TEACHERS' INFORMATION INSTRUCTIONAL LEADERSHIP AT X UNIVERSITY IN XINXIANG CITY, HENAN PROVINCE, CHINA

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Abstract: The purpose of this study was to investigate the current state of information instructional leadership among college teachers and to explore potential differences in their leadership capabilities based on various demographic factors. The Teacher Information Instructional Leadership Scale as a survey tool to investigate 306 teachers from X University in Xinxiang City, Henan Province. This study investigated college teachers' information instructional leadership through descriptive statistical analysis, differential analysis, and other methods. The information instructional leadership of teachers at X University in Xinxiang City, Henan Province was high. There were significant differences in college teachers' information instructional leadership of different genders, education qualifications, and academic titles. There was no significant difference in college teachers' information instructional leadership with different teaching ages. Suggestions based on college teachers should change ideological concepts, enhance information instructional leadership, strengthen top-level design, strengthen policy guidance, and establish an information instructional team to achieve common development.

Keywords: College Teachers, Information Instructional Leadership, Demographic Backgrounds

Introduction

Since the beginning of the 21st century, concepts such as the "information age" and "information society" began to emerge in the field of education. With the rapid development of information technology and the advancement of global education informatization, effective use of information technology could improve teaching methods, enhance teaching efficiency, and promote the cultivation of students' learning effectiveness and innovation ability. Modern technologies such as computer network technology and remote communication technology were widely integrated into information technology education and teaching. College teachers became increasingly aware of the importance of information instructional leadership, but the development of teacher information

instructional leadership still faced some challenges. For example, there were differences in the level of educational informatization in different countries and regions, and college teachers in some areas might have lacked sufficient information instructional resources and technical support.

In addition, with the continuous upgrading of technology, college teachers also needed to constantly update their knowledge and skills to adapt to new teaching needs and development trends. The increasing influence of information technology in the field of education gave rise to the concept of "educational informatization". As clearly stated in the Education 2030 Action Framework issued by UNESCO, information technology had to be used to improve the quality of education and promote educational equity (Mundial, 2016). As the leaders of education, college teachers played a crucial role in promoting the process of educational informatization through information instructional leadership. As the core force of education, the level of college teachers' information instructional leadership was directly related to the promotion effect and teaching quality of educational informatization.

To adapt to the trend of information technology development and grasp the new changes in knowledge acquisition and transmission methods, the study needed to comprehensively promote the application of information technology in multiple aspects, such as teaching, management, learning, and evaluation. Education informatization was not only a technological innovation but also a significant force in promoting the development of information classroom teaching (State Department, 2019).

According to the "Ten Year Development Plan for Education Informatization (2011-2020)" released by the Ministry of Education, the study should have paid attention to the integration and development of teachers and education informatization teaching technology. In order to cultivate good habits of information instructional among teachers and enhance the ability to apply modern information technology, the study should have paid close attention to performance in the assessment of educational technology professional abilities.

Especially for college teachers, strengthening the ability to apply educational technology and promoting innovation in information instructional and learning methods was particularly crucial. Therefore, incorporating educational technology capabilities into the teacher qualification certification and assessment system not only helped to enhance the professional competence of teachers but also promoted the development of educational informatization and achieved a comprehensive improvement in teaching quality (Ministry of Education, 2012).

Therefore, strengthening college teachers' information instructional leadership was necessary for promoting educational informatization and the development of education in the new era and was a trend toward achieving educational modernization.

Research Objectives

(1) To investigate the current state of college teachers' information instructional leadership at

X University in Xinxiang City, Henan Province.

(2) To analyze the significant differences in college teachers' information instructional leadership at X University in Xinxiang City, Henan Province under different demographic backgrounds.

Literature Review

Research on Instructional Leadership

One was that the core of the leadership demonstrated by teachers in teaching activities was to have a positive impact on students in order to promote better learning outcomes. Firstly, teacher-student interaction was considered a core element of instructional leadership. For example, Li (2009) emphasized that the instructional leadership of teachers could be fully demonstrated in classroom interaction. Through clever guidance, teachers could create a strong cohesion, which could be further transformed into attraction and influence, not only helping students make academic progress but also promoting the comprehensive improvement of teaching quality.

