



The Development of Digital Accounting Course Curriculum to Enhance Accounting Professional Skills and Digital Literacy for Students in Ningxia Province, China.

Ning xin Ma

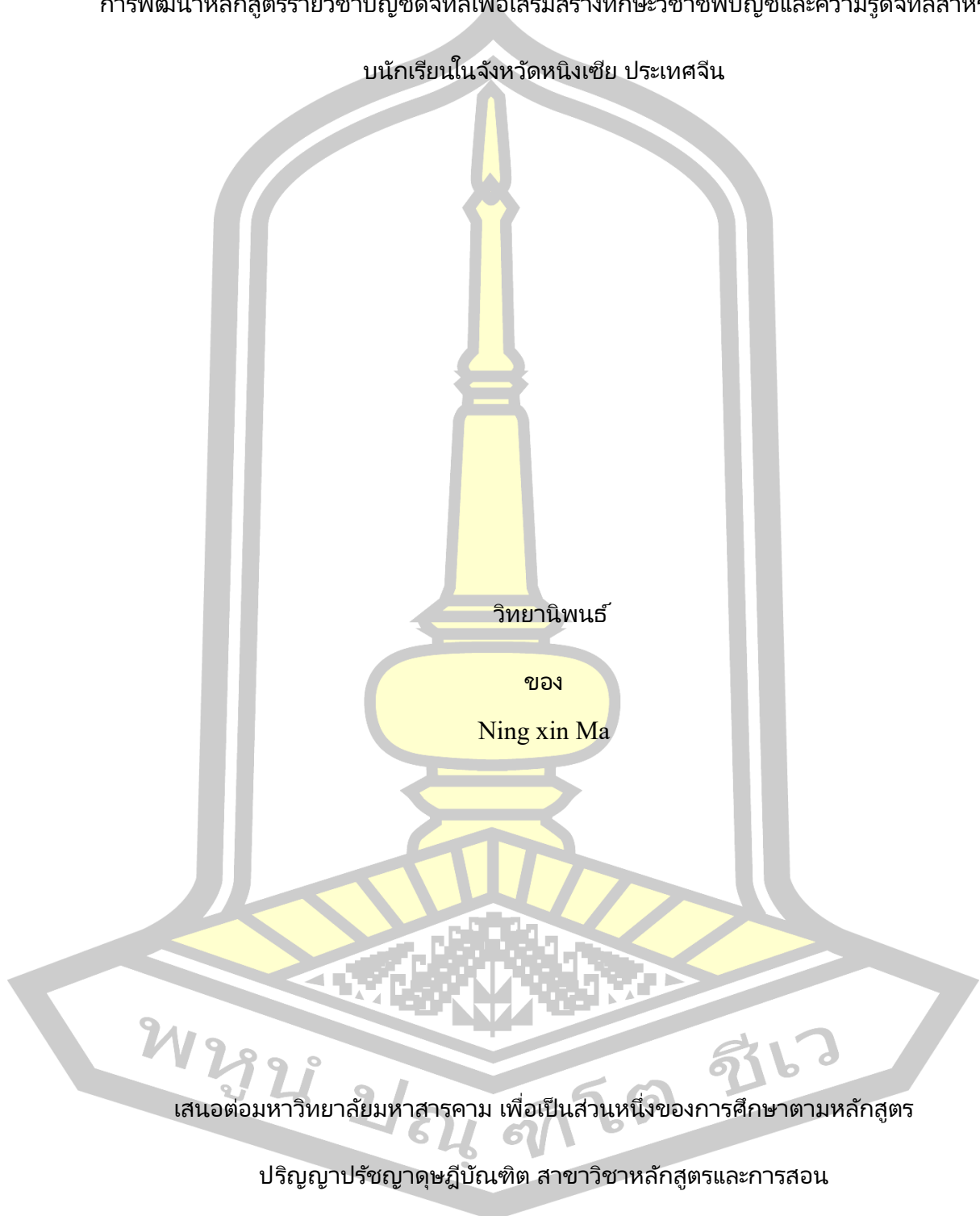
A Thesis Submitted in Partial Fulfillment of Requirements for  
degree of Doctor of Philosophy in Curriculum and Instruction

March 2024

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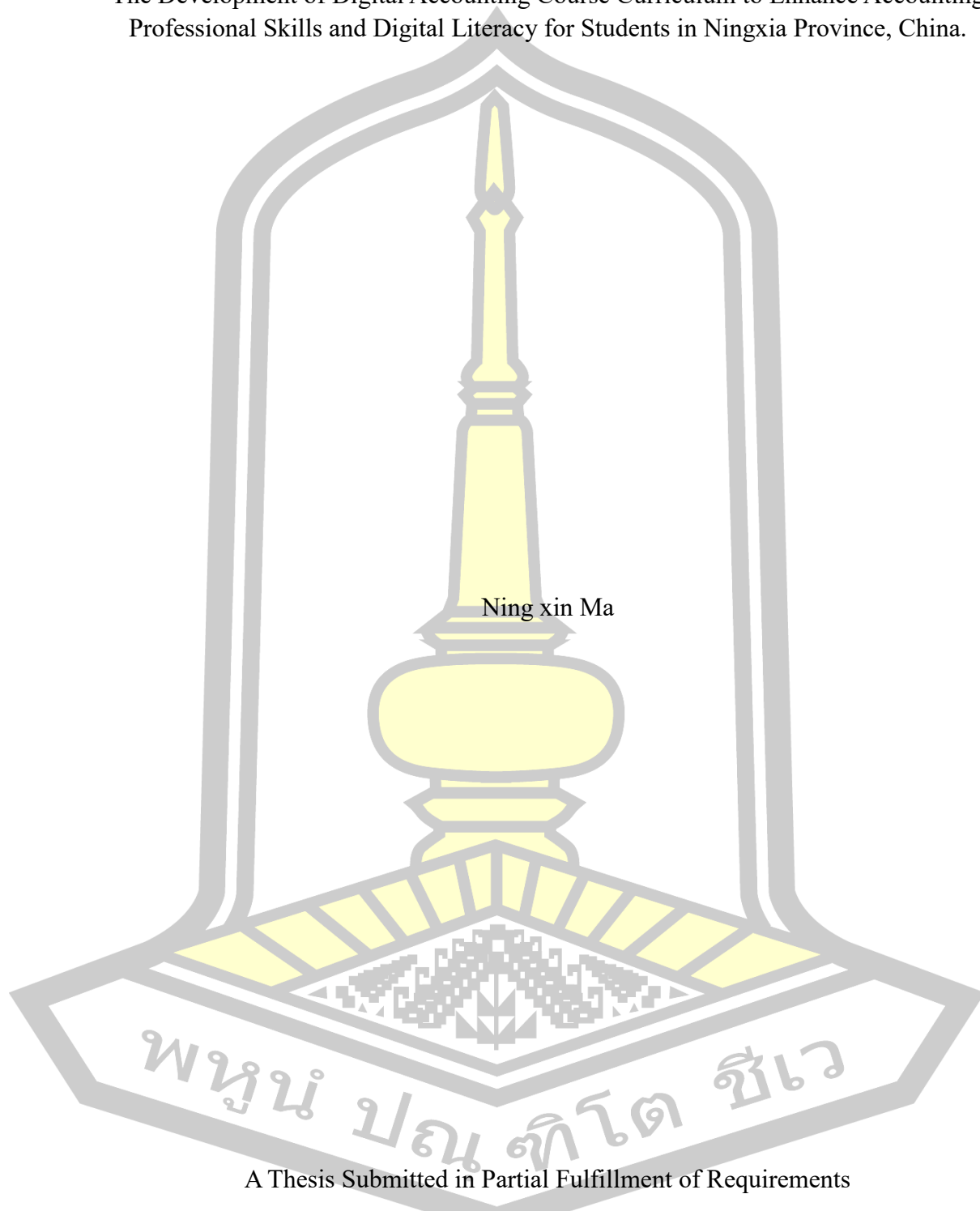
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### ABSTRACT

This study critically examines the current state and challenges of vocational accounting education in China, with a particular focus on enhancing professional skills and digital literacy in accounting. Recognizing the central role of accounting in the social sciences against a backdrop of changing political, economic, and cultural contexts, as well as the new challenges brought by digital transformation to the accounting industry, this study underscores the vital importance of digital literacy for accounting practitioners. This study critically examines the current state and challenges of vocational accounting education in China, particularly focusing on enhancing professional skills and digital literacy in accounting, guided by Taba's curriculum theory. This research aimed to 1) Investigate the current situation and problems of accounting courses in China, 2) Construct Digital Accounting Course Curriculum in Chinese vocational colleges, 3) Implement Digital Accounting Course Curriculum and 4) Evaluate Digital Accounting Course Curriculum.

