academic success but also raise students' overall quality. It is essential that university teachers also receive appropriate professional training because university students will eventually serve as the foundation for constructing society in the future. For higher education teachers to exhibit more compassionate behaviour, they need to practice professionalism.

2.2.4.2 Building a good classroom climate of care

It has been argued that the term "classroom climate" refers to a predominant psychological state that emerges between students and teachers or students and the classroom's objectives. According to researchers Li, Feng, Dong, and Xu (2013), a conducive classroom atmosphere encourages both teachers and students to realize their full potential. Both the level of student motivation and enthusiasm to participate in the classroom and the level of teacher care are increased as a result. In City One, the emotional climate for teaching and learning is optimized by the dutiful, supportive, and inclusive nature of teacher care, which influences students to develop a pleasant, enthusiastic, trustworthy, and diagnostic desire to collaborate with one another. Students' autonomy and motivation will be greatly enhanced by

this model of teacher care, which is based on a trusting and supportive relationship. It will also make it easier for teachers and students to communicate and exchange ideas. According to scholars Zhang and Sun (2007), good teacher-student cooperation in classroom interactions is an effective guarantee for giving full play to students' main role and establishing good classroom interactions. They argue that the teacher-student relationship in classroom interactions is the primary factor affecting the effectiveness of classroom teaching and learning. Li (2022) argues that teacher-student interactions facilitate assimilation and internalization. When teachers are inclusive and supportive, students are more likely to emotionally recognize and identify with their teachers. When teachers help students solve problems and make them more comfortable with their education, their logical thinking skills and enthusiasm for learning are enhanced.

In conclusion, previous research has focused on optimizing strategies for teacher care from the perspective of the teacher, ignoring the role of students in teacher care because a good classroom must be created by teachers and students alike. The impact of teacher care on student engagement is described in terms of three dimensions of student engagement in this study: affective, cognitive, and behavioral.

Chapter 3

Research Methodology

3.1 Methods of study

This study is an investigative study that uses mainly quantitative analysis methods. Based on the analysis of the literature, Lei's (2014) Caring Behaviour of Teachers Questionnaire and Kong's (2014) Student Learning Engagement Questionnaire was adapted and the correlation between caring behaviour of teachers in higher vocational colleges and student learning engagement in higher vocational colleges was analyzed to guide the development of strategies regarding teacher care optimization.

3.2 Population/Sampling Methods/Variables

The focus of this study was the impact of the caring behaviour of teachers in higher vocational colleges on students' engagement in learning. The population tested in this study was a total of 300 students (freshmen, sophomores and juniors) majoring in education in all years at Technological Vocational College of Dezhou. The survey was conducted using a simple sampling method, and students completed this questionnaire by scanning a QR code to answer the questions online.

3.3 Data Collection

The majority of the methods used in this research are quantitative analysis. As a means of developing strategies for optimizing teachers' caring behaviour in higher vocational colleges, a questionnaire was used to analyze the relationship between teachers' behaviour and students' engagement in learning in higher vocational colleges in Shandong Province through the study of relevant literature. To complete the screening of the selected questions and establish a statistical foundation for the formal questionnaire, SPSS 26.0 was used to analyze the scale.

In August 2022, the researcher distributed 100 pre-test questions to education students at Technological Vocational College of Dezhou in Shandong Province. As of 8.31, 85 (approximately 85%) of those questions had been returned, and in

September 2022, 300 official questionnaires had been distributed and 258 (approximately 86%) had been returned. The fundamental demographic data of the survey respondents are presented in Table 3.3.1.

Table 3.3.1 Basic information of survey samples (N=258)

Name	Options	Frequency	Percentage(%)	Cumulative percentage(%)
Gender	A.Male	128	49.612	49.612
	B.Female	130	50.388	100
Grade	A.Freshman	84	32.558	32.558
	B.Sophomore	85	32.946	65.504
	C.Junior	89	34.496	100
Total		258	100.000	100.000

In this study, data analysis was mainly conducted using SPSS 26.0. The Higher Education Teacher Caring Behaviour Questionnaire was divided into three dimensions: due diligence, inclusiveness and supportiveness. Five indicators were included under each dimension. The questions for due diligence are A1 to A5; for supportiveness, A6 to A10; and for inclusiveness, A11 to A15. For the sake of comparison, all the questions were processed using mean values. Therefore, "Caring behaviour of teachers in higher vocational colleges" = (Dutiful + Supportive + Inclusive)/3. The student learning engagement questionnaire was also divided into three dimensions including cognitive engagement, behavioral engagement and emotional engagement. Five indicators are included under each dimension. The cognitive engagement questions are A1 to A5,

the behavioral engagement questions are A6 to A10 and the affective engagement questions are A11 to A15. The mean value is also used so that 'student engagement in learning = (cognitive engagement + behavioral engagement + affective engagement)/3. Each question is assigned a score based on a five-point Likert scale. Each question was given a score of 1-5 according to the degree of compliance

Reliability analysis of the data collected was also conducted and will be described below. The specific formal questionnaire items were divided into 3 sections, including basic information, a questionnaire on teachers' caring behaviour and a questionnaire on students' engagement in learning. Details of the questionnaires can be found in the Appendix.

3.4 Instruments/Research Design

This study is an investigative study that uses mainly quantitative analysis methods. Based on the analysis of the literature, data were collected using a questionnaire, and the collected data were subjected to reliability tests, validity tests, descriptive statistical analysis, correlation analysis and regression analysis to explore the relationship between teachers' caring behaviour and students' engagement in learning in higher vocational colleges, and to develop optimisation strategies regarding teachers' caring behaviour. The design questionnaire for this study is described in turn below.

3.4.1 Questionnaire on teachers' caring behaviour in higher vocational colleges

This questionnaire is adapted from the Teacher Caring Behaviour Scale developed by Hao Lei (2014) based on Notting's caring behaviour theory and the basic situation of higher vocational colleges. 15 items are set, including three dimensions which are teacher dutiful behaviour, teacher supportive behaviour and teacher inclusive behaviour. The teachers' dutiful caring behaviour includes five items from A1 to A5; the Teacher Supportive Behaviour includes five items from A6 to A10, and the Teacher Inclusive Behaviour includes five items from A11 to A15.

The scale is scored on a five-point Likert scale from '1 — not at all to '5 — fully'.

3.4.2 Higher education students' engagement in learning questionnaire

Adapted from Kong (2014), East China Normal University, this comprehensive questionnaire contains the behavioural, cognitive and affective activities of students in higher vocational colleges. There are 15 items on the questionnaire, divided into three levels: students' cognitive, behavioural and affective engagement with learning. Each of these three levels has five questions: A1 to A5 represent cognitive engagement, A6 to A10 represent behavioural engagement and A11 to A15 represent affective engagement. Scores were given on a five-point Likert scale from '1-not at all to '5-totally'.