Secondly, emphasis was placed on the teacher's teaching wit and teaching art. Feng (2013) believed that instructional leadership was an important force for teachers to use teaching wit and strategies to effectively guide and control classroom teaching, thereby ensuring the smooth achievement of teaching objectives. Thirdly, emphasis was placed on effective management by teachers to guide students toward effective learning. Numerous scholars such as Niu & Zhang (2011), Zhou (2012), and Zhao (2018) emphasized that a teacher's instructional leadership was reflected in the ability to effectively manage, which could guide students to engage in efficient learning. The researchers generally believed that teachers needed to have control over the teaching process and allocate and manage teaching resources reasonably in order to promote the learning process of students and help them achieve predetermined learning goals. Fourthly, emphasis was placed on teachers developing learning visions and achieving goals. For example, Guo (2011) believed from the perspective of management that instructional leadership was the important impact that teachers exerted on the overall development of students in a series of educational activities, such as setting teaching objectives, constructing teaching designs, executing teaching practices, and conducting teaching reflection. Fifthly, this concept was defined from the perspective of the teacher's authority. For example, Xie (2013) described the concept of instructional leadership from the perspective of teacher authority. She believed that instructional leadership not only involved the elements of a teacher's position but also included non-power elements, and the interaction of these two together constituted the comprehensive influence of teachers on students.

Secondly, it was believed that as formal members of the school, the role of teachers went far beyond mere teaching activities. Instructional leadership had a profound influence, not only affecting students but also positively promoting the transformation and development of colleagues, school

administrators, and the entire school. This influence not only enhanced the academic level of students but also promoted the overall quality of education in schools. Taking Zhao's (2017) perspective as an example, the researcher interpreted instructional leadership as the ability of teachers to guide and guide relevant members and affairs in teaching activities while pursuing a teaching vision from the dual perspectives of school and class. Zhang (2018) defined teacher leadership from both micro and macro perspectives. At the micro level, teachers used professional competence, teaching philosophy, and unique style to have a sustained and profound impact on students. At the macro level, the interaction and participation of teachers in curriculum decision-making led to the reform and development of schools.

There was no consensus on the connotation of teacher's instructional leadership. Still, from the above analysis, it could be concluded that firstly, researchers had previously analyzed this concept from both micro and macro perspectives. At the micro level, researchers focused on the teaching activities of teachers, emphasizing direct influence on students in this process. At the macro level, the researchers stood in the broader school context and comprehensively considered teachers' multiple roles, including broad impact on students, colleagues, management, and the entire school. This multidimensional perspective highlighted the comprehensiveness and profound significance of teacher leadership. Secondly, consistent with previous research, most views agreed that teacher leadership should be committed to promoting the comprehensive development of students and promoting the overall improvement of school teaching quality. Finally, most researchers tended to view teacher leadership as a comprehensive ability that encompassed multiple key elements such as teaching skills, communication and collaboration, leadership strategies, etc. These elements collectively constituted the core of teacher leadership.

Research on Teachers' Information Instructional Leadership

The development process of teacher teaching leadership began in the 1970s, which was the initial application and expansion of leadership theory in the field of education. As time goes by, its focused gradually shifts from the macro level to the micro level, moving from theoretical discussion to practical application. Based on the role of teachers in teaching and their level of guidance in teaching, this development process could be divided into four stages.

The first stage was in the 1970s, when the concept of teacher teaching leadership first emerged, mainly limited to formal organizational structures, such as grade group leaders and teaching and research department directors, who had certain administrative powers. These teachers were regarded as the core of teaching leadership, while ordinary teachers rarely involve teaching leadership. At this stage, instructional leadership was more of a control model, in which ordinary teachers tend to be only the role of executing the decisions and wishes of superiors (Frymier, 1987), in other words, they were more like executors than decision makers (Katzenmeyer & Moller, 2009).

