Teaching Ability, Performance and Professional Development Among Artificial Intelligence Chinese Professors

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Abstract – *Research into the teaching ability, performance and professional development of AI professors in China is necessary to comprehend the developments in AI teaching professional development. Chinese professors' increasing use of AI demonstrates its relevance in educational institutions' improvement. The research outcomes will improve future educators' knowledge to utilize AI to teach students. 415 questionnaires were distributed to faculty and employees of 5 universities in China. The descriptive design was used and standardized questionnaires were sent online using different platforms.*

Analysis of variance was employed to identify relationships between variables such as teachers' attitudes and actions and students' future academic and career possibilities. This indicates that there is a high possibility of an increase in teaching performance among AI Chinese Professors (as to the accuracy, quality and outcome) as teaching ability among AI Chinese Professors (as to effectiveness, cognitive and achievement) increases since all the p-values are highly statistically significant at 0.01 level, which ascertains that the strong positive direct relationship between teaching ability among AI Chinese Professors (as to effectiveness, cognitive and achievement) and teaching performance among AI Chinese Professors (as to the accuracy, quality and outcome) is highly substantial not just random nor by chance. The study also shows a high level of Teaching Performance among AI Chinese Professors regarding accuracy, outcome and quality. There is a positive association between teaching ability, performance, and professional development suggesting that they impact one another. Therefore, an action plan has been developed to improve the development and performance of Chinese university teachers in AI.

Keywords – *teaching ability, performance, professional development, Chinese university professor*

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INTRODUCTION

Recently, technology has grown to play a vital role as one of the most influential factors shaping our society. Recent advancements in computer technology and artificial intelligence (AI) have impacted every aspect of human existence. The "intelligent age" is ushered in by recent advances in AI. The usage of AI in teaching has expanded considerably. Internet use as a learning resource in higher education has evolved from an experimental novelty to nearly ubiquitous use. Due to the expansion of digital learning, Chinese professors utilized AI in teaching.

Chinese professors' increasing use of AI demonstrates its relevance in educational institutions' improvement. Based on the presented facts, it is clear that AI is being utilized significantly in the education field to improve teaching ability and performance among Chinese professors. Hence, it helps evaluate professors' teaching abilities, performances, and professionalism to enhance the standard of AI in education. Research into the teaching ability, performance, and professional development of AI professors in China is necessary to comprehend the developments in AI teaching professional development.

Hence, the usage of AI keeps gaining significance as a pervasive computing technology because it enhances the potential for economic and societal growth. Recent studies demonstrate that students are excited about extending their knowledge when taught using an engaging AI curriculum. As a result, significant progress has been made in artificial intelligence [1].

Numerous AI concepts have been spawned by robotics research, and some technologies can be applied to AI research to model the global state of affairs and characterize the dynamics of global shifts. Due to the prevalence and significance of robotics in AI, it is essential to integrate relevant practical content in AI courses, such as robot programming and behavior development, so that students can derive greater enjoyment from learning the area. It also has a deeper understanding of AI principles and technologies [2]

. The development of artificial intelligence has enhanced people's daily lives and revolutionized their worldviews. As a result of breakthroughs in artificial intelligence, new learning and teaching opportunities have been developed. With the advent of AI, a new instructional medium has emerged. Enhanced sketching, learning skills, and photography expertise are required to succeed in the new medium. Hence, the advent of AI has opened a new path for education development, but students are also forced to play a more inventive role in their professional training. These developments improve the teaching abilities and the performance of the professors [3].

Through the lens of the Technological, Organizational, and Environmental (TOE) paradigm, this study explored the use of AI by Chinese teachers in the classroom. TOE is an integrated framework that provides theoretical foundations for IT adoption and diffusion research. This thesis examines how the technological, organizational, and environmental landscapes impact the diffusion of innovative IT. TOE is an organizational theory that sheds insight on how these three factors—technology, organization, and environment—influence choice. The Technological backdrop consists of currently implemented and commercially available yet underutilized technology [4].

Current technologies and internal infrastructure within an organization or institute, as well as those available on the market but not within the organization, all influence the adoption process of IT innovation. According to the research conducted by Baker [5], the available technologies inside an organization have a substantial impact on the adoption process since they establish the limits of possible change.