3.4.3 Summary of the research process

A summary of the research process on teacher caring behaviours on student learning engagement in higher vocational colleges is presented in the following table

Table 3.4.3: Summary of the study process

Purpose of the study	Source of data sample	Data collection methods or research instruments	Data analysis methods	Expected results
Correlation between teacher caring behaviour and student learning engagement among teachers in higher vocational	Independent variable: teachers' caring behaviours, adapted from the Caring Behaviours of Teachers Scale set by (Hao Lei 2014)	The Higher Education Faculty Care Questionnaire and the Higher Education Student Questionnaire were distributed based on the above adapted	The three dimensions of caring behaviour of teachers in higher vocational colleges: due diligence, supportiveness and inclusiveness, and the three dimensions of student learning	According to the expectation of the purpose of the study, the study of caring behaviour of teachers in higher vocational colleges on

colleges.	Dependent variable: student learning engagement, borrowed and modified from the Student Learning Engagement Scale set by Qi Pingkong (2003), East China Normal University, China	scales The data collection method was measured using an online QR code questionnaire distribution.	engagement in higher vocational colleges: cognitive engagement, behavioural engagement and affective engagement, were tested separately for reliability and validity to verify their rationality and appropriateness.	students' engagement in learning will achieve the expected results, with a positive correlation between teacher care and students' engagement in learning in higher vocational colleges.
-----------	--	--	---	--

3.5 Statistics and Data Analysis

This study used a questionnaire to identify the research structure and target population in conjunction with the above literature review and relevant theories and research objectives. A measurement instrument suitable for this study was selected. The questionnaire consists of the validated Teacher Caring Behaviour Scale and the Student Engagement in Learning Scale. The online QR code questionnaire was distributed for measurement and the SPSS data was collected directly from the Questionnaire Star backend for collation and analysis

3.5.1 Questionnaire reliability and validity analysis

3.5.1.1 Questionnaire on caring behaviour of teachers in higher vocational colleges

This questionnaire is the final questionnaire after pre-testing and modifications. The Cronbach's alpha coefficient for the adapted questionnaire is

0.899 and the Cronbach's alpha coefficients for teachers' due diligence, supportive and inclusive caring behaviours are all greater than 0.7, indicating that it is reliable. As can be seen from the table below, 3.5.1.1.1

Table 3.5.1.1.1: Reliability test results of the Caring Behaviour Questionnaire for Teachers in higher vocational colleges (n=258)

Variables	Caring behaviour of teachers	teachers' dutiful caring behaviours	Supportive caring behaviours for teachers	Teacher Inclusive Caring Behaviour
Cronbach's α coefficient	0.899	0.713	0.766	0.780

In the validity analysis of the questionnaire on student engagement in higher vocational colleges, the KMO test showed a KMO value of 0.848; Bartlett's spherical test showed a p-value of 0.000***, which reached a significant level; the initial hypothesis was incorrect and the validity of the factor analysis was adequate due to the correlation between the variables. Table 3.5.1.1.2 shows the details as follows.

Table 3.5.1.1.2: KMO test and Bartlett's test (n=258)

KMO test and Bartlett's test		
KMO values		0.848
Bartlett's test of sphericity	Approximate cardinality	2469.152
	df	105.000
	P	0.000***

Note: ***, **, * represent 1%, 5%, 10% level of significance respectively

3.5.1.2 Questionnaire on student learning engagement in higher vocational colleges

This questionnaire is the final questionnaire after pretesting and modification. The Cronbach's alpha coefficient of the modified questionnaire is 0.904, and the Cronbach's alpha coefficients of students' cognitive engagement in learning, students' behavioural engagement in learning and students' affective engagement in learning are all greater than 0.7, indicating its high reliability. As can be seen from the table below, 3.5.1.2.1

Table 3.5.1.2.1: Results of a questionnaire test on student engagement in higher educational schools(n=258)

Variables	Student Learning Engagement	Cognitive engagement in student learning	Student Learning Behavioural Engagement	Students' emotional engagement with learning
Cronbach's α coefficient	0.904	0.730	0.777	0.770

In the validity analysis of the questionnaire on student engagement in higher vocational colleges, the KMO test showed a KMO value of 0.837; Bartlett's spherical test revealed a significant level with a p-value of 0.000***; the initial hypothesis was incorrect, and the validity of the factor analysis was adequate as the variables were correlated. Table 3.5.1.2.2 shows the specifics as follows.

Table 3.5.1.2.2 KMO test and Bartlett's test (n=258)

KMO test and Bartlett's test		
KMO values		0.837
Bartlett's test of sphericity	Approximate cardinality	2701.571
	df	105.000
	P	0.000***

Note: ***, **, * represent 1%, 5%, 10% level of significance respectively

Chapter 4

Data Analysis Result

4.1 Demographic Analysis of The Respondents

4.1.1 Descriptive statistical analysis of teachers' caring behaviours in higher vocational colleges in Shandong Province

From the descriptive analysis of the data on teachers' caring behaviours in higher vocational colleges in Shandong Province, it can be seen from the mean values in Table 4.1.1 below that the overall mean values of teachers' dutiful caring behaviours, teachers' supportive caring behaviours, teachers' inclusive caring behaviours and teachers' caring behaviours in higher vocational colleges are greater than 3, which is between "unclear" and "relatively consistent". The mean value of teachers' dutiful caring behaviours in this study were the highest. The caring behaviours of the teachers in this survey are above the medium level.

Table 4.1.1 Results of descriptive analysis of teachers' caring behaviours in higher vocational colleges in Shandong Province

	Minimum	Maximum	Mean	Std. Deviation
Caring behaviour of teachers in higher vocational colleges	1.00	5.00	3.3943	.92123
Teachers' dutiful caring behaviours	1.00	5.00	3.4310	.98406
Teachers' supportive caring behaviours	.40	5.00	3.3884	1.01015
Teachers' inclusive caring behaviours	1.00	5.00	3.3636	1.02926

4.1.2 Descriptive analysis of students' learning engagement in higher vocational colleges in Shandong Province

The results of the descriptive analysis of students' engagement in learning in higher vocational colleges in Shandong Province are shown in Table 4.1.2 below, and the following results are obtained. The mean value of students' cognitive engagement in learning, students' behavioural engagement in learning, students' affective engagement in learning, and students' engagement in learning in higher vocational colleges are greater than 3, which is between "unclear" and "relatively consistent". The mean value of students' cognitive engagement in learning is the highest.