The second stage was in the 1980s. As research progressed, researchers began to focus on teacher leadership at the teaching level, gradually realizing the key role and importance that teachers play in teaching leadership. They played various roles, such as team leadership, curriculum development, and design. Although teaching leadership gradually deviated from the traditional organizational structure at this time, it was still mainly in the hands of a few people, hence it was called the "remote control teacher model". Darling (1998), transmitting pre designed teaching materials to teachers. These textbooks embody the wisdom and creativity of teaching leaders, providing clear teaching directions and strategies for teachers.

The third stage was in the 1990s, when the connotation of teacher teaching leadership was further expanded and deepened, emphasizing the concepts of collaboration, teamwork, and lifelong learning among teachers. At this time, teacher leaders not only play traditional teaching roles, but also shoulder the responsibility of reshaping school culture and promoting the development of school professional communities. The teaching leadership of teachers in this stage was no longer limited to specific individuals, but extended to all teachers who contribute to the improvement of teaching quality in schools. These teaching leaders, with their professional spirit and positive cooperative attitude, lead colleagues to participate in various activities, jointly create a positive and upward educational atmosphere, thereby continuously improving the quality of education and shaping a unique campus culture (Silva & Gimbert, 2000).

The fourth stage was from the 21st century to the present, and the core of teachers' instructional leadership gradually evolved into the autonomous guidance and decision-making of teachers in the classroom. This transformation emphasized the independence and leadership of teachers in classroom management, and they needed to take greater responsibility for classroom management, teaching strategies, and student learning outcomes. This transformation reflected the emphasis on teacher professional development and teaching autonomy in the field of education, and its application scope also expanded from basic education to higher education (Pounder, 2006). At this stage, teachers' instructional leadership occupied a core position in evaluating the quality of classroom teaching. It was known as the "guide of learning" or the "creator of efficient teaching models" (Harris, 2003). With the rapid rise of online education, teachers and students could interact and learn through online platforms, and teachers' instructional leadership could also be transmitted through technological media, marking a new stage of development for teachers' instructional leadership.

Research on Elements of Teachers' Information Instructional Leadership

Duke (1982) emphasized key aspects of leadership behavior, such as seeking teacher feedback, organizing teaching activities, ensuring resource adequacy, monitoring teaching quality, and coordinating problem-solving. Similarly, De (1984) highlighted the importance of school teaching objectives and emphasized the necessity of resource provision, teaching guidance and evaluation,

integration of faculty and staff development, and establishment of academic relationships. Murphy (1990) clarified the role of leaders in his model, including clarifying school goals, managing teaching processes, enhancing school atmosphere, and establishing a supportive work environment. Weber's (1996) five-dimensional model covered clarifying school goals, managing curriculum and teaching, enhancing school atmosphere, observing and enhancing teaching, and evaluating the teaching process. In addition, Wang & Leslie (2013) emphasized elements such as goal setting, teaching process design, atmosphere creation, and student participation. These studies provided rich perspectives for understanding instructional leadership.

Summary of Reviewed Literature

Based on the above analysis, it was found that "instructional leadership" and "information instructional leadership" were topics of great concern to current researchers, and certain research results had been achieved. According to the results of the literature review and analysis, the following characteristics were mainly presented.

(1) Research on teachers' instructional leadership became a hot topic in research.

Before the 21st century, researchers mainly focused on the leadership of principals. However, with the gradual development of distributed and shared leadership theory, the perspective of researchers began to change. They gradually realized that instructional leadership was not limited to traditional leaders such as principals, and the instructional leadership of teachers themselves also had an undeniable impact on the quality of education and teaching in schools. Although there was relatively little research on this topic, with the increasing attention to the leading role of teachers in recent years, researchers began to delve deeper into the connotation and structural elements of teachers' instructional leadership. This research field became a hot topic in the current academic community; however, there was still insufficient research in China. Therefore, it was necessary to explore teachers' instructional leadership further to enrich and improve relevant research.

(2) There was still insufficient research on the evaluation of teachers' instructional leadership.