Organizational features include the scope and scale, managerial structure, human resources, linking mechanisms between employees, intra-firm communication systems, and the number of unused resources [4]. The level of ICT experience is of the most significant factors that may influence how fast and successfully an organization implements IT advances [6].

According to Tahiru [4], the Theory of Effect (TOE) framework is a valuable instrument for analyzing the factors that drive innovation adoption, in this example, the usage of AI in academia. This study will investigate the teaching ability, performance and professional development among AI Chinese professors.

OBJECTIVES OF THE STUDY

This study aimed to determine Chinese professors' teaching ability, performance, and professional development using AI to indicate the significant impact of AI on the professional development of the professors.

More specifically, it aimed to describe the demographic information among AI Chinese Professors with regard to sex, age, highest educational attainment, marital status, length of service and professional development; determine the respondents' Teaching Ability among of AI Chinese Professors in terms of effectiveness, cognitive, and achievement; identify Performance in terms of accuracy, quality, and outcome; assess the Professional Development concerning knowledge and skills, improvement, and efficiency; test the difference in responses on Teaching Ability, Performance and Professional Development among AI Chinese Professors when grouped according to profile; establish the relationship between and among the three variables (Teaching Ability, Performance and Professional Development); and propose a Faculty development plan.

MATERIALS AND METHODS

Research Design

This quantitative study investigated the links between teaching ability, performance and professional development among AI Chinese Professors. To completely comprehend and appreciate the investigated topic, quantitative methodologies were employed. Using quantitative methodologies, researchers observe conditions or events that impact people. Consequently, numbers and statistics can more effectively convey the conclusions of quantitative studies. This data set includes factors such as the ages, education levels, marital statuses, years of experience, and leadership positions of faculty members in Chinese universities. Teaching ability, performance and professional development among AI Chinese Professors were investigated and analyzed.

Participants of the Study

This study described the gender, age, the highest degree of education, marital status, years of service, and leadership roles at the university level among Chinese university faculty members. Institutions whose members did not instruct were excluded from the analysis. The sample size calculator from Raosoft offers a population of 4082; with a 5% margin of error, a 96% confidence

level, and a 50% response distribution, the resulting sample size was 415. The researcher chose students from various colleges and institutions using a random sampling approach.

Teachers from a wide range of demographics (including gender, age, the highest degree of education, marital status, years of experience, and leadership positions at their universities) were sent a survey via WeChat and email. Also evaluated was the questionnaire's dependability. Invalid surveys were either too brief or contained too many replies that were too identical. A week later, respondents were asked to complete the survey again, and any responses indicating considerable shifts were eliminated.

Table 1
Subjects of the Study

Universities Name	Teachers Numbers (N)	Sample Size (n)
Chifeng University	1000	100
Inner Mongolia Vocational and Technical college of communication	627	60
Lu Xun Academy of Fine Arts	518	55
Dalian Art College	864	90
Shenyang Conservatory of Music	1073	110
Total	**4082**	

Data Gathering Instruments

In the study, the following variables were measured with standardized instruments:

The first segment utilized the Teaching Capability Scale established by Incerti for George Mason University (2020). A teacher's competence can be evaluated based on efficacy, cognitive capacity, and student outcomes. Consequently, the three criteria were utilized to analyze the observed Teaching Ability (Effectiveness, Cognitive, and Achievement).

Thirty-five questionnaires were issued to faculty at Chinese universities; 33 were returned, and 32 were declared valid for study. The internal consistency coefficient was used to evaluate the Scale's reliability (coefficient). The coefficient value for each item on the Faculty Teaching Ability Scale was 0.904. It indicates that the Scale is highly reliable due to its excellent internal consistency.

Part 2 of the Teaching Performance (Accuracy, Quality, and Outcome) Report for the Chinese University. Incerti created the Teaching Performance Scale at George Mason University (2020). A teacher's performance can be evaluated based on efficacy, cognitive ability, and student outcomes. Therefore, the three variables were employed to analyze the observed Teaching Performance (Accuracy, Quality, and Outcome). Each factor's coefficient on the Faculty Teaching Performance Scale averaged 0.916. It indicated that the Scale was highly reliable due to its internal consistency.