Table 4.1.2 Results of descriptive analysis of students' learning engagement in higher vocational colleges in Shandong Province

	Minimum	Maximum	Mean	Std. Deviation
Student Learning				
Engagement in higher vocational colleges	1.00	5.00	3.3512	.91511
Cognitive engagement in student learning	1.00	5.00	3.3915	.97713
Student engagement in learning behaviours	1.00	5.00	3.3574	1.00251
Emotional engagement in student learning	1.00	5.00	3.3047	1.01785

4.2 Statistical Analysis Results

4.2.1 Analysis of differences in the demographic characteristics of teachers' caring behaviours in higher vocational colleges in Shandong Province

4.2.1.1 Differential analysis of gender on caring behaviour of teachers in higher vocational colleges in Shandong Province

The test for the difference between gender on the caring behaviour of teachers in higher vocational colleges in Shandong Province is shown in Table 4.2.1.1 below, with gender as the independent variable and the three dimensions of caring behaviour of teachers in higher vocational colleges and overall caring behaviour of teachers in higher vocational colleges as the dependent variable in the independent samples t-test. From the results, it is evident that gender is significantly correlated ($p < 0.05$) with the differences in the three dimensions of teacher caring behaviour in higher vocational colleges and overall caring behaviour of teachers in higher vocational colleges. By comparing the average value, it is found that the overall caring behaviour of teachers in higher vocational colleges and its three dimensions of caring behaviour, teachers' dutiful caring behaviours, teachers' supportive caring behaviours and teachers' inclusive caring behaviours, the overall score of female students is higher than that of male students.

Table 4.2.1.1 A test of gender differences in caring behaviours of teachers in higher vocational colleges in Shandong Province (N=258)

Variable name	Variable value	Sample size	Average	Standard deviation	t	P	Mean Difference	Cohen's d
Caring behaviour of teachers in higher vocational colleges	Male	128	3.153	0.849	-4.3130.000***	0.479	0.537	
	Female	130	3.632	0.931				
	Total	258	3.394	0.921				
Teachers' dutiful caring behaviours	Male	128	3.155	0.918	-4.6520.000***	0.548	0.579	
	Female	130	3.703	0.974				
	Total	258	3.431	0.984				
Teachers' supportive caring	Male	128	3.1	0.986	-4.7360.000***	0.572	0.59	
	Female	130	3.672	0.955				
	Total	258	3.386	0.971				

behaviours								
	Total	258	3.388	1.01				
Teachers'	Male	128	3.205	0.927				
inclusive caring	Female	130	3.52	1.102	-2.485	0.014**	0.315	0.309
behaviours	Total	258	3.364	1.029				

Note: ***, **, * represent 1%, 5%, 10% level of significance respectively

4.2.1.2 Analysis of differences between grades on teachers' caring behaviours in higher vocational colleges in Shandong Province

4.2.2 Differential Analysis of Demographic Characteristics of Students' Learning Engagement in higher vocational colleges in Shandong Province

4.2.2.1 Analysis of differences between gender on students' engagement in learning in higher vocational colleges in Shandong Province

The results of the independent sample t-test with gender as the independent variable and the three dimensions of student learning engagement and the overall learning engagement of students in Shandong higher vocational colleges as the dependent variable show that the difference between gender on the three dimensions of student learning engagement and the overall learning engagement of students in Shandong higher vocational colleges is the difference was significant ($p < 0.05$)

Table 4.2.2.1 Gender difference test on students' learning engagement in higher vocational colleges in Shandong Province

Variable name	Variable value	Sample size	Average	Standard deviation	F	P	Variable name	Variable value
Student Learning Engagement in higher vocational colleges	Male	128	3.188	0.833				
	Female	130	3.512	0.966	-2.881	0.004***	0.324	0.359
	Total	258	3.351	0.915				
Cognitive engagement in student learning	Male	128	3.231	0.903				
	Female	130	3.549	1.024	-2.644	0.009***	0.318	0.329
	Total	258	3.391	0.977				
Student Learning Behaviour Engagement	Male	128	3.212	0.897				
	Female	130	3.5	1.081	-2.323	0.021**	0.288	0.289
	Total	258	3.357	1.003				
Emotional engagement in student learning	Male	128	3.12	0.953				
	Female	130	3.486	1.05	-2.929	0.004***	0.366	0.365
	Total	258	3.305	1.018				

Note: ***, **, * represent 1%, 5%, 10% level of significance respectively

4.2.2.2 Analysis of differences in grade level on students' learning engagement in higher vocational colleges in Shandong Province

The results of the analysis of differences in grade level on student learning

engagement in Shandong higher vocational colleges are shown in Table 4.2.2.2 below. A one-way ANOVA was conducted with grade level as the independent variable and the three dimensions of student learning engagement in Shandong higher vocational colleges and the overall student learning engagement of teachers in Shandong higher vocational colleges as the dependent variables. The results show that the difference between grade level on the three dimensions of student learning engagement in higher vocational colleges in Shandong Province and overall Shandong higher vocational colleges is significant ($p < 0.05$). The comparison of mean scores showed that sophomore students in higher vocational colleges scored higher than freshmen and junior students in total student learning engagement as well as in cognitive engagement, behavioural engagement and affective engagement.

Table 4.2.2.2 Analysis of variance test for grade level on student engagement in higher vocational colleges in Shandong Province

Variable name	Variable value	Sample size	Average	Standard deviation	F	P
Student Learning Engagement in higher vocational colleges	Freshman	84	3.419	0.982	10.054	0.000***
	Sophomore	85	3.62	0.912		
	Junior	89	3.03	0.751		
Cognitive engagement in student learning	Freshman	84	3.412	1.035	6.539	0.002***
	Sophomore	85	3.649	0.922		
	Junior	89	3.126	0.911		
Student engagement in learning behaviours	Freshman	84	3.424	1.089	10.296	0.000***
	Sophomore	85	3.661	0.909		
	Junior	89	3.004	0.899		
Emotional engagement in student learning	Freshman	84	3.421	1.055	8.634	0.000***
	Sophomore	85	3.551	1.053		
	Junior	89	2.96	0.852		

Note: ***, **, * represent 1%, 5%, 10% level of significance respectively

4.2.3 Correlation analysis of teachers' caring behaviours and students' learning engagement in higher vocational colleges in Shandong

Province

Pearson correlation analysis was used to test the correlation between teachers' caring behaviours and the three dimensions in higher vocational colleges and students' learning engagement and the three dimensions in higher vocational colleges. The results are shown in Table 4.2.3 below.

Table 4.2.3 Results of the correlation analysis between teachers' caring behaviour and students' engagement in learning in higher vocational colleges

	Caring behaviour of teachers in higher vocational colleges	Teachers' dutiful caring behaviours	Teachers' supportive caring behaviours	Teachers' inclusive caring behaviours	Student Learning Engagement in higher vocational colleges	Cognitive engagement in student learning	Student engagement in learning behaviours	Emotional engagement in student learning
Caring behaviour of teachers in higher vocational colleges	1							
teachers' dutiful caring behaviours	.913**	1						
teachers' supportive caring behaviours	.921**	.774**	1					
teachers' inclusive caring behaviours	.909**	.735**	.751**	1				
Student Learning Engagement in higher vocational colleges	.801**	.724**	.717**	.755**	1			
Cognitive engagement in student learning	.736**	.715**	.655**	.648**	.908**	1		
Student engagement in learning behaviours	.729**	.614**	.660**	.721**	.920**	.755**	1	
Emotional engagement in student learning	.736**	.661**	.654**	.702**	.919**	.747**	.773**	1

Note: ***, **, * represent 1%, 5%, 10% level of significance respectively

1) Caring behaviour of teachers in higher vocational colleges was significantly correlated with student learning engagement and its three dimensions in higher vocational colleges ($p < 0.05$). Among them, higher education teachers' caring

behaviour was significantly and positively correlated with students' perceived engagement in learning, with a correlation coefficient of 0.736, reaching a 0.01 significant correlation level; it was significantly and positively correlated with students' engagement in learning behaviour, with a correlation coefficient of 0.729, reaching a 0.01 significant correlation level; and it was significantly and positively correlated with students' emotional engagement in learning, with a correlation coefficient of 0.736, reaching a 0.01 significant correlation level. The correlation coefficient was 0.736, reaching the 0.01 significant correlation level.