The study surveyed the needs of 204 accounting students at Ningxia University of Finance and Economics to develop and adjust the curriculum content. Additionally, the study included 124 experimental group students who received the new accounting curriculum and 124 control group students who received traditional accounting courses. The improvement in accounting professional skills and digital literacy was assessed through pre-and post-tests. The newly developed accounting digital curriculum, which integrates case studies, data analysis, and ethical considerations of the digital age, aims to provide a balanced combination of theoretical knowledge and practical application, emphasizing innovative

thinking. Data were analyzed by using descriptive statistics such as frequency, percentage, mean, standard deviation, and inferential statistics for testing research hypotheses such as Independent samples t-test, Paired samples Wilcoxon signed rank test, Mann-Whitney U test, and content analysis.

The results show that students significantly improved in accounting capabilities and digital literacy through the new curriculum. The course was evaluated using the Evaluation Indicator Scoring Value Statistics Table and random checks of 30 students, revealing enhanced knowledge and skills in key areas such as financial concepts, tax management, and internal control auditing. However, there is still room for improvement in digital literacy. Student feedback indicated that despite the enhancements in course content, further improvements are needed in teaching methods, classroom interaction, and comprehensive teaching training, especially in terms of textbook selection, diversification of teaching methods, and guidance and support during the learning process.

Therefore, this study recommends the adoption of more innovative and diversified teaching methods, such as a blended online-offline teaching model, incorporating interactive teaching methods like group discussions, role-playing, and case studies, and utilizing technology tools like interactive whiteboards and educational software. It also suggests regularly updating course content to balance theoretical teaching and practical skill cultivation, using vivid cases and real data to make classroom teaching more engaging and relevant to practice.

These findings not only emphasize the urgency of reform in accounting education and the necessity of curriculum improvement but also fill the gap in linking digital literacy with accounting courses. This study makes a significant contribution to the field of accounting education, providing a robust framework for future course development and research. It presents specific recommendations for teaching methods and course content. However, it's important to note that this study mainly focuses on the accounting profession, and its conclusions may have limited general applicability.

Keyword : Curriculum and Instruction, Taba Curriculum Theory, Digital Literacy, Accounting Education Reform, Curriculum Development

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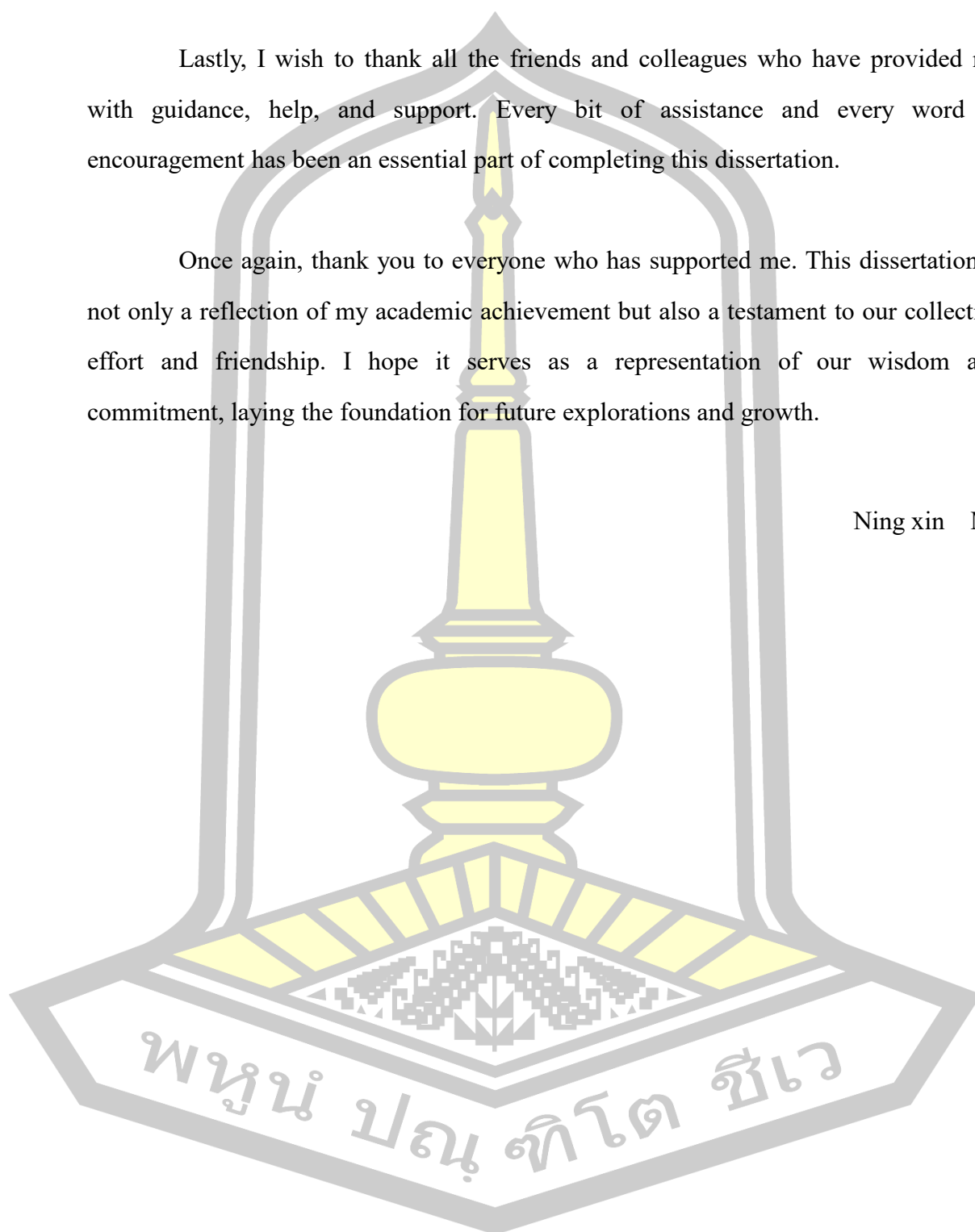
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Ning xin Ma