Ray (2021) created the Professional Development Scale (Knowledge and skills, Improvement, and Efficiency) for Section 3. Professional Development can be judged successful based on three pillars: knowledge and skills, development, and efficiency. To deconstruct the observed PD, we investigated the following three factors: (Knowledge and abilities, Enhancement, and Productivity). Each item on the Faculty Professional Development Scale had a coefficient of 0.893. It indicated that the reliability of the Scale in terms of its internal consistency was quite good.

Indicator	Cronbach Alpha	Remarks
Teaching Ability	0.904	Excellent
Teaching Performance	0.916	Excellent
Professional Development	0.893	Good

It can be seen that the Cronbach Alpha Value for all the items of Teacher's Ability, Performance and Professional Development are shown to be at least 0.893. it can be concluded that the reliability of these items is all good and acceptable.

Data Gathering Procedure

After distributing questionnaires, the researcher contacted each participant to explain the study's goal via WeChat, with some questionnaires collected the same day, and others within two weeks with the assistance of friends and online surveys supplied by email.

Data Analysis

To perform data analysis, the following statistical tools were used. Frequency distribution to describe the profile of the respondents. Weighted means and ranking were used to calculate the average value of data. The data were tested on the normality and the result of Shapiro-Wilk. The test revealed that the p-values of three major variables were less than 0.05 which means that the data set was not normally distributed. Mann Whitney U test and Kruskal Wallis to test the significant difference of responses on the three variables mentioned when grouped according to profile, Spearman rho was used to test the significant relationship between the three variables which were teaching ability, performance and

professional development.

The following Likert Scale was used in assessing the variables: 3.50 – 4.00- Strongly Agree; 2.50 – 3.49- Agree; 1.50 – 2.49- Disagree; 1.00 – 1.49 –Strongly Disagree. In addition, all data were treated using a statistical software known as PASW version 26 to further interpret the result of the study using an alpha level of 0.05.

Ethical Consideration

The Lyceum of the Philippines University–Batangas Research Ethics Committee approved the continuation of this thesis. The entire investigation was completed in conformity with all applicable regulations. During regular information meetings, all participants were allowed to ask questions and learn more about the study's objectives and methodology. All participants provided written consent and received a participant information sheet for future use. Each participant was informed that they were under no obligation to cooperate and could, at any point, terminate all collaboration. All respondents have been provided pseudonyms, and the names of the participating institutions and respondents have been modified or masked to protect their anonymity. The Faculty of Education at Lyceum of the Philippines University–Batangas stores electronic data on a password-protected computer and paper data in a locked filing cabinet.

RESULTS AND DISCUSSION

Table 1
Teaching Ability among AI Chinese Professors

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Effectiveness	3.34	Agree	3
2. Cognitive	3.40	Agree	1
3. Achievement	3.36	Agree	2
Composite Mean	**3.37**	**Agree**	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 – 1.49 =Strongly Disagree

The table presents the teaching ability among AI Chinese Professors.. The composite mean of 3.37 indicated that there was a high level of teaching ability among AI Chinese professors. Among the items cited, Cognitive obtained the highest weighted mean score of 3.40, indicating that among the respondents, the most chosen level of agreement was "Agree."

According to Joshi et al. [7], the cognitive ability of Chinese AI teachers brings individualized education to a new level by supporting teachers in gaining a deeper understanding of their students' distinct learning styles, preferences, and aptitudes. However, it needs to be clear that such objectives would benefit education. They pointed out long ago that many cognitive abilities that make up advanced forms of thought are based on their social relevance and have little direct significance for the individual student.

The Achievement indicator based on the teaching ability among AI Chinese Professor obtained a weighted mean of 3.36, which indicated that most of the respondent levels of agreement about the assessment of teaching ability among AI Chinese Professors as to Achievement were rated "agreed" according to the Likert Scale legend stated under the table above.