2) Dutiful caring behaviour was significantly correlated with student engagement in higher education and its three dimensions ($p < 0.05$). The correlation coefficient was 0.715, reaching a 0.01 significant correlation level. level of correlation.

3) Supportive caring behaviours were significantly correlated with student engagement in higher vocational colleges and its three dimensions ($p < 0.05$). The correlation between supportive caring behaviour and students' cognitive engagement in learning was 0.655, reaching a significant correlation level of 0.01. The correlation between supportive caring behaviour and students' behavioural engagement in learning was 0.660, reaching a significant correlation level of 0.01. The correlation between supportive caring behaviour and students' emotional engagement was 0.654, reaching a significant correlation level of 0.01. Correlation.

4) Inclusive caring behaviour of teachers was significantly correlated with student engagement in higher vocational colleges and its three dimensions ($p < 0.05$). Inclusive caring behaviour of teachers was significantly and positively correlated with students' cognitive engagement in learning, with a correlation coefficient of 0.648, reaching a significant correlation level of 0.01; with students' behavioural engagement in learning, with a correlation coefficient of 0.721, reaching a significant correlation level of 0.01; and with students' emotional engagement in learning, with a correlation coefficient of 0.702, reaching a significant correlation level of 0.01. The correlation coefficient was 0.702, reaching a 0.01 significant level.

4.3 Hypothetical Test Results

4.3.1 Regression analysis of teachers' caring behaviour and students'

engagement in learning in different types of higher vocational colleges

Based on the above correlation analysis, it can be seen that there is a significant correlation between teachers' caring behaviours and students' learning engagement in higher vocational colleges in Shandong Province. Therefore, to further test the relationship between teachers' caring behaviours and students' learning engagement in higher vocational colleges in Shandong Province, three dimensions of teachers' caring behaviours in higher vocational colleges: teachers' dutiful caring behaviours, teachers' supportive caring behaviours and teachers' inclusive caring. The regression analysis was conducted using three variables of caring behaviour as the observed variables and student engagement as the dependent variable.

The linear regression parameters were estimated as shown in Table 4.3.1.1, with all three factors of teacher caring behaviour, teachers' dutiful caring behaviour, teacher supportive caring behaviour and teacher inclusive caring behaviour entering the regression equation and all parameters were significant ($p < 0.05$). The regression equation was as follows.

Student learning engagement in higher vocational colleges = $0.658 + 0.249^*$ teacher dutiful caring behaviour + 0.188^* teacher supportive caring behaviour + 0.357^* teacher inclusive caring behaviour

Table 4.3.1.1 Estimated parameters of the multiple linear regression equation

Model	Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
	Std.						
	B	Error	Beta	t	Sig.	Tolerance	VIF
1 (Constant)	0.658	0.131		5.028	0.000		
teachers' dutiful caring behaviours	0.249	0.059	0.268	4.217	0.000	0.346	2.888
teachers' supportive caring behaviours	0.188	0.059	0.208	3.185	0.002	0.328	3.045
teachers' inclusive caring behaviours	0.357	0.054	0.402	6.613	0.000	0.377	2.650

a. Dependent Variable: Student Learning Engagement in higher vocational colleges

Table 4.3.1.2 shows the fit of the regression equation model. the adjusted R² of the coefficient of determination for the optimised regression equation fit was 0.642, indicating a good model fit. the Durbin-Watson value of 1.782 was close to 2, indicating a significant fitted model.

The model of the regression equation indicated that all three dimensions of teacher care were good predictors of student engagement in higher vocational colleges. The factor of inclusive caring behaviour has the greatest effect on student engagement in higher education, indicating that accepting and understanding students emotionally, prioritising emotions with students, and respecting and accepting students are conducive to increased student motivation and engagement in learning. Teachers' supportive caring behaviour had a relatively small effect on

students' engagement in higher education.

Table 4.3.1.2 Regression equation model fits

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Durbin-Watson
1	.804 ^a	0.646	0.642	0.54784	1.782

a. Predictors: (Constant), Inclusive caring behaviours for teachers, Dutiful caring behaviours for teachers, Supportive caring behaviours for teachers

b. Dependent Variable: Student Learning Engagement in higher vocational colleges

4.3.2 Regression analysis of teachers' caring behaviours on students' cognitive engagement in learning in higher vocational colleges

Based on the significant effect of teachers' caring behaviours on students' engagement in learning in higher vocational colleges, to further investigate the effect of exhaustive teachers' caring behaviours and cognitive engagement in learning in higher vocational colleges, the three dimensions of teachers' caring behaviours included in higher vocational colleges: teachers' inclusive caring behaviours, teachers' dutiful caring behaviours and teachers' supportive caring behaviours, a total of three factors, were used as the observed variables, and students' cognitive involvement as the dependent variable and multiple linear regression analysis was used.

The linear regression parameters were estimated as shown in Table 4.3.2.1, with all three factors, namely teachers' responsible caring behaviour, teachers' supportive caring behaviour and teachers' inclusive caring behaviour, entering the regression equation with all parameters significant ($p < 0.05$). The regression equations were as follows.

Cognitive engagement in student learning = $0.712 + 0.438^* \text{ teacher dutiful caring behaviour} + 0.155^* \text{ teacher supportive caring behaviour} + 0.193^* \text{ teacher inclusive caring behaviour}$

Table 4.3.2.1 Estimated parameters of the multiple linear regression equation

Model	Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
	Std.						
	B	Error	Beta	t	Sig.	Tolerance	VIF
1 (Constant)	0.712	0.157		4.535	0.000		
teachers' dutiful caring behaviours	0.438	0.071	0.442	6.193	0.000	0.346	2.888
teachers' supportive caring behaviours	0.155	0.071	0.160	2.190	0.029	0.328	3.045
teachers' inclusive caring behaviours	0.193	0.065	0.203	2.976	0.003	0.377	2.650

a. Dependent Variable: Cognitive Engagement in Student Learning

Table 4.3.2.2 shows the fit of the regression equation model. the adjusted R² of the coefficient of determination for the optimised regression equation fit is 0.547, indicating a good fit of the model. the Durbin-Watson value of 1.879 is close to 2, indicating that the fitted model is significant.