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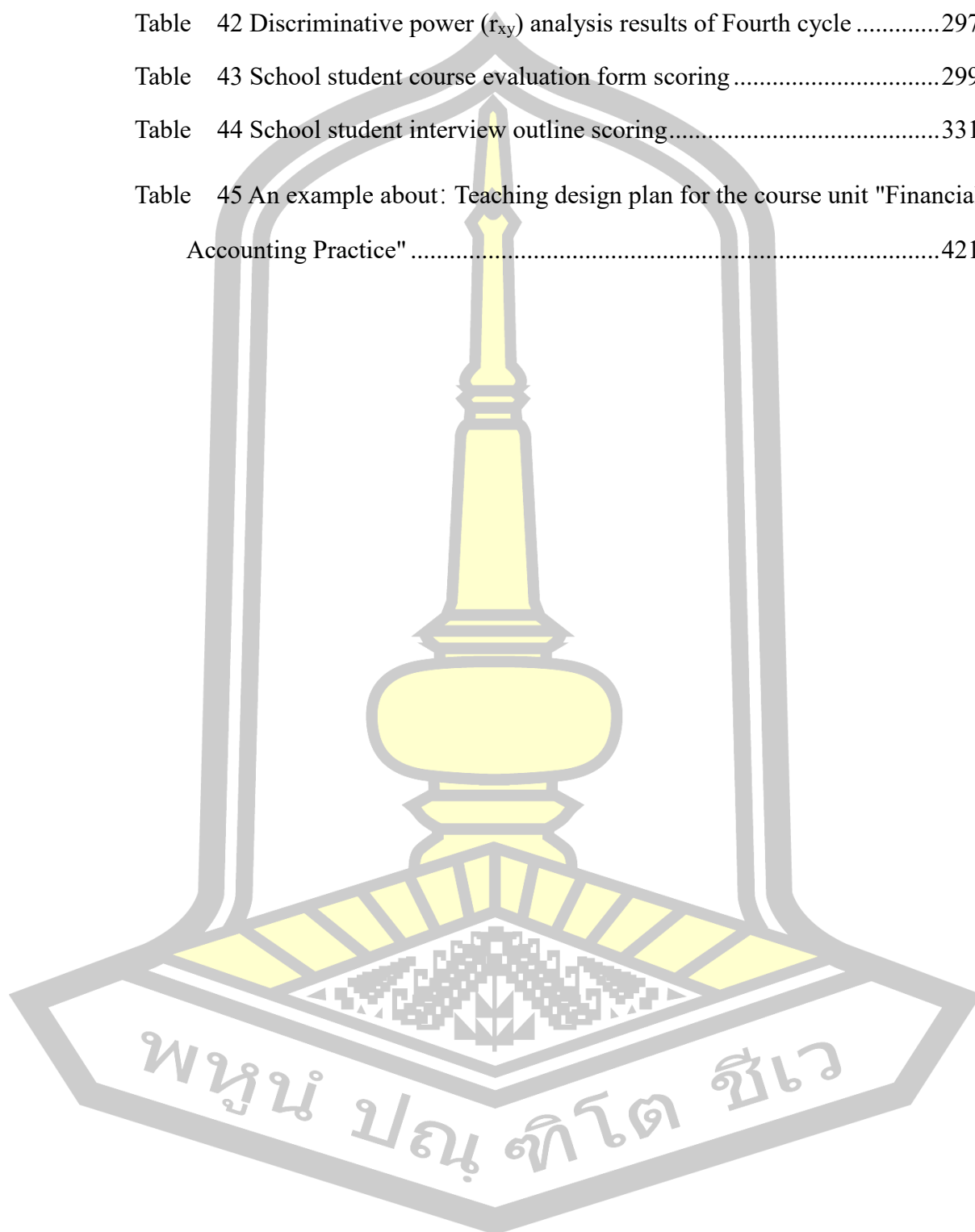
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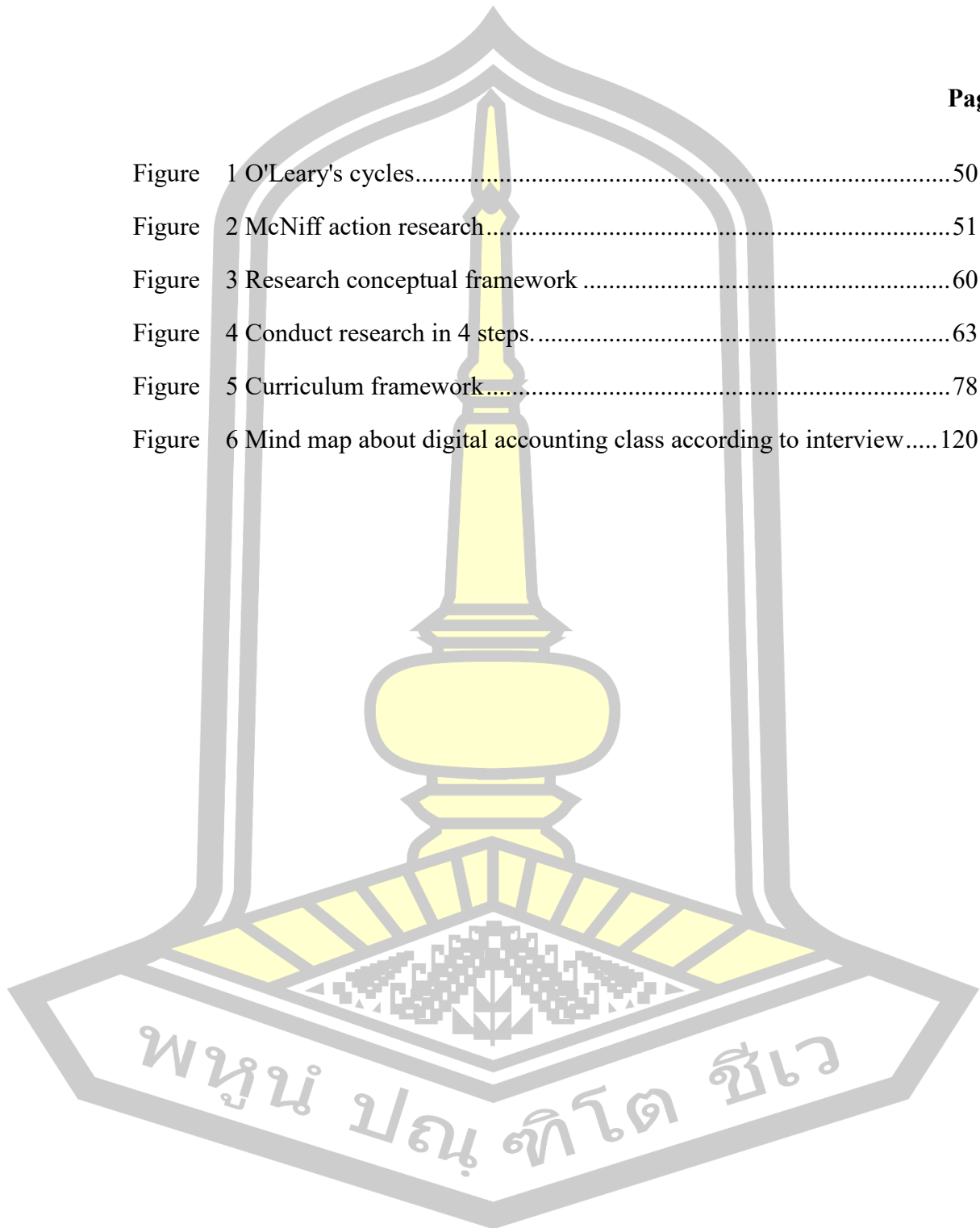
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# CHAPTER I

## INTRODUCTION

### Background

Accounting, as an applied discipline that studies the collection, classification, synthesis, analysis and interpretation of human financial activities and cost data, has become an integral part of social sciences and important management disciplines. Tekbas (2018) pointed out that a country's political, economic, and cultural environment determine the basic pattern of accounting development. Since China's reform and opening up in 1978, changes in the external environment, such as the reform of state-owned enterprises, the introduction of foreign investment, the vigorous development of the capital market, and entry into the World Trade Organization have fundamentally changed the external environment of China's accounting work. This change has given accounting entities broader autonomy, thereby promoting the reform and development of Chinese accounting.

Similarly, around the world, the accounting profession has gone through a lot of work after the economic crisis to create far-reaching unified accounting systems—accounting standards. This led to the establishment of the International Accounting Standards Board and the emergence and development of international accounting standards, creating favorable conditions for international coordination of accounting under economic globalization (Aguguom & Ajayi, 2020). Albrecht & Sack (2000) studied the importance of accounting skills in accounting education. They analyzed accounting practitioners' and accounting teachers' perceptions of developing relevant skills and found that financial accounting, finance, taxation, information

systems, and audit/assurance services are viewed as important accounting expertise disciplines in the United States. At the same time, they found that Accounting and reporting, Tax management, Cost and Management Accounting, and Internal Control Audit are generally regarded as the most important elements of professional knowledge (Albrecht & Sack, 2000). After years of research and discussion, developed countries such as the United States have reached a relatively consistent view on the reform of accounting education: accounting education must keep up with the development of business society, and teachers must clearly understand the industry's expectations for college accounting graduates.

However, the era of technological advancement, globalization, and increased competition has prompted changes in all industries, and the accounting profession is no exception. The accounting profession is at the forefront of one of the industries most affected by technological developments and globalization. Tekbas (2018) pointed out that with the development of technology, many digital systems have begun to be actively used in the accounting industry, and research by Frey et al. (2017) shows that the accounting industry faces automation risks. These changes have reduced the demand for traditional functions of the accounting profession, such as basic accounting, financial report preparation, fund management, etc., and accountants who only have professional accounting knowledge and traditional accounting skills are facing more intense competition and the risk of elimination (Jue, 2019).

Digital literacy has become part of the 21st-century toolkit and is indispensable for every global citizen, whether in communication, employment, comprehensive education, or social interaction. European research shows that more than 90% of professional jobs require a basic level of digital knowledge and understanding. This need has become even more apparent during the COVID-19 pandemic, making the adoption of digital technologies and their associated skills even more urgent (Tekbaş,

2018). Therefore, accounting education reform is urgent, not only to improve traditional accounting knowledge and skills but also to emphasize the importance of digital literacy.