According to Nwoke et al. [8], teaching ability among AI Chinese professors may be regarded as the achievement among AI teachers or support of the professors to either the students, the school, or themselves. Teachers are concerned about the influence of teaching ability achievement among AI teachers over time. It has been demonstrated that teaching ability achievement among AI teachers of teaching ability among AI results in a variety of positive consequences for the school and the students, especially among Chinese professors. Therefore, analyzing the teaching ability among AI Chinese professors as to achievement is essential, as expanding educational possibilities is essential. Teaching ability achievement is a sufficiently researched study subject despite the approaches that have been employed [9]. According to Nwoke et al. [8], teaching ability achievement among AI teachers is proposed to play an essential role in the development of AI teachers. Specifically, the significance of students' teachers may be considered. Cruz-Jesus et al. (2020) concluded that teachers' expertise and experience and smaller-than-average class sizes were positively associated with teaching ability achievement among AI teachers.

Al-Abdallat and Alwraikat [10] agreed that students' attributes may result from the teaching ability achievement among AI teachers. The teaching ability achievement among AI teachers is influenced by ethnicity and culture. Technology adoption is commonly acknowledged as a significant determinant of teaching ability achievement among AI teachers, although scholars have reached divergent conclusions about the impact of AI on teachers' achievement.

Moreover, the Effectiveness indicator had the lowest mean score of 3.34. However, the weighted mean score also indicated that the level of agreement about teaching ability among AI Chinese Professors as to

Effectiveness was rated "agreed" according to the Likert Scale legend in the table above.

Teaching effectiveness among AI teachers is necessary to improve teaching and learning ability [7]. To effectively regulate and orchestrate the teaching ability, AI teachers must develop a deep understanding of the core concepts of AI to establish a sensibility of AI and understand the benefits and potential problems that the deployment of AI may entail [11].

Table 2
Teaching Performance among AI Chinese Professors

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Accuracy	3.36	Agree	3
2. Quality	3.40	Agree	2
3. Outcome	3.41	Agree	1
Composite Mean	**3.39**	**Agree**	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 – 1.49 =Strongly Disagree

The table presents the summary table on teaching performance among AI Chinese professors. Based on the composite mean of 3.39 it indicated that there was a high level of teaching performance among AI Chinese Professors**.**

Among the items cited, Outcome obtained the highest weighted mean score of 3.41, indicating that among the respondents, the most chosen level of agreement was "Agree." These results indicate the outcome of good teaching performance of teachers who will continue to exist in the future and give education geared at enhancing students' emotional intelligence, creativity, and communication abilities. According to

According to Ereje and Ambag [12], teachers successfully integrate AI into their lessons across most of the metrics, and this is both a challenging and gratifying endeavor because it requires group collaboration at every level of the process. Including AI in the classroom can personalize educational experiences, increase teachers' productivity, aid students in developing their unique skill sets, and even alleviate the strain on the classroom's already overworked creatives. AI research has raised concerns about the potential teaching performance outcome among AI teachers.

According to Wu and Yang [13], educators' subject-matter competence and capacity to transmit this knowledge to students are irreconcilable emphases. Nyanjom et al. [14] contend that teaching students to solve problems using AI and allowing them to learn the system independently is more beneficial to teachers and students. Instead of relying on memorization, teachers should encourage active participation in the learning process. Ereje and Ambag [12] suggest that a teacher's success depends on the student's knowledge and involvement. A teacher with competence in a particular field may be better equipped to impart students with knowledge, insight, and analysis. Effective teaching implies that the teacher possesses the requisite expertise to convey material by providing sufficient explanations for achieving the course's objectives.

The Quality indicator based on the teaching performance among AI Chinese Professor obtained a weighted mean of 3.40, which indicated that most of the respondent's level of agreement about the assessment of teaching performance among AI Chinese Professors as to Quality was rated "agree" according to the Likert Scale legend stated under the table above. Teaching performance quality among AI teachers can measure the effectiveness of education and the most sensitive attribute that suffers when anything goes wrong with the system. As a result, teaching performance quality among AI teachers must be taken seriously in Chinese colleges. Hence, quality is contingent on context, time and place, and the student's engagement.