Based on the above analysis, it was found that although previous researchers had constructed a theoretical framework for principal instructional leadership and developed a teachers' instructional leadership force table, research on the constituent elements of teacher information instructional leadership was still scarce, and the rationality of these elements had not been fully verified. On the basis of referring to existing research, policy documents, and leadership theories, this study theoretically explored the constituent elements of teacher information instructional leadership. Subsequently, an empirical survey was conducted on the college teachers' information instructional leadership through a questionnaire survey, aiming to evaluate the current level and propose targeted improvement strategie.

Methodology

This study used a convenience sampling method and an electronic survey questionnaire, targeting 1500 teachers from X University in Xinxiang City. According to the Morgan Table, 306 questionnaires were distributed to determine the sample size. The questionnaire will be distributed and collected in the form of an electronic questionnaire through the questionnaire link pushed by Questionnaire Star. After the validity screening of the questionnaire results, 4 invalid questionnaires were eliminated and 302 valid questionnaires were successfully recovered. The effective return rate reached 98%.

The survey questionnaire used in this study was a survey questionnaire by Liu (2015) in "Research on Teachers' Information Instructional Leadership". This questionnaire contained 36 questions. This study conducted a reliability test on the survey questionnaire on the current teacher's information instructional leadership. Cronbach's α analysis of the questionnaire and dimensions were all greater than 0.7, indicating good reliability of the questionnaire in this study.

Results

Demographic Analysis of the Respondents

According to statistical data, there were 140 male teachers, accounting for 46.36% of the sample size, and 162 female teachers, accounting for 53.64% of the sample size. It was consistent with the actual situation, indicating that there were more female teachers than male teachers in comprehensive universities. In terms of teaching age, there were 98 teachers with less than 10 years of teaching age, accounting for 32.45% of the sample, 116 teachers with 10-20 years of teaching age, accounting for 38.41% of the sample, and 88 teachers with over 20 years of teaching age, accounting for 29.14% of the sample. The distribution of teaching age variables was basically similar. In terms of education qualifications, there were 56 teachers with a bachelor's degree, accounting for 18.54% of the sample, 168 teachers with a master's degree, accounting for 55.63% of the sample, and 78 teachers with a doctor's degree, accounting for 25.83% of the sample. The majority of teachers had a master's degree, and the distribution of education qualifications indicated that teachers were engaged in higher education work in different qualifications. In terms of academic titles, there were 102 teaching assistants, accounting for 33.77% of the sample, 140 lecturers, accounting for 46.36% of the sample, and 60 professors, accounting for 19.87%. Most teachers had academic titles at the level of lecturers, and the number of professors with higher academic titles was limited.

Descriptive Analysis of the Current Teachers' Information Instructional Leadership

According to the analysis results in Table 1, it was observed that the overall average score of teachers' information instructional leadership at X University in Xinxiang City, Henan Province was 3.80, which was at a high level. Among them, the average score for the dimension of creating a good

school information environment atmosphere for college teachers was the highest, at 3.935, and the mean of establishing and planning the development vision of information instructional was the lowest, at 3.637. It indicated that X university teachers in Xinxiang City, Henan Province, had performed well in the implementation and management of information instructional but still needed to be strengthened in establishing and planning the development vision of information instructional.

Table 1: Current Teachers' Information Instructional Leadership (*N*=302)

Dimension	N	M	SD	Interpretation
Establishing and planning the development vision of information instructional	302	3.63	1.06	High
Implementation and management of information instructional	302	3.84	0.91	High
Creating a good school information environment atmosphere	302	3.93	0.80	High

Differences Analysis on the Levels of Teachers' Information Instructional Leadership

This study used independent sample *t*-test and one-way ANOVA analysis methods to examine whether there were significant differences in college teachers' information instructional leadership in a certain university in Xinxiang City, Henan Province, under different demographic backgrounds.