Accounting professional skills and digital literacy present some obvious status quo issues in the current socio-economic context. However, accounting professional skills have always been regarded as the core of accounting education. It includes knowledge in the fields of financial accounting, finance, taxation, information systems, and auditing, but with the rapid development of technology and deepening globalization, traditional accounting skills are facing the need to be redefined (Pargmann et al., 2023). For example, the application of automation technology and artificial intelligence is changing the responsibilities and working methods of the accounting industry, which means that for accounting professionals, merely mastering traditional accounting skills is no longer sufficient to meet future career challenges (Kommunuri, 2022).

Likewise, digital literacy, the ability to use digital technologies to effectively acquire, understand, evaluate, create, and disseminate information, has become an essential skill for accounting professionals. However, currently in accounting education, digital literacy is often not paid enough attention, resulting in the lagging development of students' abilities in this area (Tinmaz et al., 2022). With the widespread application of digital technology in accounting practice, accounting students who lack digital literacy may not be able to effectively utilize modern technological tools (Tinmaz et al., 2022). Such as advanced data analysis software and cloud computing platforms, thus being at a disadvantage in professional competition.

At this stage, there are studies on improving the digital literacy of science course students with comprehensive scientific materials, and studies on improving accounting professional skills of accounting students with various theories such as

OBE. However, none of them have composite research, and they are relatively single. There is no effective way to improve students' accounting professional skills and digital literacy together. At present, China's digital economy has formed a solid foundation and has great potential for future development. In the face of the current social and economic changes in vocational education, it is necessary to adjust the direction of personnel training and innovate and reform the curriculum. Only by combining the cultivation of accounting professional quality with the concept of digitalization can the training direction and mode be adjusted at any time. Therefore, researchers combined a variety of theoretical studies to construct a new digital accounting course to improve students' accounting professional skills and digital literacy.

In view of the solid foundation and huge development potential of China's country's digital economy, vocational education urgently needs to adjust the direction of talent training and innovate and reform courses in the face of socio-economic changes. Combine the cultivation of accounting professional knowledge with digital concepts to adapt to the needs of the development of the times.

### **Research question**

In this study, the research questions of the researchers are as follows:

1. What are the current challenges and issues faced by accounting courses in Chinese vocational colleges, as identified through questionnaire surveys and literature analysis?
2. What do researchers need to do to improve the professional skills and digital literacy of Chinese vocational school students?
3. How to apply the developed curriculum?
4. How to evaluate the Digital Accounting Course Curriculum?

### **Research purposes**

The purpose of this study is as follows.

1. To investigate the current situation and problems of accounting courses in China through questionnaire survey and literature analysis.
2. To construct Digital Accounting Course Curriculum in Chinese vocational colleges.
3. To implement Digital Accounting Course Curriculum with two sub-objectives as follows:
  - 3.1 To compare accounting professional skills (DV1) before and after learning with new activities and curriculum.
  - 3.2 To compare digital literacy (DV2) before and after learning with new activities and curriculum.
4. To evaluate Digital Accounting Course Curriculum

### **Significance of research**

This research makes up for the gaps and deficiencies in the teaching of digital literacy in China's accounting education and aims to solve the employment and development problems of vocational school students majoring in accounting in China. On the one hand, this research can bring high-quality and high-standard accounting talents to the society and the country, and it can also solve the problem of “unemployment upon graduation” of graduates and stabilize social harmony. On the other hand, such curriculum development is innovative and forward-looking and has a certain significance for all subjects. And this research is the core of the future development of education.

### **Research hypotheses**

Hypothesis 1: Students who complete the new Digital Accounting Course Curriculum will demonstrate a significant improvement in their accounting

professional skills.

Hypothesis 2: Students who participate in the new Digital Accounting Course Curriculum will have higher levels of digital literacy compared to those who do not take the course.

### **Research scope**

#### 1.Phase One

##### 1.1 Population and sample

The basic research of the first stage includes:

- 1.204 students majoring in accounting in the 2022 class
2. There are 4,264 finance and accounting professionals in the world accounting survey reports

##### 1.2. Research variables

1. Current situation about accounting professional skill and Digital Literacy.
2. Problem about Accounting professional skill and Digital Literacy.
3. Needs for improving Accounting professional skill and Digital Literacy with Digital Accounting Course Curriculum.

##### 1.3 Duration Time

The first stage, Curriculum Research. In this stage, questionnaire survey and literature collection are required, and the duration is 8 weeks.

#### 2.Phase Two

##### 2.1 Population and sample

1. Taking 76 accounting teachers in Ningxia Vocational College of Finance and Economics as the total population, 64 samples were selected.
2. There are 12 experts in total, including 4 with research courses and 8 with accounting expertise
3. There are 9 experts for focus discussion.

##### 2.2 Duration Time

The second stage, Innovative development. This stage is the curriculum innovation and development stage, which lasts for 4 weeks

### 2.3 Research variables

- 1.Independent variable is the draft of New Digital Accounting Course Curriculum.
- 2.Dependent variable are Accounting professional skill and Digital Literacy.

### 3.Phase Three

#### 3.1 Population and sample

This stage including 124 accounting students from the Accounting Department of Ningxia Vocational College of Finance and Economics 2021-2022 as experimental group A, and 124 students as control group B.

#### 3.2 Research variables

3.21 To develop New Digital Accounting Course Curriculum and improve the professional skills of vocational college students, the main dependent variable is professional skills.

3.22 Developing New Digital Accounting Course Curriculum to improve the digital literacy of vocational college students, digital literacy is an important dependent variable

3.23 New Digital Accounting Course Curriculum is an independent variable

#### 3.3 Duration Time

The third stage, Implementing innovation. This is the experimental phase of implementing the new curriculum, which lasts for 16 weeks, 4 hours per week, 100 hours in total.

#### 4.Phase Four

##### 4.1 Population and sample

The fourth stage of Evaluating and improving the innovation includes:  
30 students from experimental group A

##### 4.2 Research variables

In the fourth stage there are two variables:

1. Evaluation of the Digital Accounting Course Curriculum by experts.
2. Evaluation of the Digital Accounting Course Curriculum by students.

##### 4.3 Duration Time

The fourth stage, Evaluating and improving the innovation. During this phase researchers will evaluate the course and last for 2 weeks.

#### **Definitions**

**The current situation of accounting courses** means that China's digital economy has laid a robust foundation and holds immense potential for growth. However, vocational colleges currently lack a thorough understanding of concepts such as the digital economy and digital talent. As a result, the integration of the digital industry with accounting talent training is still in its exploratory phase. Some universities have started to adjust their enrollment policies for accounting majors. For instance, Tsinghua University has ceased to admit undergraduate accounting majors and instead introduced dual bachelor's degrees in computer science and finance. This signals that future accounting professionals will undergo significant impact from digital upgrades and transformations. Moreover, data from Zhaopin Recruitment indicates intense competition for accounting positions, indicating an oversupply of job seekers compared to demand from companies. However, contemporary enterprises are increasingly seeking accounting talents equipped with digital skills. Professionals

with data analysis capabilities in the accounting field have emerged as a new focal point in professional competition.

To assess the current status of accounting students, researchers utilized the Accounting Professional Skills Questionnaire and the Digital Literacy Scale. Results indicate deficiencies among students at Ningxia Vocational College of Finance and Economics, particularly in accounting principles, financial concepts, and control activity effectiveness. While performance is satisfactory in areas like cost and management accounting, improvement is needed elsewhere. Adjustments in teaching methods and course content are necessary to enhance students' proficiency in key accounting domains. Furthermore, students at the college exhibit significant shortcomings in digital literacy, encompassing awareness, skills, social responsibility, and career development. Subpar scores across all areas underscore their limited grasp and application of digital technologies, hindering their adaptability and performance in academic and future professional settings. Strengthening digital literacy education is imperative to bolster students' capabilities and foster their holistic development and career advancement.

Overall, in the digital era, integrating the accounting profession with the digital economy is essential, requiring a focus on enhancing digital skills to meet future professional demands.