The model of the regression equation indicated that all three dimensions of teacher caring were good predictors of cognitive engagement in learning for students in higher vocational colleges. The factor of teachers' dutiful caring behaviour has the greatest impact on students' cognitive engagement in learning in higher vocational colleges, indicating that responsible and committed teachers are conducive to students' cognitive engagement in learning. The effect of teachers' supportive caring behaviour on students' cognitive engagement in learning in higher vocational

colleges was relatively small.

Table 4.3.2.2 Regression equation model fits

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Durbin-Watson
1	.743 ^a	0.553	0.547	0.65735	1.879

a. Predictors: (Constant), Teacher Inclusive Caring Behaviour, Teacher Dutiful Caring Behaviour, Teacher Supportive Caring Behaviour

b. Dependent Variable: Cognitive Engagement in Student Learning

4.3.3 Regression analysis of teachers' caring behaviours on students' engagement in learning behaviours in higher vocational colleges

Based on the significant effect of teachers' caring behaviours on students' learning engagement in higher vocational colleges, to further investigate the effect of exhaustive teachers' caring behaviours on students' learning behaviour engagement in higher vocational colleges, three dimensions of teachers' caring behaviours included in higher vocational colleges: teachers' inclusive caring behaviours, teachers' dutiful caring behaviours and teachers' supportive caring behaviours, a total of three factors, were used as the observed variables, and students' learning behaviour engagement in higher vocational colleges Behavioural engagement was used as the dependent variable, and multiple linear regression analysis was used.

The linear regression parameters were estimated as shown in Table 4.3.3.1. The three factors of teacher-due care behaviour, teacher-supportive care behaviour and teacher-inclusive care behaviour were all included in the regression equation, where the effect of teachers' dutiful caring behaviours on students' engagement in learning behaviour was not significant ($p > 0.05$), and the parameters of teacher supportive care behaviour and teacher inclusive caring behaviour were significant ($p < 0.05$).).

The regression equations were as follows.

Student engagement in learning behaviour = $0.707 + 0.235^* \text{ teacher supportive caring behaviour} + 0.481^* \text{ teacher inclusive caring behaviour}$

Table 4.3.3.1 Estimated parameters of the multiple linear regression equation

Model	Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1 (Constant)	0.707	0.161		4.395	0.000		
teachers' dutiful caring behaviours	0.068	0.073	0.067	0.942	0.347	0.346	2.888
teachers' supportive caring behaviours	0.235	0.073	0.237	3.243	0.001	0.328	3.045
teachers' inclusive caring behaviours	0.481	0.066	0.494	7.246	0.000	0.377	2.650

a. Dependent Variable: Student Engagement in Learning Behaviour

Table 4.3.3.2 shows the regression equation model fit. the adjusted R² of the coefficient of determination for the optimised regression equation fit was 0.549, indicating a good model fit. the Durbin-Watson value of 1.798 was close to 2, indicating that the fitted model was significant.

The model of the regression equation indicated that both the factors of teacher-supportive caring behaviour and teacher-inclusive caring behaviour in teacher care were good predictors of student engagement in learning behaviour in higher vocational colleges. The factor of teacher-inclusive caring behaviour had the

greatest effect on students' engagement in learning behaviour in higher vocational colleges, indicating that respecting and accepting students is conducive to the increase of students' cognitive engagement in learning. Teachers' supportive caring behaviour had a relatively small effect on students' engagement in learning behaviour in higher vocational colleges.

Table 4.3.3.2 Regression equation model fits

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Durbin-Watson
1	.744 ^a	0.554	0.549	0.67333	1.798

a. Predictors: (Constant), Teacher Inclusive Caring Behaviour, Teacher Dutiful Caring Behaviour, Teacher Supportive Caring Behaviour

b. Dependent Variable: Student Engagement in Learning Behaviour

4.3.4 Regression analysis of teachers' caring behaviours on students' emotional engagement in learning in higher vocational colleges

Based on the significant effect of teachers' caring behaviours on students' engagement in learning in higher vocational colleges, to further investigate the effect of exhaustive teachers' caring behaviours on students' emotional engagement in learning in higher vocational colleges, three dimensions of teachers' caring behaviours included in higher vocational colleges: teachers' inclusive caring behaviours, teachers' dutiful caring behaviours and teachers' supportive caring behaviours, a total of three factors, were used as the observed variables, and students' emotional involvement as the dependent variable and multiple linear regression analysis was used.

The linear regression parameters were estimated as shown in Table 4.3.4.1, with all three factors, namely teachers' responsible caring behaviour, teachers' supportive caring behaviour and teachers' inclusive caring behaviour, entering the regression equation with all parameters significant ($p < 0.05$). The regression equations were as follows.

Students' emotional engagement in learning = $0.555 + 0.240^* \text{ teacher dutiful caring behaviour} + 0.174^* \text{ teacher supportive caring behaviour} + 0.398^* \text{ teacher}$

inclusive caring behaviour

Table 4.3.4.1 Estimation of the parameters of the multiple linear regression equation

	Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1 (Constant)	0.555	0.164		3.377	0.001		
teachers' dutiful caring behaviours	0.240	0.074	0.232	3.236	0.001	0.346	2.888
teachers' supportive caring behaviours	0.174	0.074	0.172	2.342	0.020	0.328	3.045
teachers' inclusive caring behaviours	0.398	0.068	0.402	5.864	0.000	0.377	2.650

a. Dependent Variable: Student Learning Emotional Engagement

Table 4.3.4.2 shows the fit of the regression equation model. the adjusted R² of the coefficient of determination for the optimised regression equation fit was 0.547, indicating a good fit of the model. the Durbin-Watson value was 1.933, close to 2, indicating that the fitted model was significant

The model of the regression equation indicated that all three dimensions of teacher caring were good predictors of emotional engagement in learning for students in higher vocational colleges. The factor of teacher-inclusive caring behaviour has the greatest impact on students' emotional engagement in learning in higher vocational colleges, indicating that teachers respect and accept students, which is conducive to students' emotional engagement in learning. The effect of

teachers' supportive caring behaviour on students' emotional engagement in learning in higher vocational colleges was relatively small.