Nyanjom et al. [14] noted that AI teachers who continuously exhibit quality teaching performance in the classroom are effective after analyzing the data on teacher quality models. It concluded that teachers' qualities and education degree are the best markers of their overall quality and teaching performance. However, it has also considered teaching from profession, art, and work perspectives. The concept of labor emphasizes that administrators and school leaders must accurately evaluate the work performed by teachers in schools. Teachers in the twenty-first century are focused on assimilating and adopting new instructional ideas, external policies, and obstacles. Teachers must be able to make timely, well-informed decisions regarding the optimal implementation of ever-changing and occasionally ambiguous policies into their lesson plans. As a career, teaching requires technical knowledge encompassing professional judgment and a sound knowledge base or cognitive aptitude. As highlighted by Hamid et al. [15], in the teacher effectiveness model, professionally invested educators are more likely to engage in continuous quality. Consequently, AI teachers' quality of teaching performance significantly impacts their students' ability to learn and succeed.

Moreover, lastly, the Accuracy indicator had the lowest mean score of 3.36. However, the weighted mean score also indicated that the level of agreement regarding teaching performance among AI Chinese Professors regarding Accuracy was rated "agree" according to the Likert Scale legend in the table above.

Azeem & Omar [16] discussed in a teaching performance among AI Chinese professors accuracy is anticipated to inform decision-making and provide strategic opportunities to encourage and guide educators toward the organization's goals to increase their performance. Consequently, from the perspective of establishing performance standards in an evaluation system for teachers' work, referencing seeks to construct referents; encourage a more sustained, systematic approach to information gathering, establish evaluation dimensions, discuss the diagnosis; and identify, justify, and name the criteria that will ultimately govern the evaluation. They demonstrated that teachers' projections of teaching performance among AI teachers tend to be less accurate for specific subgroups of students than others.

Table 3
Professional Development among AI Chinese Professors

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Knowledge and Skills	3.40	Agree	1.5
2. Improvement	3.38	Agree	3
3. Efficiency	3.40	Agree	1.5
Composite Mean	**3.39**	**Agree**	

Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 – 1.49 =Strongly Disagree

Table 3 presents the professional development among AI Chinese Professors with a composite mean of 3.39, which indicates that there was a high level of professional development among AI Chinese professors.

Among the items cited, efficiency got the highest weighted mean score of 3.40, indicating that among the respondents, the most chosen level of agreement is "Agree."

According to Weixin et al. [17], teachers spend a significant amount of time outside of class on paperwork, including student evaluations, designing new classes, and other administrative chores. Chinese AI teachers can enhance their time management and organizational skills through professional development seminars. This permits Chinese AI teachers to spend more time with students and less on administrative duties. Chinese AI teachers are held to a higher level regarding students' expectations of being knowledgeable about the subject matter they teach. This necessitates that teachers be prepared to respond to any question posed by a class. Through professional development programs, the teachers' subject-specific competence can be enhanced. In proportion to the quantity of professional development a teacher receives, their knowledge and expertise in their field will grow.

The Knowledge and Skills indicator based on the professional development among AI Chinese Professors got a weighted mean of 3.40, which indicated that most of the respondent's level of agreement about the assessment of professional development among AI Chinese Professors as to Knowledge and Skills was rated "agreed" according to the Likert Scale legend stated under the table above.

According to Gong et al. [18], teachers need to advance their professional development is underlined. This includes strengthening teachers' professional knowledge and competency, their social position, and expanding the number of responsibilities that teachers can play in the classroom. Professional development for teachers is widely accepted as a vital technique for enhancing the quality of classroom instruction and, as a consequence, the academic success of students. In addition, professional development serves as a conduit for disseminating new curricular and instructional practices. Teachers should receive continued, high-quality professional development throughout their careers, focusing on reinforcing and contextualizing earlier learning.

According to Zeng & Gou [19], the major indices of teachers' professional growth include professional knowledge and competence, professional development, teachers' beliefs, and instructional effectiveness. This can be accomplished by increasing teachers' understanding of professional development's significance and motivation to pursue it. In the context of current educational reform projects, the constraints of diverse institutional contexts and varying role expectations pose a barrier to teacher professional development. Despite this, it is vital to strengthen teachers' literacy levels and enhance their professional knowledge and skills by applying this development. Teachers must constantly study and obtain new material to improve their teaching and increase their professional expertise and education-related skills.