**The problems of accounting courses** mean the traditional accounting curriculum fails to keep pace with the developments of the era, encountering multiple challenges. Firstly, its content lags behind the requirements of the digital age, failing to adequately incorporate the application of emerging technologies and digital tools. Secondly, its teaching methods are conventional, lacking effective linkage with the real-world work environment, resulting in a significant gap between classroom learning and practical work. Moreover, the curriculum emphasizes the imparting of theoretical knowledge while neglecting the cultivation of students' practical skills and

problem-solving abilities, leaving them ill-prepared for actual employment upon graduation. Due to these shortcomings of the traditional accounting curriculum, students have relatively weak knowledge acquisition and lack understanding and application abilities of emerging technologies and digital tools, resulting in significant competition pressure in the job market. Therefore, reforming the traditional accounting curriculum is imperative, with a focus on enhancing the integration of digital elements, prioritizing the cultivation of practical skills and problem-solving abilities, to enhance students' competitiveness and adaptability in the job market.

**Course curriculum** means a detailed plan, covering the objectives of a course, teaching content, learning methods, assessment methods and other aspects of information. This syllabus provides teachers and students with the necessary guidance to ensure that the teaching process and learning outcomes of the course meet the expected standards. The syllabus is developed to ensure internal coherence of the curriculum, coherence of instruction and transparency of the learning process. For teachers, the syllabus is a teaching guide that helps plan course content and teaching activities. For students, it is a key resource for understanding course content, expected learning outcomes, and assessment methods, helping students to effectively plan their learning process and prepare. As such, the syllabus plays a vital role in facilitating effective teaching and learning experiences, maintaining educational coherence, and assisting students in successfully engaging in learning.

**Hilda Taba Course Development Mode** means the central role of teachers in curriculum design and advocates a bottom-up approach. It includes seven steps: diagnosing learner needs, goal formulation, content selection, organization of content, Choice of learning experience, organization of learning activities, and evaluation. When formulating a new curriculum, teachers first diagnose students' needs, then set goals, select relevant content, organize it into orderly learning activities, and finally evaluate and continuously improve.

This study uses Taba's theory to construct a new course. It first conducts a student needs survey and current situation analysis to ensure that the course goals are consistent with student needs. Secondly, the course objectives are determined through expert interviews and adjusted based on student needs. Next, expert focus groups were used to define course content to ensure it was closely aligned with objectives and relevant. In the implementation phase, learning experiences and learning activities are carefully organized according to course content and student characteristics to promote student participation and learning effects. Finally, the course is comprehensively evaluated through a variety of evaluation methods, including questionnaires and expert reviews, so that problems can be discovered and adjusted in a timely manner. Through the above steps, this study successfully used Taba's theory to construct a new course that meets actual needs and student characteristics.

**Digital Accounting Course Curriculum** means under the promotion of information technology, the integration of higher vocational accounting education and Internet technology realizes the further development of resources. Establish a digital resource library for higher vocational accounting to strengthen students' professional-level courses.

In the design of digital accounting courses, researchers have used Taba curriculum theory to adapt to the rapid development of information technology and the popularization of Internet technology. This curriculum blends vocational accounting education with advanced technology and is dedicated to further developing and leveraging digital resources. First, through demand diagnosis, the researchers analyzed students' basic knowledge and skill needs in digital accounting. Then, in the course design stage, they formulated a series of teaching objectives and content based on these needs, including establishing a higher vocational accounting digital resource library to strengthen students' professional skills and theoretical knowledge. Finally, during course implementation, the importance of student

participation and feedback was emphasized to ensure the effectiveness and adaptability of teaching methods.

There are two concepts in Digital Accounting Subject Curriculum:

**Accounting** means unifying various useful economic activities of an enterprise into units measured in currency and providing economic information reflecting the financial status and operating results of an enterprise through a series of procedures such as bookkeeping, settlement, and reimbursement. A financial statement used in accounting is a concise summary of financial transactions for an accounting period that summarizes a company's financial position, operations, and cash flows.

**Digitization** is the process of converting information into a digital format. Converts an object, image, sound, text or signal into a discrete set of representations of points or samples represented by numbers. The result is called a digital file, or more specifically, a digital image, a digital sound, and so on. In modern practice, digitized data is usually binary to facilitate computer processing. But strictly speaking, any process of converting an analog source to any kind of digital format can be called digitizing.

**Accounting professional skills** mean that the goal of accounting education is to cultivate talents with excellent accounting professionals so that they have the ability of lifelong learning. The basic talents that accounting graduates should have in accordance with this requirement include:

**Accounting and Reporting:** Accounting and reporting refer to the process of recording, organizing, and presenting financial transactions and information of an organization in a structured manner. This involves preparing financial statements such as the income statement, balance sheet, and cash flow statement that provide a comprehensive view of the financial performance and position of the entity.

**Tax Management:** Tax management involves the strategic planning and administration of an organization's tax-related activities to optimize its tax liability

within the legal framework. It includes understanding various tax regulations, exemptions, deductions, and credits and making informed decisions to minimize tax burdens while ensuring compliance with tax laws.

**Cost and Management Accounting:** Cost and management accounting is the process of collecting, analyzing, and interpreting financial information related to the cost of production, operations, and other activities within an organization. It provides valuable insights for decision-making, budgeting, pricing, and performance evaluation. Management accounting focuses on providing internal stakeholders with information to aid in strategic planning and control.

**Internal Control Audit:** Internal control audit involves evaluating an organization's internal control systems, policies, and procedures to ensure they are effective, efficient, and compliant with regulations. The aim is to assess the reliability and integrity of financial reporting, safeguard assets, and prevent fraud. Internal control audits help identify weaknesses or areas for improvement in an organization's internal processes.

Researchers propose using testing methods to measure students' accounting professional skills for several key reasons. First, the test provides a quantitative assessment method that enables specific and systematic measurement of students' abilities in key areas such as accounting and reporting, tax administration, cost and management accounting, and internal control auditing. Secondly, this approach ensures standardization of assessment, helping to compare the performance of different students on a fair and consistent basis. Finally, the test can be precisely customized to match specific professional skill requirements, ensuring that assessments are relevant and targeted, helping to develop outstanding accounting professionals with lifelong learning capabilities.

**Digital literacy** is described as the use and understanding of information in the digital age, and the importance of digital technology as a "basic life skill" is

emphasized. Regarding the concept of digital literacy, experts from the Organization for Economic Cooperation and Development (OECD) believe that "digital literacy refers to the acquisition of the full range of refined competencies in all aspects of workplace and social life. The individual needs to appreciate the full potential of technology, learn to use the ability, critical spirit and judgment."

Researchers used the Digital Literacy Scale to measure students' digital literacy, and there were several key reasons for using this approach. First, the Digital Literacy Scale provides a systematic and standardized tool that can accurately measure students' ability to understand and apply digital information, which is consistent with the Organization for Economic Co-operation and Development (OECD) definition of digital literacy.

Second, digital literacy scales can provide comprehensive assessment across different disciplines and application areas. It is not limited to students' skills in academic settings but also includes their ability to apply digital technologies in their daily lives and future careers.

Finally, using digital literacy scales can help educators identify students' strengths and weaknesses in digital literacy, thereby more effectively designing courses and teaching activities to improve students' comprehensive digital literacy.

**Curriculum evaluation** means checking whether the objectives, compilation, and implementation of the curriculum have achieved the educational purpose in a scientific way according to certain standards and curriculum system information. The extent to which it is achieved is used to determine the effectiveness of the curriculum design and to make decisions to improve the curriculum accordingly.

The researcher uses the "Evaluation Indicator Scoring Value Statistics" form and student interviews as tools for course evaluation, mainly to provide a comprehensive and scientific course evaluation method.

The comprehensive and scientific nature of these evaluation methods lies in their

integration. Firstly, the Evaluation Indicator Scoring Value Statistics form offers a quantitative assessment of curriculum objectives, content appropriateness, and implementation effectiveness. This data-driven approach provides valuable insights into areas needing improvement. Secondly, student interviews afford qualitative feedback, offering a deeper understanding of the course's impact and informing targeted enhancements. By combining quantitative analysis and qualitative feedback, these methods provide a thorough evaluation framework, guiding continuous curriculum refinement.