Table 4.3.4.2 Regression equation model fits

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.741 ^a	0.549	0.543	0.68791	1.933

a. Predictors: (Constant), Teacher Inclusive Caring Behaviour, Teacher Dutiful Caring Behaviour, Teacher Supportive Caring Behaviour

b. Dependent Variable: Students' emotional engagement with learning

Chapter 5

Conclusions and Discussion

5.1 Conclusions and Discussion

5.1.1 Discussion on the current situation of teachers' caring behaviours and students' learning engagement in higher vocational colleges in Shandong Province

5.1.1.1 Analysis of the current situation of teacher care in higher vocational colleges in Shandong province

In this study, teacher caring behaviours in higher vocational colleges in Shandong province are composed of three components: teacher dutiful caring behaviours, teacher supportive caring behaviours and teacher inclusive caring behaviours. The measures of teacher caring and its dimensions in Shandong higher vocational colleges are all based on a 5-point Likert scale, where levels 1-5 are recorded as "not at all consistent", "somewhat inconsistent", "unclear ", "relatively consistent" and "completely consistent". From the descriptive analysis of teachers' caring behaviours in higher vocational colleges in Shandong Province, we can see that the mean values of teachers' caring behaviours in higher vocational colleges as a whole and dutiful caring behaviours, teachers' supportive caring behaviours and teachers' inclusive caring behaviours are all greater than 3, and they are all in the range of "unclear" and "relatively consistent". "All three dimensions are above the medium level, with a bias towards the 'more consistent side. The average scores of caring behaviours of teachers in several of the higher vocational colleges are, in descending order: teachers' dutiful caring behaviours > teachers' supportive caring behaviours > teachers' inclusive caring behaviours. However, the difference

between these three dimensions is not very large, with teachers' dutiful caring behaviour scoring the highest. This reflects the critical and significant importance of teachers' conscientiousness and dedication to their teaching work.

The independent samples t-test and one-way ANOVA on the three dimensions of caring behaviour and the inclusion of caring behaviour in higher vocational colleges revealed significant differences in the two individual variables of age and grade. Based on the comparison of means it was found that there was a significant difference in the two variables of caring behaviour of teachers in higher vocational colleges in Shandong Province between female students and sophomore students. The effect of female students on teacher-caring behaviour was more significant than that of male students; the effect of sophomore students on teacher-caring behaviour was more significant than that of freshmen and junior students.

5.1.1.2 Analysis of the current situation of students' engagement in learning in higher vocational colleges

In the study of students' learning engagement in higher vocational colleges, it is known that students' learning engagement in higher vocational colleges is composed of students' cognitive engagement in learning, students' behavioural engagement in learning and students' emotional engagement in learning. The measurement of student learning engagement and its dimensions in higher vocational colleges is based on a 5-point Likert scale, where levels 1-5 are recorded as "not at all consistent", "somewhat inconsistent", "unclear", "relatively consistent" and "completely consistent". From the descriptive analysis of student engagement in higher vocational colleges, we can see that the mean values of student engagement in higher vocational colleges as a whole and student cognitive engagement, student behavioural engagement and student emotional engagement are all greater than 3, and they are all between "unclear" and "relatively consistent". The higher level teachers' caring behaviours and all three dimensions were above the medium level,

with a bias towards the 'more in line' side. The mean scores of several dimensions of student engagement are, in descending order, cognitive engagement>behavioural engagement>emotional engagement. These three dimensions are not very different, with students scoring the highest on cognitive engagement. The learning strategies that mainly reflect the level of thinking used by students in their learning as well as the higher importance of students learning effectively were the most significant.

The three dimensions of higher education student engagement in learning and the three dimensions included in the analysis of variance by independent samples t-test and one-way ANOVA revealed significant differences in the two individual variables of age and grade and based on a comparison of means, two variables of higher education student engagement in learning were found to be significantly different between female students and freshmen. A comparison of means revealed significant differences between the two variables: female students were more engaged in learning than male students, and sophomores were more engaged in learning than freshmen and juniors.

5.1.2 Discussion of the relationship between teachers' caring behaviours and students' learning engagement in higher vocational colleges in Shandong Province

The correlation between teachers' caring behaviours and students' engagement in learning in higher vocational colleges in Shandong Province was found to be significant and positive, and the correlation coefficients between teachers' dutiful caring behaviours and students' cognitive engagement in learning, students' behavioural engagement in learning and students' emotional engagement in learning were 0.715, 0.614 and 0.661 respectively ($p < 0.05$), which were significantly The correlation coefficients between teachers' supportive caring behaviours and students' cognitive engagement in learning, students' behavioural engagement in learning and students' emotional engagement in learning were 0.655, 0.660 and 0.654 ($p < 0.05$) respectively, which were significant and positive; the correlation coefficients between teachers' inclusive caring behaviours and students' cognitive engagement in learning, students' behavioural engagement in learning and

students' emotional engagement in learning were The correlation coefficients between teachers' inclusive caring behaviour and students' cognitive engagement in learning, students' engagement in learning behaviour and students' emotional engagement in learning were 0.648, 0.721 and 0.702 respectively ($p < 0.05$), with significant positive predictive effects.

The Durbin-Watson value of 1.782 was close to 2, indicating that the fitted model was significant. All three dimensions of teacher care in higher vocational colleges were good predictors of student engagement in higher vocational colleges.

5.1.2 Discussion of the relationship between teachers' caring behaviours and students' engagement in learning in higher vocational colleges in Shandong Province

The correlation between teachers' caring behaviours and students' engagement in learning in higher vocational colleges in Shandong Province was found to be significant and positive, with the correlation coefficients of 0.715, 0.614 and 0.661 ($p < 0.05$) between teachers' dutiful caring behaviours and students' cognitive engagement in learning, students' behavioural engagement in learning and students' affective engagement in learning respectively, which were significantly The correlation coefficients between teachers' supportive caring behaviours and students' cognitive engagement in learning, students' behavioural engagement in learning and students' emotional engagement in learning were 0.655, 0.660 and 0.654 ($p < 0.05$) respectively, which were significant and positive; the correlation coefficients between teachers' inclusive caring behaviours and students' cognitive engagement in learning, students' behavioural engagement in learning and students' emotional engagement in learning were The correlation coefficients between teachers' inclusive caring behaviour and students' cognitive engagement in learning, students' engagement in learning behaviour and students' emotional engagement in learning were

0.648, 0.721 and 0.702 respectively ($p < 0.05$), with significant positive predictive effects.

The Durbin-Watson value of 1.782 was close to 2, indicating that the fitted model was significant. All three dimensions of teacher care in higher vocational colleges were good predictors of student engagement in higher vocational colleges.

5.2 Suggestions

According to the research, in higher education settings, caring teacher behaviour is closely related to students' learning engagement. During teacher caring, a good teacher-student relationship is established, which makes it easier for students to engage emotionally and behaviorally. When there is a high level of student engagement in the classroom, teachers are also motivated to teach and remain positive throughout the teaching and learning process. It is conducive to the professional development and personal growth of teachers. Finally, increasing the level of caring capacity of higher education teachers is a key step in improving the well-being of school students. Teachers should not only take on the role of a professor but also become friends with their students, listen to them and care for them. Students with fewer daily interactions should be emotionally engaged and actively informed about their academic and personal problems. In addition, it is vital to enhance their relationships with their peers to promote healthy growth and develop their interpersonal strategies and approaches.