Moreover lastly, the improvement indicator had the lowest mean score of 3.38. However, the weighted mean score also indicated that the level of agreement about

professional development among AI Chinese Professors to Improvement was rated "agree."

Due to the inevitable rapid advancement of technology, those involved in AI and professional development among Chinese AI teachers always search for new and improved instructional techniques. Hence, programs for professional development should be planned strategically to fit the needs of the participants and should be geared toward reaching specific results. Chinese AI teachers improve as a result of professional development as a means of assisting students in acquiring the complex skills essential for success in the modern world is gaining traction. Competencies such as in-depth knowledge of a challenging topic, critical thinking, complex problem solving, effective communication and teamwork, and self-direction can be promoted through highly sophisticated instructional techniques. Therefore, teachers must have access to high-quality professional development opportunities that provide them with the information and resources necessary to design and implement successful methods for teaching these abilities in the classroom [20].

Table 4
Relationship between Teaching Ability and Teaching Performance

Effectiveness	rho	p-value	Interpretation
Accuracy	.790**	0.000	Highly Significant
Quality	.787**	0.000	Highly Significant
Outcome	.784**	0.000	Highly Significant
Cognitive			
Accuracy	.848**	0.000	Highly Significant
Quality	.836**	0.000	Highly Significant
Outcome	.825**	0.000	Highly Significant
Achievement			
Accuracy	.886**	0.000	Highly Significant
Quality	.873**	0.000	Highly Significant
Outcome	.851**	0.000	Highly Significant

Legend: Significant at p-value < 0.01

Table 4 presents the association between teaching ability and performance. It was observed that the computed rho-values indicated a robust direct correlation, and the resulting p-values were all less than the alpha level. This means that a significant relationship existed and implied that the better the teaching ability, the better the teaching performance.

In other words, it can be concluded that there was a strong relationship between Teaching Ability among AI Chinese Professors Effectiveness and Teaching Performance among AI Chinese Professors as to Accuracy, Quality, and Outcome, which indicated that there was a high possibility of an increase in teaching performance among AI Chinese Professors (as to the accuracy, quality and outcome) as teaching ability among AI Chinese Professors (as to effectiveness, cognitive and achievement) increases since all the p-values were highly statistically significant at 0.01 level, which ascertained that the solid positive direct relationship between teaching ability among AI Chinese Professors (as to effectiveness, cognitive and achievement) and teaching performance among AI Chinese Professors (as to the accuracy, quality and outcome) was highly substantial not just random nor by chance.

Teaching ability and performance are essential in rating teaching effectiveness and achievements. The results indicate that teaching ability and teaching performance have great significance. Hence, it increases as their understanding of pedagogical competencies expands.

Chinese AI teachers play a vital role in the development and evolution of their students, and they bear a great responsibility for ensuring the long-term viability of the learning process from the onset through lesson design, activity execution, evaluation, analysis, and follow-up. Experience in the field may be a tremendous asset for a teacher, and if a teacher stays in the profession for a long time and puts out significant effort in their studies and, most importantly, their teaching, they will become good educators.

Azeem and Omar [16] process quality learning in schools reveals that instructors are competent and of high quality since this reflects the quality or the quality of the schools' human resources in the administration of the learning process in schools.

Table 5 shows the association between teaching ability and professional development. It was observed that the computed rho-values indicated a very strong direct correlation, and the resulting p-values were all less than the alpha level. This means that a significant relationship existed and showed that the better the

teaching ability, the better the professional development.

In other words, it can be concluded that there is a strong relationship between Teaching Ability among AI Chinese Professors (as to Effectiveness, Cognitive and Achievement). Professional development among AI Chinese Professors (as to knowledge and skills, Improvement and Efficiency) indicated that there was a high possibility of an increase in professional development among AI Chinese Professors (Knowledge and skills, Improvement and Efficiency) as teaching ability among AI Chinese Professors (as to effectiveness, cognitive and achievement) increases since all the p-values a were highly statistically significant at 0.01 level, which ascertained that the strong positive direct relationship between teaching ability among AI Chinese Professors (as to effectiveness, cognitive and achievement) and professional development among AI Chinese Professors (as to Knowledge and skills, Improvement and Efficiency) was highly substantial not just random nor by chance.