Table 2: Analysis of Differences in Teachers' Information Instructional Leadership of Different Genders

Dimension	Gender	M	SD	*t*	*p*
Establishing and planning the development vision of information instructional	Male	3.626	1.114	-0.172	0.864
	Female	3.647	1.028		
Implementation and management of information instructional	Male	3.952	0.818	2.009	0.045
	Female	3.745	0.978		
Creating a good school information environment atmosphere	Male	3.937	0.823	0.025	0.98
	Female	3.934	0.799		

The independent sample *t*-test results under gender variables are shown in Table 2. From the data, it could be seen that there were no significant differences ($p>0.05$) in establishing and planning the development vision of information instructional and the creating a good school information environment atmosphere among college teachers of different genders. However, there was a significant difference ($t=2.009$, $p=0.045$) in the implementation and management of information instructional among college teachers of different genders.

The results of the One-way ANOVA analysis under the variable of teaching age are shown in Table 3. From the data, it could be seen that there were no differences in the establishing and planning the development vision of information instructional, the implementation and management of information instructional, and the creating a good school information environment atmosphere($p>0.05$).

Table 3: Analysis of Differences in Teachers' Information Instructional Leadership of Different Teaching Ages

Dimension	Teaching age	M	SD	F	p
Establishing and planning the development vision of information instructional	Less than 10 years	3.596	1.096	2.861	0.059
	10-20 years	3.809	0.959		
	More than 20 years	3.457	1.145		
Implementation and management of information instructional	Less than 10 years	3.827	0.912	0.049	0.952
	10-20 years	3.862	0.914		
	More than 20 years	3.830	0.918		
Creating a good school information environment atmosphere	Less than 10 years	3.904	0.825	0.976	0.378
	10-20 years	4.015	0.760		
	More than 20 years	3.865	0.853		

The results of the One-way ANOVA analysis under the educational demographic background are shown in Table 4.

Table 4: Analysis of Differences in Teachers' Information Instructional Leadership with Different Education Qualifications

Dimension	Education qualification	M	SD	F	p
Establishing and planning the development vision of information instructional	Bachelor's degree	2.864	1.141	20.333	<0.001
	Master's degree	3.812	0.947		
	Doctor's degree	3.815	1.022		
Implementation and management of information instructional	Bachelor's degree	3.267	1.094	15.251	<0.001
	Master's degree	3.941	0.841		
	Doctor's degree	4.039	0.749		
Creating a good school information environment atmosphere	Bachelor's degree	3.683	0.912	4.291	0.015
	Master's degree	3.947	0.807		
	Doctor's degree	4.091	0.694		

From the data, the establishing and planning the development vision of information instructional by college teachers with different education qualifications showed a significant 0.001 level (F=20.333, p<0.001). The Implementation and management of information instructional byCollege teachers with different education qualifications showed a significant 0.001 level (F=15.251, p<0.001). The Creating a good school information environment atmosphere by College teachers with different education qualifications showed a significant difference at the 0.05 level (F=4.291, p=0.015).

The results of the One-way ANOVA analysis under the variable of academic titles are shown in Table 5. From the data, The establishing and planning the development vision of information instructional among college teachers with different academic titles showed a significant 0.001 level (F=24.920, p<0.001). The Implementation and management of information instructional by college

teachers with different academic titles showed a significant level of 0.001 (F=20.155, p<0.001). The Creating a good school information environment atmosphere by college teachers with different academic titles showed a significant difference at the 0.05 level (F=4.449, p=0.012).

Table 5: Analysis of Differences in Teachers' Information Instructional Leadership with Different Academic Titles

Dimension	Academic title	M	SD	*F*	*p*
Establishing and planning the development vision of information instructional	Teaching assistant	3.082	1.132	24.920	<0.001
	Lecturer	3.861	0.955		
	Professor	4.057	0.801		
Implementation and management of information instructional	Teaching assistant	3.423	1.056	20.155	<0.001
	Lecturer	3.977	0.818		
	Professor	4.235	0.499		
Creating a good school information environment atmosphere	Teaching assistant	3.747	0.840	4.449	0.012
	Lecturer	4.008	0.788		
	Professor	4.085	0.756		