5.3 Recommendations

This study is an attempt to clarify the impact of higher education teachers' caring on students' learning engagement from the perspective of higher vocational colleges. This study provides a systematic and comprehensive demonstration of teachers' caring behaviours, combines theory and practice, offers strategies to optimise teachers' caring behaviours in higher vocational colleges, and analyses the positive effects of teachers' caring behaviours in higher vocational colleges on students'. However, in the research process, only the Dezhou Institute of Science and Technology Vocational College in Shandong Province was selected for the study,

and the sample size was small. The study's results are only for reference because they are not sufficiently representative of teachers and students in Shandong Province's higher vocational colleges, even though the influence of external factors on the study has been mitigated to some extent. It is expected that more researchers will devote themselves to the study of teachers' caring behaviour in higher vocational colleges in the future. Future research could create a scale applicable to the whole country or a particular region that could be used to analyse the impact of the caring behaviour of teachers in higher vocational colleges on students' learning engagement.

References

- Al-Mahdawi, E. (2019). The pedagogical Effect of the Teacher-Student Relationship on Teaching Practices and Students' Interest in Learning.
- Cao, Y. (2018). Research on core literacy and capacity building of higher vocational teachers. *Journal of Hubei Correspondence University* (17), 20-21.
- Chen, H. Y. (2008). On the transformation of teachers' roles in higher education "Civics and Political Science" courses under the vision of humanistic care. *Literature and Education* (29), 181-184.
- Chen, X. (2020). A study on teachers' caring behavior in classroom under the perspective of caring theory (Master's thesis, *Hubei University*).
- Du, A. W. (2013). Research on improving students' learning participation in higher vocational classroom teaching. *Journal of Guangdong Transportation Vocational Technology College* (03), 86-90.
- Feng, X. P. (2011). Analysis of English teachers' classroom discourse in higher education based on humanistic care. *Journal of Huaihai University of Technology (Social Science Edition)* (22), 59-60.
- Guo, L. J. & Hu, H. Q. (2022). The relationship between teacher care and college students' learning satisfaction in online teaching: the mediating role of learning engagement. *Contemporary Education Forum* (02), 42-50.
- Guo, X. (2017). A study on tracking the learning engagement characteristics of undergraduate students in local universities - An analysis of data from a four-year CCSS questionnaire. *Academic Theory* (12), 200-201+208.
- Hao, Y. F. & Zhang, J. (2014). On the alienation and return of teacher care in higher education. *Research in Education and Teaching* (10), 31-33.
- Hawryszkiewicz, I. T. (2007). An Engagement Model for Learning: Providing a Framework to Identify Technology Services. *Interdisciplinary Journal of e-Skills and Lifelong Learning (formerly Interdisciplinary Journal of*

E-Learning and Learning Objects) (IJELL),3pp. 219-228

- He, S. Z. (2012). Professionalism of higher education teachers under Nell Noddings' theory of care. *Vocational Education Forum* (17), 105-107.
- Hu, M. (2015). Research on student engagement model and application in online learning (Doctoral dissertation, *Huazhong Normal University*).
- Jia, Y. M. & Makriyannis, E. (2011). A study of the "fairy ring" participation model in online communities. *Modern Educational Technology* (11), 12-16+22.
- Kong, Q. P. (2014). Student engagement in the process of teaching mathematics. *Middle School World* (44), 43.
- Lei, H. & Li, J. (2018). The relationship between socioeconomic status and teachers' caring behaviors: The mediating role of subjective well-being. *Research in Teacher Education* (05), 34-40.
- Lei, H. (2014). Construction of three-dimensional model of teacher caring behavior. *Journal of the National Institute of Educational Administration* (02), 67-72
- Lei, H. (2015). A study on the developmental characteristics of secondary school teachers' caring behaviors and their intervention strategies. *Chinese Journal of Education* (04), 70-74.
- Lei, H. (2015). A study on the developmental path of caring behaviors of secondary school teachers. *Teacher Education Research* (02), 54-59.
- Lei, Q. H. (2007). On the role of interactive classroom teaching on foreign language acquisition of higher education students (Master's thesis, *Huazhong Normal University*).
- Li, Q. H., Feng, M. F., Ma, D. H. & Xu, H. L. (2013). Using classroom teaching interaction to build good teacher-student relationship in higher vocational colleges. *Northwest Journal of Adult Education* (06), 28-30.
- Li, X. (2022). Difficult breakthroughs in the application of flipped classroom to the reform of financial accounting teaching in higher education. *Science and Technology Economic Market* (08), 118-120.

- Li, Y. B., Wang, L. & Yao, Q. H. (2021). Development of a scale for teachers' Caring behavior in online teaching. *Modern Distance Education* (03),52-61.
- Liu, Ke, Wang, J. & Li, H. C. (2017). A study on the current situation of teachers' care in higher vocational colleges - A case study of nine provincial higher vocational colleges in Nanjing. *Times Education*(23),33-34.
- Liu, Y.M, Huang, B. H. & H, W. J. (2009). On the development of teachers in higher education. *Guangxi Education* (18), 61-62.
- Liu, Y. X. (2020). Research on the cultivation of talents in vocational education in China based on the theory of caring education (Master's thesis, *Shanxi University*).
- Ma, J. (2013). A study on the quality evaluation framework of higher vocational education in the United States: an analysis based on the Community College Student Engagement Survey. *Career and Technical Education* (22), 84-89.
- Ouyang, J. Y. (2022). Exploring the problems and influencing factors of professional teachers' core literacy cultivation in higher vocational colleges. *Vocational Education (Mid)* (07), 25-28.
- Ren, C. T. (2022). An investigation of the interactive cooperative teaching method based on the development of English application skills of higher vocational students.*English Abroad* (14), 209-210+215.
- Tan, P. (2021). The importance of classroom evaluation language of higher vocational teachers in the new era and the optimization measures. *Journal of Yunnan Open University* (03), 92-96.
- Tang, T. L. (2014). Problems and countermeasures for the exercise of higher vocational teachers' rights to course delivery. *Journal of Liuzhou Vocational Technology College* (05), 35-37.
- Wang, H. & Wu, Y. F. (2013). On the Integration of Justice and Care: The Representation and Strategy Selection of Three Inappropriate caring Ways of teachers. *Contemporary Educational Science* (22),3-6.
- Wang, L. (2020). A practical study on improving students' engagement in a

- guided teaching model (Master's thesis, *Shanghai Normal University*).
- Wang, M. J. (2008). Participatory learning and online pedagogy. *Open Education Research* (02), 22-27.
- Wang, W. W. (2022). Research on the strategy of implementing multi-dimensional education in higher vocational classroom education. *Journal of Changjiang Engineering Vocational Technology College* (02), 52-54.
- Wen, D. (2017) Teaching styles and influencing factors of teachers in higher vocational colleges. *Marine Vocational Education* 5(1):27-30.
- Wu, B. B. (2017). A study on teacher-student relationship based on caring theory (Master's thesis, *Shandong Normal University*).
- Xie, D. W. & Hao, Q. W.. (2022). In A new era, being a guide on the path of students' growth - On the key points of implementing physical education teacher education in higher education. *Engineering Technology Research* (02), 181-182+188.
- Xie, Y. H. (2007). A brief analysis of Taylor's Fundamentals of Curriculum and Instruction and its inspiration. *Journal of Inner Mongolia Normal University: Education Science Edition* (S1), 2.
- Xu, X. Y. (2022). Exploration of strategies to improve the effectiveness of teaching in higher vocational classrooms. *Jiangsu Education* (04), 74-76.
- Yang, H. Y. (2017). Exploration of talent cultivation mode of higher education in China during the transition period - a perspective based on Nell Nottinger's concern theory. *Coal Higher Education* (05), 75-79.
- Yuan, W. J. (2014). Research on the application of caring theory in the construction of teacher-student relationship in colleges and universities (Master's thesis, *Hebei Normal University*).
- Zhang, B. G. & Sun, P. (2007). On the effectiveness of teacher-student cooperation in classroom interaction. *Contemporary Educational Science* (18), 38-39.
- Zhao, J. & Gao, X. (2011). Teacher care education in the context of Nodings care theory. *Teachers* (02), 7.