## CHAPTER II

### LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Regarding Development of Digital Accounting Course Curriculum to Enhance Accounting Professional Skills and Digital Literacy in Ningxia, China, the researchers consulted literature and related studies as follows:

#### 1. Curriculum theory

- 1.1 Basic concepts of curriculum theory
- 1.2 Main components of the curriculum
- 1.3 Curriculum development
- 1.4 Course curriculum

#### 2. Accounting course

- 2.1 Accounting Introduction
- 2.2 Accounting Course Introduction
- 2.3 Digital Accounting Education Worldwide
- 2.4 Accounting digital education in China
  - 2.41 Accounting Digitization Policy in China
  - 2.42 Status Quo of Digital Accounting Education in China

#### 3. Accounting Professional Skills

- 3.1 Accounting Professional Skills
  - 3.11 Accounting and reporting
  - 3.12 Tax management
  - 3.13 Cost and Management Accounting
  - 3.14 Internal Control Audit

3.2 The importance of accounting professional skills for accounting students

3.3 How to improve professional skills?

#### 4. Digital literacy

4.1 The Development History of the Digital Literacy

4.2 A Framework for Digital Literacy

4.3 The six domains of the EU Digital Literacy Framework for Educators

4.4 Teachers' digital literacy framework in China

4.5 How to Improve Students' Digital Literacy

4.6 Evaluation of Digital Literacy

#### 5. ORPA cycle

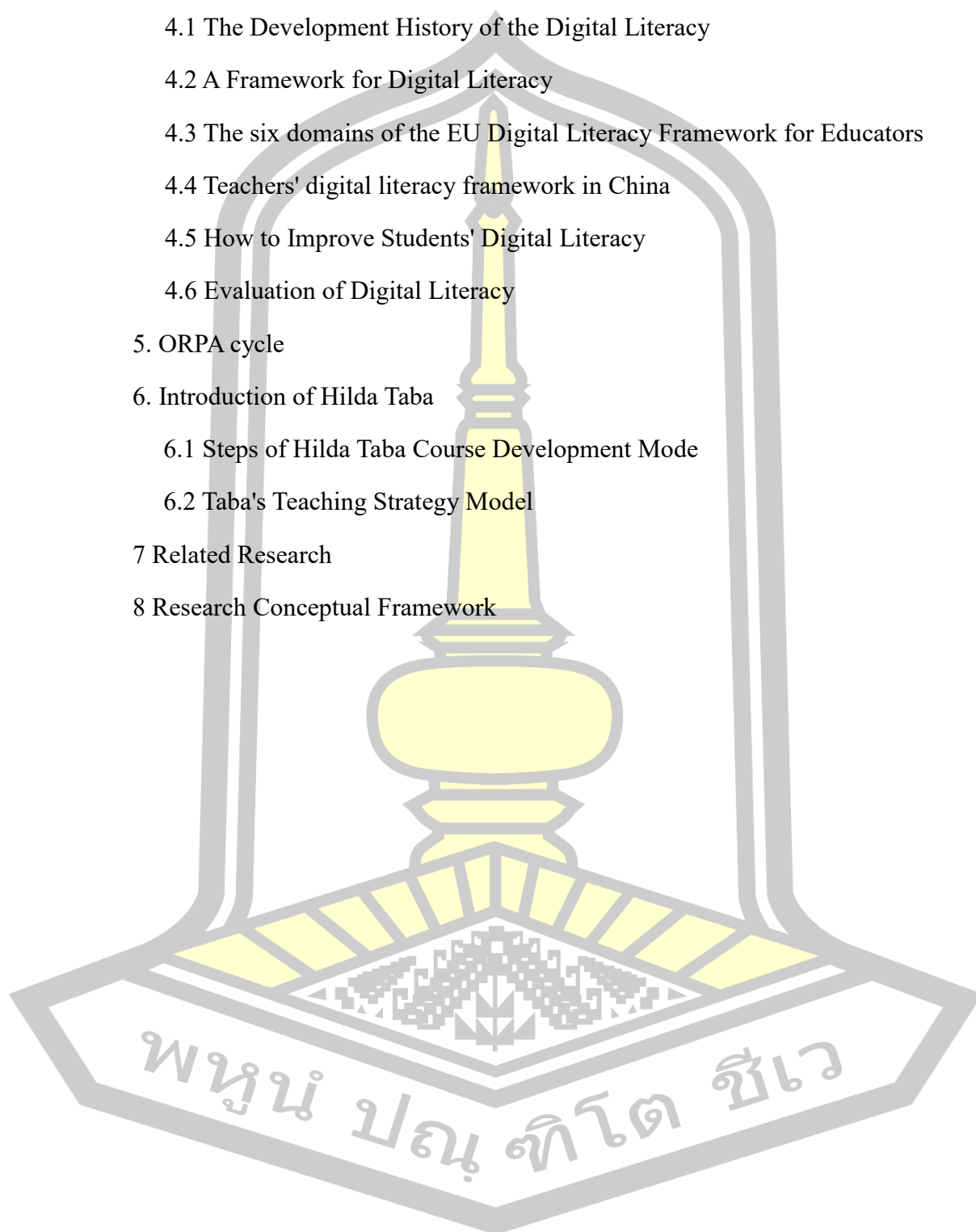
#### 6. Introduction of Hilda Taba

6.1 Steps of Hilda Taba Course Development Mode

6.2 Taba's Teaching Strategy Model

#### 7 Related Research

#### 8 Research Conceptual Framework



## 1. Curriculum theory

Curriculum theory is an important research direction in the field of education, involving the principles, methods and strategies of curriculum design, implementation and evaluation. It is committed to understanding the setting of educational goals, the selection of teaching content, the application of teaching methods and the determination of evaluation methods. It is an indispensable theoretical support in educational practice (Widya Sari & Aisyah, 2017). The following will review the basic concepts, main components of curriculum theory, and the practical application of curriculum design.

### 1.1 Basic concepts of curriculum theory

Curriculum theory covers a range of fundamental concepts that guide the development and implementation of educational curricula. It emphasizes the comprehensive consideration of educational goals, learner needs and educational background (Li et al., 2021). Key concepts include:

**Course goals and objectives:** Aimed at guiding the knowledge, skills and attitudes that students should have after completing the course, including overall goals and specific purposes. **Course content:** Covers the topics, concepts, and skills to be taught in the course. **Content selection** should be based on educational goals, student needs, and subject knowledge. **Teaching and Learning Methods:** Strategies and methods used to promote learning, including teaching techniques, classroom activities, and teaching practices, should be selected and adapted to the learning needs of students. **Assessment and Evaluation:** Methods and tools used to measure student learning outcomes and course effectiveness, including formative and summative assessment (Friday et al., 2006).

### 1.2 Main components of the curriculum

The main components of the curriculum include learning objectives, content, teaching methods and assessment. Learning objectives are at the heart of course

design and they guide the knowledge, skills and attitudes students should have by the end of the course. These goals are divided into general goals and specific goals. The general goals guide the direction of the entire course, while the specific goals are more specific learning goals. Course content covers the topics, concepts, and skills to be taught, and content selection should be based on educational goals, student needs, and subject knowledge (Kavanagh & Drennan, 2008). Teaching methods are the strategies and methods used to promote learning, including teaching techniques, classroom activities, and teaching practices. These methods should be selected and adapted based on student learning needs to provide an effective teaching experience (Laurillard, 2003). Finally, assessment is the methods and tools used to measure student learning outcomes and course effectiveness, including formative and summative assessment. Together, these components form the basis of the curriculum and ensure its coherence and effectiveness.

### 1.3 Curriculum development

The development of a curriculum is a complex and systematic process, and its successful implementation requires consideration of several key factors and ensuring logic and coherence among them. First, needs assessment is the basis of the development process. Through surveys, observations, and evaluations, a comprehensive understanding of students' learning needs and backgrounds is provided to provide basic data for course design (Gray et al., 1994). Secondly, alignment with educational standards and learning outcomes is crucial, which ensures that course objectives and content are aligned with educational standards, thus ensuring the quality and effectiveness of the course. In addition, interdisciplinary integration is also an important part of the development process. It promotes the development of students' interdisciplinary thinking and comprehensive abilities by integrating knowledge and perspectives from multiple disciplines, making the curriculum richer and deeper (Haiza Muhammad Zawawi & Hoque, 2010). Finally, technology

integration is an indispensable part of modern education, making full use of modern technological means to provide more diversified and personalized support for teaching, making the learning experience richer and more effective. Therefore, these steps complement each other in the development of the curriculum and together ensure its quality and adaptability.