Discussion

Current Teachers' Information Instructional Leadership

According to the results of this study, it was understood that the current teachers' information instructional leadership at X University in Xinxiang City, Henan Province, was at a high level. Creating a good school information environment atmosphere > Carrying out and managing information instructional>Establishing and planning the development vision of information instructional, ranked from high to low. There was a significant gap between college teachers and the requirements of the new era in terms of information instructional ability in establishing and planning, establishing and planning the development vision of information instructional. Although teachers had acquired basic information technology application abilities, there was still a lack of innovation in information instructional. In addition, the deep integration of information technology and subject teaching also needed to be further strengthened, which was similar to the research findings of Sun (2019). In terms of creating a good atmosphere for school informatization, teachers had relatively consistent teachers' information instructional leadership. College teachers had a profound understanding of the value of information instructional, had high expectations for information instructional, and had a strong desire to improve personal information instructional ability. This result was similar to the research findings of Yang & Wang (2023).

Differences in Teachers' Information Instructional Leadership under Different Demographic Backgrounds

According to the analysis results, there were significant differences in teachers' information instructional leadership under different genders, teaching age, education qualifications, and academic

titles.

Through the analysis of teachers' information instructional leadership of different genders, it was found that there were significant differences in the implementation and management of information instructional among college teachers of different genders. Among them, the average of male teachers was higher than that of female teachers, and male teachers might have been more inclined or skilled in this field. This finding was consistent with the research findings of Jang & Chang (2016). However, there was no significant difference between male and female teachers in establishing and planning the development vision of information instructional, as well as creating a good school information environment atmosphere.

Through the analysis of college teachers' information instructional leadership of different teaching ages in universities, it was found that there was no significant difference in teachers' information instructional leadership of different teaching ages. This research result was consistent with the research results of Jang & Chang (2016). Still, there was a difference with Li's (2016) research on the information instructional ability of undergraduate teachers in normal majors. This study showed that there was a significant difference in the level of information instructional ability among teachers of different teaching ages, and the level of information instructional ability of newly hired teachers was generally higher than that of in-service teachers. According to the results of this study, teaching age only represented the teaching time of teachers and might not necessarily represent investment and experience in information instructional. Some newly hired teachers might be more advanced in teaching philosophy, teaching methods, and skills, thus performing better in information instructional.

Through the analysis of college teachers' information instructional leadership from universities with different education qualifications, it was found that there were significant differences in college teachers' information instructional leadership from universities with different education qualifications. The mean of teachers with master's and doctor's degrees was significantly higher than that of teachers with undergraduate degrees, with doctor's degrees having the highest mean. It might indicate that highly educated teachers were more inclined or skilled in the work of information instructional. This difference might be related to the academic background, professional knowledge, and research experience of the teachers. This research result was consistent with the findings of Han & Ge (2018). According to this research result, more attention should have been paid to the education qualification of college teachers in improving information instructional leadership. Highly educated teachers, especially those with doctor's degrees, had higher potential and abilities in information instructional and should have been provided with more training and development opportunities.

Through the analysis of college teachers' information instructional leadership from different academic titles, it was found that there were significant differences in college teachers' information instructional leadership from different academic titles. The means of lecturers and professors were

significantly higher than those of teaching assistants. This difference might have been related to the career development stage, teaching age, and professional status of teachers. The research results were consistent with those of Jang & Chang (2016) but differed from those of Han & Ge (2018).

Conclusions

1) The teachers' information instructional leadership at X University in Xinxiang City, Henan Province, was at a high level.

2) There were significant differences in teachers' information instructional leadership of different genders, education qualifications, and academic titles.

There were significant differences in teachers' information instructional leadership of different genders, and there were significant differences in the dimensions of implementation and management of information instructional. Overall, there was a higher level of information instructional development and management among male teachers than female teachers. There was no significant difference in the dimensions of establishing and planning the development vision of information instructional and creating a good school information environment atmosphere. There was no significant difference in teachers' information instructional leadership with different teaching ages. There were significant differences in teachers' information instructional leadership with different education qualifications. Overall, the higher the education qualification, the higher the level of information instructional, indicating that highly educated teachers were better at the work of information instructional. There were significant differences in teachers' information instructional leadership with different academic titles. The level of information instructional was highest among professors, while the level of information instructional was lowest among teaching assistants. This difference might be related to the career development stage, teaching age, and academic titles of teachers.

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