- Zhou, F. (2022). Transformation and cultivation of physical education teachers' roles under online teaching mode. *Industry and Technology Forum* (16), 250-252.
- Zhou, T. Y. & Zhou, Z. Y. (2012). An exploratory study of factors influencing student development in higher education. *Fudan Education Forum* (03), 48-55+86.
- Zhu, Y. (2016). Investigation and research on higher vocational students' learning boredom - A case study of Shaanxi Industrial and Commercial Vocational College. *Journal of Shaanxi Radio and Television University* (04), 24-27+97.

Appendix

Questionnaire on the impact of teachers' caring behaviours on students' learning engagement in higher vocational colleges in Shandong Province

Dear Students.

Hello! This is a questionnaire. There are no right or wrong questions in this questionnaire, so please fill in and select the options that match your actual situation. This questionnaire is anonymous and absolutely confidential, so please do not have any concerns. Thank you for your participation and support.

Basic Information Survey

Your gender: A.Male B.Female

Your Year: A. Freshman B. Sophomore C. Junior

Questionnaire 1: Questionnaire on Caring Behaviour of Teachers in higher vocational colleges

	Not at all	Comparative non-conformity	Unclear	More consistent	Completely
A1. The teacher is diligent in completing classroom instruction					
A2. The teacher is never late or leaves early					
A3. The teacher is fair in rewarding and punishing us for our learning					
A4. The teacher is strict with us in our studies					

A5. The teacher uses various methods to enhance our interest in learning					
A6. The teacher gives detailed answers to my questions					
A7. The teacher often shows us affectionate gestures, such as smiling and nodding					
A8. The teacher often talks to us					
A9. The teacher is responsive to our requests for help					
A10. The teacher observes when we are in a bad mood					
A11. The teacher encourages us when we make mistakes in answering questions					
A12. Our teacher respects our views when they conflict with his or her own					
A13. teachers create opportunities for us to show our strengths, regardless of our grades					
A14. teachers treat students from different family backgrounds equally					
A15. Teachers give equal attention to students who are underachievers					

Questionnaire 2: Student Learning Engagement Questionnaire for higher vocational students

	Not at all	Comparative non-conformity	Unclear	More consistent	Completely
A1. I learn how the teacher teaches me					
A2. When I study a textbook, I often think about what are the main points that I need to master, rather than simply reading through the textbook					
A3. I follow the teacher's teaching schedule and do not get ahead of or fall behind					
A4. The best way to learn is to follow the teacher's instructions					

A5. When I study, I think about how useful what I have learnt is in real life					
A6. In class, I listen intently to what the teacher says					
A7. I am patient in answering complex exercises					
A8. I often speak up when new knowledge is discussed					
A9. If I can't get a correct answer for a while, I remember it after a while					
A10. I am always very focused					

A11. In class, I find knowledge interesting, so I feel happy to learn					
A12. I feel nervous during tests					
A13. I feel a sense of satisfaction when I am doing class work					
A14. I feel excited when we start to learn something new					
A15. I am always curious about new knowledge, and I feel happy to learn					

Scales

The scales for this study include the Higher Education Faculty Caring Behaviour Scale and the Student Engagement in Learning Scale, which is shown below.

Teacher Caring Behaviour Scale

Dimension	No.	Item
Teachers' dutiful caring behaviours	1	The teacher is diligent in completing classroom instruction
	2	The teacher is never late or leaves early
	3	The teacher is fair in rewarding and punishing us for our learning
	4	The teacher is strict with us in our studies
	5	The teacher uses various methods to enhance our interest in learning
Supportive caring behaviours for teachers	1	The teacher gives detailed answers to my questions
	2	The teacher often shows us affectionate gestures, such as smiling and nodding
	3	The teacher often talks to us
	4	The teacher is responsive to our requests for help
	5	The teacher observes when we are in a bad mood
Teacher Inclusive Caring Behaviour	1	The teacher encourages us when we make mistakes in answering questions
	2	Our teacher respects our views when they conflict with his or her own
	3	teachers create opportunities for us to show our strengths, regardless of our grades
	4	teachers treat students from different family backgrounds equally
	5	Teachers give equal attention to students who are underachievers

Student Learning Engagement Scale

Dimension	No.	Item
Cognitive engagement in student learning	1	I learn how the teacher teaches me
	2	When studying a textbook, I often think about what is important to grasp, rather than simply reading through the textbook
	3	I follow the teacher's teaching schedule and do not get ahead of or fall behind
	4	The best way to learn is to follow the teacher's instructions
	5	When I study, I think about how useful what I have learnt is in real life
Student Learning Behavioural Engagement	1	In class, I listen intently to what the teacher says
	2	I am patient in answering complex exercises
	3	I often speak up when new knowledge is discussed
	4	If I can't get a correct answer for a while, I remember it after a while
	5	I am always very focused
Students' emotional engagement with learning	1	In class, I find knowledge interesting, so I feel happy to learn
	2	I feel nervous during tests
	3	I feel a sense of satisfaction when I am doing class work
	4	I feel excited when we start learning something new
	5	I am always curious about new knowledge, and I feel happy to learn

Biography

Name- surname	Zhaosen Xu
Date of birth	January 5, 1992
Place of birth	Shandon Province, China
Address	No. 37 Dragon Hill Rd., Yantai, China
Workplace	Technological Vocational College of Dezhou
Position	Teacher
Education	2015, Bachelor of Science in Management, lanzhou University



THE ICBTS 2022

International Academic Multidisciplines Research Conference Paris 2022

*Paris, France
25 – 26 November, 2022*

CERTIFICATE OF PRESENTATION

Handed to

Zhaosen XU

For outstanding research paper presentation

The impact of teachers' caring behaviours on students' learning engagement in Shandong vocational colleges

**Organized by ICBTS Conference Center & IJBTS International Journal of Business
Tourism & Apply Sciences at Paris France**



Professor Dr. Kai Heuer
Academic Program Chair