#### 1.4 Course curriculum

Course curriculum, as a pivotal aspect of educational design, encompasses the structured plan of educational content, activities, and assessments within a particular course. Its development and implementation are crucial in ensuring effective teaching and learning outcomes (Mayer et al., 2005). Scholars emphasize the significance of aligning curriculum with educational objectives, student needs, and disciplinary standards. This alignment ensures that the curriculum addresses relevant knowledge and skills essential for students' academic and personal growth. A fundamental step in curriculum development is conducting a thorough needs assessment. This process involves gathering data through surveys, observations, and evaluations to understand students' learning requirements, backgrounds, and interests (Horvitz et al., 2014). By identifying these needs, educators can tailor the curriculum to meet the diverse needs of learners effectively.

Furthermore, integrating interdisciplinary perspectives into the curriculum promotes holistic learning experiences (Mock, 2012). By incorporating insights from various disciplines, students develop critical thinking skills and gain a comprehensive understanding of complex issues. Moreover, the integration of technology into curriculum design and delivery is increasingly emphasized. Modern educational technologies offer diverse tools and resources to enhance teaching effectiveness and facilitate personalized learning experiences (Song, 2010). Integrating technology enables educators to engage students in interactive activities, access online resources, and provide timely feedback, thus enriching the learning process.

Overall, a well-developed course curriculum reflects a balanced integration of educational theories, pedagogical approaches, and technological innovations. It serves as a roadmap for educators to deliver high-quality instruction and for students to achieve desired learning outcomes. Through continuous evaluation and adaptation, curriculum development remains an ongoing process aimed at meeting the evolving needs of learners in today's dynamic educational landscape.

## **2. Accounting course**

### **2.1 Accounting Introduction**

Accounting is an information system that assists decision-making based on the collection, classification, synthesis, analysis and interpretation of human financial activities and cost data. It is an applied discipline that can effectively manage the economy, it is an integral part of social science, and it is also an important management discipline.

Accounting has existed in many forms and with varying degrees of complexity throughout human history. However, the double-entry bookkeeping system used today was developed in medieval Europe, especially in Venice. Usually, this development is attributed to Italian mathematician and Franciscan monk Luca Pacioli. In modern times, accounting standards are promoted by various accounting organizations, such as standard setters, accounting firms and accounting professional institutions. Financial statements are usually audited by an accounting firm to ensure their accuracy. These statements have been prepared in accordance with generally accepted accounting principles.

Internationally, different countries have adopted different approaches to formulating accounting standards. In countries with a civil law system, such as China, France, and Germany, accounting standards are usually stipulated through statutory doctrine. The country will formulate a series of specific accounting regulations and may even include a unified chart of accounts. In contrast, in countries that practice

common law, such as the United Kingdom and the United States, accounting standards are formulated by private professional bodies. Such standards are often referred to as "Generally Accepted Accounting Principles" (GAAP).

As of 2012, almost "all major economies" are planning adjustments towards convergence or adoption of International Financial Reporting Standards (IFRS). This trend aims to achieve consistent accounting standards on a global scale and facilitate international business cooperation and investment.

To sum up, the history of accounting has a long history, the double-entry bookkeeping system was developed in medieval Europe, and modern accounting standards were formulated jointly by various accounting organizations. Internationally, different countries adopt different methods to formulate accounting standards, but the convergence towards global accounting standards is becoming a general trend.

## 2.2 Accounting Course Introduction

Accounting courses are basic theoretical application subjects based on accounting, auditing, and financial management. It is based on the basic theories and knowledge of economics and management, and mainly studies the basic theories and basic skills of financial accounting, professional knowledge of the capital operation, asset restructuring, business mergers and international accounting practices (Kharbat & Muqattash, 2020). Accounting majors cultivate students' practical ability, focusing on the improvement of students' practical operation ability, cultivating students' basic ability and comprehensive ability to analyze and solve practical accounting problems, and at the same time focusing on strengthening students' knowledge of financial management, auditing, economic law, and tax law (Tilson et al., 2010).

Now that human society has entered the 21st century, the world economic environment has undergone unprecedented changes, and China's economic development is facing many challenges and opportunities in all aspects. Accounting education itself has many problems to be solved (Guan & Meng, 2007).

In summary, the development of the social economy also needs to cultivate high-quality accounting talents to adapt to the new situation, which also puts forward many requirements for accounting education in higher vocational colleges, and the reform of accounting education is imperative. Accounting education and practice circles, especially some accounting educators in the education circle, began to pay more attention to the reform and development of accounting education, and many research results were formed.

### 2.3 Digital Accounting Education Worldwide

Digital education refers to the process of using technology in education to enhance technological learning or e-learning. Historically, the Accounting Education Council (AEC) has called for the importance of digital accounting education to make it more relevant to practice in order to produce more quality accountants (AEC, 1990). One such reform is the incorporation of technology into accounting education. The use of the latest technology in accounting education has become one of the most important priorities for improving the profession (Elliott, 1992). As a result, this type of study has become popular in business schools around the world. Watson and Wixom (2007) found a dramatic increase in the use of computerized accounting software systems by accounting educators. Mathews (2001) argued that due to the accelerated development of the accounting environment, better pedagogical methods are needed to teach accounting subjects. In this regard, the integration of the Internet and accounting education is seen as a beneficial approach.

The use of software digital technologies in education enables educators to obtain constructive and timely feedback from learners on the effectiveness of the teaching and learning methods used to deliver the material (Mihret et al., 2017). Helfaya (2018) found that students prefer to use electronic assessment and feedback technology in the teaching of accounting subjects. The flexibility of e-learning in terms of time and place for students and teachers can lead to the rapid dissemination of such learning

(Al-Hadrami, 2014). Digital accounting education may be useful in terms of flexibility, but educators may focus on student learning and knowledge. Lack of an effective learning process due to the sudden transition to e-learning may lead to unintended consequences that affect students' future career prospects (Agugom & Ajayi, 2020).

The 2020 World Class Professors (WCP) was held for the second time (2020), and the second seminar was themed on "Innovative Accounting Education". In light of the Covid-19 pandemic situation, the seminar is being held online via the Zoom webinar platform. In this seminar, two sessions will discuss the topic of accounting education from an international perspective and an Indonesian perspective respectively. According to AFAANZ President Professor Jacqueline Birt(2021), accounting students in today's era need not only accounting skills but also digital technology skills.

In conclusion, as educators must ensure that our students are truly needed by the professional world. As educators, we want our students to understand how to produce or provide information for internal users and external decision-makers, which is why accounting's current role has implications for technology, which is now changing in the business world as well. Accounting majors should have at least two skills related to digital technologies.

## 2.4 Accounting digital education in China

### 2.41 Accounting Digitization Policy in China

Under the guidance of policies, the financial digitization process of Chinese enterprises is accelerating. A number of policies related to accounting reform and digital reform issued by the State Council and the Ministry of Finance recently involve the digitization of corporate finance:

In November 2021, the Ministry of Finance emphasized in the "Outline of the 14th Five-Year Plan for Accounting Reform and Development" that it should be

supported by digital technology to promote the digital transformation of accounting and auditing work and improve various data standards and safe use specifications. Form a new pattern of expansion of accounting functions that internally improves unit management level and risk management and control capabilities, and externally serves financial management and macroeconomic governance.

On January 6, 2022, the Ministry of Finance issued the "Accounting Informatization Development Plan (2021-2025)", which affirmed the gradual promotion of concepts such as smart finance and financial sharing during the 13th Five-Year Plan period, as well as automation tools such as financial robots, and proposed data standardization and new requirements for digitizing financial statements.

On January 12, 2022, the State Council made it clear in the "14th Five-Year" Digital Economy Development Plan that enterprises should be guided to strengthen digital thinking, improve employees' digital skills and data management capabilities, and comprehensively and systematically promote the digital transformation of enterprises, including business management.

The State Council and the Ministry of Finance's frequent emphasis on financial digitalization around the beginning of 2022 will undoubtedly provide a boost to companies' financial digital transformation. It is foreseeable that the digitalization of corporate finance will further accelerate in 2022.

In short, these government policies will inevitably promote the accounting digital transformation of enterprises, and these policies show that China attaches great importance to the digital education of accounting. From the various policies issued by the government to promote the development of digital accounting education, it can be seen that the government hopes to further accelerate the development of digital accounting education in China.