Table 5
Relationship between Teaching Ability and Professional Development

Effectiveness	**rho**	**p-value**	**Interpretation**
Knowledge and Skills	.788**	0.000	Highly Significant
Improvement	.784**	0.000	Highly Significant
Efficiency	.789**	0.000	Highly Significant
Cognitive			
Knowledge and Skills	.827**	0.000	Highly Significant
Improvement	.832**	0.000	Highly Significant
Efficiency	.845**	0.000	Highly Significant
Achievement			
Knowledge and Skills	.852**	0.000	Highly Significant
Improvement	.824**	0.000	Highly Significant
Efficiency	.826**	0.000	Highly Significant

Legend: Significant at p-value < 0.01

According to Miao and Yao [21], teachers' perspectives and pedagogical expertise are also developed through professional development, allowing them to execute more effective strategies for teaching ability. They demonstrate that professional development increases the teaching ability of Chinese AI teachers. A parallel study by Göçen and Aydemir [22] contends that professional development improves content knowledge and teaching skills. Although there is an apparent rational link between teachers' professional advancement and their student's academic progress, demonstrating this link has proven problematic.

According to Fauziyah et al. [23], collaboration between teaching ability and professional development influences student achievement gains and teachers' perceptions of their roles. The many perspectives and cultural movements of a community are represented in the benefits that teachers obtain through collaborative activities since they can evaluate their expertise using many diverse theories. The benefits of teachers' continual professional development on their students' motivation to achieve in school vary. Motivated students respond more actively to their lecturers' efforts. They do not require any assistance to complete the task. Teachers play a critical role in building teacher-student solid interactions that help students feel safe and supported in the classroom and provide the essential scaffolding for developing crucial social and academic skills. Professional development provides people with training and knowledge beyond what is necessary to execute their existing positions successfully. This development in education was initially referred to as "in-service training," with the phrase focusing solely on the delivery mechanism rather than the outcomes.

Table 6
Relationship between Teaching Performance and Professional Development

Accuracy	**rho**	**p-value**	**Interpretation**
Knowledge and Skills	.863**	0.000	Highly Significant
Improvement	.849**	0.000	Highly Significant
Efficiency	.878**	0.000	Highly Significant
Quality	.863**		
Knowledge and Skills	.874**	0.000	Highly Significant
Improvement	.843**	0.000	Highly Significant
Efficiency	.866**	0.000	Highly Significant

Outcome			
Knowledge and Skills	.909**	0.000	Highly Significant
Improvement	.881**	0.000	Highly Significant
Efficiency	.871**	0.000	Highly Significant

Legend: Significant at p-value < 0.01

Table 6 displays the association between teaching performance and professional development. It was observed that the computed rho-values indicated a very strong direct correlation, and the resulting p-values were all less than the alpha level. This means that a significant relationship was found and shows that the better the teaching performance, the better the professional development. In other words, there was a strong relationship between teaching performance among AI Chinese Professors (as to the accuracy, quality, and outcome). Professional development among AI Chinese Professors (as to knowledge and skills, Improvement and Efficiency) indicated that there was a high possibility of an increase in professional development among AI Chinese Professors (Knowledge and skills, Improvement and Efficiency) as teaching performance among AI Chinese Professors (as to the accuracy, quality and outcome) increased since all the p-values were highly statistically significant at 0.01 level, which ascertained that the strong positive direct relationship between teaching performance among AI Chinese Professors (as to the accuracy, quality and outcome) and professional development among AI Chinese Professors (as to Knowledge and skills, Improvement and Efficiency) was highly substantial not just random nor by chance.

The necessity of enhancing teacher quality in teaching performance and professional development so has the significance of teacher professionalism. There is a growing understanding that chances for continual professional development can significantly increase teachers' dedication and interest in their work [24]. Recent changes have significantly emphasized curriculum uniformity, resulting in Chinese AI teachers being held accountable for their students' outcomes. Chinese AI teachers face a massive challenge in producing highly skilled and globally competitive graduates. In the classroom, the caliber of teachers makes all the difference [25].

According to Rahmatullah [26], each possible indication of efficacy is influenced by several circumstances beyond the control of teachers. In conclusion, we can all agree that excellent teachers have a significant and enduring impact on their students. Teaching is a complicated profession involving both an art and a science. Moreover, he emphasized that teachers' ability to be spontaneous, innovative, and flexible is vital to the art of teaching. Central to the science of education is arranging and building a meaningful classroom experience and actively engaging in curriculum creation and student needs. A thorough understanding of pedagogy and subject matter forms the basis for any effective educational endeavor. Understanding how pedagogy affects learning is vital for encouraging a lifelong drive to study in students.

As previously stated, professional development can improve teachers' knowledge, competence, attitude, and value [23]. Over several decades, professional development for Chinese AI teachers has become one of the industry's most often researched central subjects. Most notably, teachers' professional development can influence the quality of their instruction. Professional development educates teachers with the most up-to-date knowledge on teaching and learning effectively in various situations. It also encourages teachers from other institutions to discuss and learn from one another's effective practices. Teachers' classroom management effectiveness depends on how successfully they apply their considerable educational knowledge and skills. Teachers skilled at observing, evaluating, analyzing, and anticipating their students' educational needs are accountable for their student's academic development.

According to Ereje and Ambag [12], instructional planning must be implemented competently to achieve the intended results with students. Utilizing instructional strategies, knowledgeable teachers can become competent and effective teachers who can alter the learner. As such, it necessitates the participation of teachers in preparing for class and contemplating how lessons will resonate with students after they have left the classroom. A well-structured study is an efficient method for enhancing students' comprehension. Hence, Hamid et al. [15] demonstrated that professional development options for teachers, such as seminars and workshops, improve students' academic performance, motivation, and sense of accomplishment.

Padillo et al. [25] demonstrated that teachers who participate in professional development programs enjoy numerous benefits. After attending workshops on professional development, some authors found that their views about students who are not class leaders shifted, and they rethought their classroom management strategies. Teachers' cultural competence increases when

they participate in professional development programs.

Teachers who have participated in professional development have improved in several areas, including their ability to interact with students in groups and as individuals, their ability to understand student differences, their ability to contextualize teaching and learning using local resources familiar to students, their confidence in teaching sensitive topics, and their ability to teach subject content in culturally appropriate ways [23].

CONCLUSION AND RECOMMENDATION

Based on the findings of this study, there was a high level of Teaching Ability among AI Chinese Professors in terms of effectiveness, cognitive and achievement, and teaching Performance among AI Chinese Professors as to accuracy, outcome, and quality.

There was also a high level of Professional Development among AI Chinese Professors regarding knowledge and skills, efficiency, and improvement. Assessment of respondents' opinions on Teaching Ability, performance and professional development among AI Chinese Professors was more dependent on male gender, specific Educational Attainment and Length of Service, and University Level Leadership. The relationship between and among the three variables (Teaching Ability, Performance, and Professional Development) was measured and revealed a strong positive association among these variables as the increase in one of them possibly aids in the increase of the other. A plan for Chinese professors on AI faculty development was proposed.

This study further acknowledged the vital role played by parents at home. Parents should be the students' support system in any learning environment, especially in this new educational setting. This also suggests that teachers should communicate strongly with the parents or guardians to diagnose potential problems in students' learning and address them as soon as possible.

To increase their teaching ability, performance, and professional development, teachers of AI in China should concentrate on new teaching techniques. Teachers of AI in China should thoroughly research and enhance their teaching skills, performance, and professional development. Through the teaching ability, performance, and professional development of AI, students can ensure that AI aids and improves their learning ability. Professional development among Chinese AI teachers can potentially enhance their teaching skills and performance. As a result, it serves as a guide for schools to prioritize AI teaching and performance, as well as Chinese AI teachers and the professional development of Chinese AI teachers.

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