#### 2.42 Status Quo of Digital Accounting Education in China

Accounting talents, as indispensable professional talents for today's economic development, have been in a relatively scarce state. This is the main reason why all walks of life are paying more and more attention to accounting education and teaching. For the cultivation of accounting talents, in addition to accounting majors in professional colleges and comprehensive colleges, the most important thing is various higher vocational colleges. As a highly professional and practical subject, accounting requires mastering relevant theoretical knowledge and also pays attention to practical application ability, so it is the focus of professional and skilled talents training in higher vocational colleges (Nikiforenko & Kuryliuk, 2024). However, the survey of accounting majors in higher vocational colleges found that there are serious problems in education and teaching, and it is difficult to meet the needs of enterprises for the ability of accounting talents in actual work. Education and teaching reforms are imperative.

Under the current development trend of deepening education reform, my country's education stages have improved significantly as a whole, especially higher vocational colleges, which have trained batch after batch of professional talents for the development of various industries in my country. occupy an important position in the system (Teddle & Tashakkori, 2008). However, judging from the current situation of accounting education and teaching in higher vocational colleges, it has also exposed many problems while making some achievements.

Under the current development trend of Internet popularization and intelligent modern office means, the traditional form of accounting and bookkeeping is far from meeting the needs of enterprise development, and it is very necessary to implement education and teaching reform. At present, there are many problems in accounting education and teaching in higher vocational colleges, and teaching reform needs to be continued. Here is a brief explanation of the necessity of reform: First, the current teaching philosophy is relatively backward and not suitable for the cultivation of

modern accounting talents. The second is that the education and teaching process lacks practicality. Accounting is a practical subject after all. How can teaching without practice cultivate professional talents. Third, there is a lack of professional teaching staff as a whole. The teaching staff of higher vocational colleges is far inferior to that of universities in terms of number, staffing and overall teaching ability of teachers(Li et al., 2021). This is a major shortcoming of the current higher vocational education reform. The problems in the teaching reform of accounting majors in higher vocational colleges are far more than the above three points. The main purpose of the brief list here is to emphasize the necessity and urgency of the current education reform.

If higher vocational colleges want to continuously improve their teaching strength, and accounting majors want to continuously improve their professional ability, they must pay attention to the existing problems and adopt appropriate methods to solve them. Only in this way can we continuously deliver professional accounting talents for my country's economic construction and enterprise development. Judging from the current development of informatization, education and teaching reforms are needed. Accounting is a popular major in my country, and with the development of the economy, the country's demand for accountants is increasing year by year. Through the investigation of the current financial development status of enterprises, it is found that in order to improve the financial management level, many enterprises have already realized the electronic financial management system, that is, the use of computer financial software to process accounts (Wang, 2019).

However, judging from the current teaching practice of accounting majors in higher vocational colleges, the traditional paper bookkeeping method is still adopted in the teaching process, which cannot well meet the standards of enterprises' demand for talents. Therefore, in the process of accounting education and teaching in higher vocational colleges, teaching reform must be carried out. In particular, it is necessary

to continuously adopt information-based and networked teaching methods, deepen the reform and innovation of the teaching system, and truly realize the timeliness and modernization of accounting teaching in higher vocational colleges. Schools can build digital educational resources in a targeted manner only if they conduct sufficient research to understand the future needs of enterprises for financial talents and master the most cutting-edge scientific knowledge (Zheng et al., 2016). In the construction of digital educational resources, schools will enrich the diversity of educational resources in terms of social needs, local industrial economic development, and requirements for accountants at different levels(Wang, 2019).

In short, China's digital accounting education is still very lacking, and vocational schools, as institutions that export professional talents to the society, need to change their talent training goals according to the needs of the market and society. The digitalization of accounting is imminent. It is time to update and change the traditional accounting courses and turn to the teaching of digital accounting courses. Cultivate talents with excellent accounting professional skills and digital literacy for society.

### **3 Accounting Professional Skills**

#### **3.1 Accounting Professional Skills**

Accounting skills mainly include 4 aspects: 1. Accounting and reporting 2. Tax management 3. Cost and Management Accounting 4. Internal Control Audit

##### **3.1.1 Accounting and reporting**

Accounting and reporting refer to the currency as the main unit of measurement. Through confirmation, measurement, recording and reporting, etc., the economic activities of specific subjects are recorded, settled and reimbursed, and the relevant accounting information users are provided with the accounting information required for decision-making(Liu, 2016). Accounting runs through the entire process of economic activities and is the most basic and important function of accounting, also

known as the reflection function.

In the realm of accounting, a solid grasp of foundational knowledge and skills remains crucial. Familiarity with Generally Accepted Accounting Principles (GAAP) is essential. These principles play a pivotal role in standardizing accounting practices for U.S. businesses and industries. Equally vital is an awareness of regulatory standards governing corporate and public finance. This awareness ensures compliance with financial reporting mandates and upholds the integrity of an organization's accounting methodologies.

### 3.12 Tax management

Tax management refers to the functional department in charge of taxation work, planning, organizing, coordinating and supervising the whole process of taxation distribution on behalf of the state. It aims to ensure timely and full fiscal revenue entry into the treasury and give full play to the regulatory role of taxation on the economy.

The subject of Tax management refers to the state, that is, the state is responsible for the management. The functional departments of governments at all levels in charge of taxation work are the specific executive agencies of taxation management, exercising Tax management authority on behalf of the state.

The object of Tax management refers to the whole process of tax distribution.

The functions of tax management refer to planning and decision-making, organization and implementation, coordination and control, and supervision and inspection in the process of tax distribution.

Tax management is the means to realize the goal of tax distribution, so the goal of tax distribution is also the goal of tax management. The goal of tax distribution is usually manifested in two aspects: one is the financial goal, that is, the goal of raising income; the other is the goal of regulating the economy, that is, the goal of achieving macro-control, promoting economic stability and development. In daily work, the

goals of taxation management are embodied in various management activities.

### 3.13 Cost and Management Accounting

Cost management accounting is a new field formed based on the basic principles of cost accounting combined with modern management accounting. Modern management accounting was born out of cost accounting, gradually developed and matured and then returned to the parent body, thus breaking through the boundaries of traditional management accounting and making the two more perfect and unified.

The incorporation of cost management accounting was largely inevitable because modern management accounting was based on cost accounting in its development. Although management accounting expands the functional scope of the original cost accounting and covers a wider range of research fields, its foundation is still based on the information of cost accounting. Managerial accounting must rely on information provided by cost accounting for analysis, decision-making, and planning (Rebele & St. Pierre, 2019). Without cost accounting as a basis, management accounting will become empty and unsustainable.

Whether from our country or from the Western point of view, the boundary between cost accounting and management accounting is often blurred. Especially in the West, many scholars believe that cost accounting and management accounting are similar. For example, Charles T. Hungry, an authoritative professor of accounting at the famous Stanford Business School in the United States, believes: "Modern cost accounting is often called 'management accounting'." This point of view shows that cost accounting and management accounting are consistent to a certain extent, and cost accounting plays an important role in the development of management accounting.

### 3.14 Internal Control Audit

As a re-examination of internal control, internal control audit is a necessary measure independently carried out by enterprises in order to improve operation

management and enhance economic efficiency.

Its core objective is to assess and verify the legality, adequacy, effectiveness and suitability of internal controls. The specific embodiment of these characteristics is to ensure the safety of assets and funds, and to ensure their existence, integrity, ownership, accuracy of amount, and value-added status(Rebele & St. Pierre, 2019). Therefore, the precise goal of internal control audit can be summarized as checking and evaluating whether internal control can ensure the safety of assets and funds. That is, to check whether internal controls can maintain the existence, integrity, ownership, and accuracy of amounts of assets and funds, and whether they can promote their value-added.

This kind of audit helps companies identify potential risks and loopholes, prevent fraud, improve resource utilization efficiency, and ensure the reliability of financial information, thereby further optimizing the company's internal operating environment. Through the audit of internal control, enterprises can better manage risks, improve operational efficiency, protect the rights and interests of stakeholders, and achieve sustainable economic growth.

Therefore, internal control audit plays an important role in enterprise management, aiming to ensure the safety of assets and funds, and optimize the internal control system to achieve higher economic benefits. This process can not only enhance the reliability of internal control, but also provide strong internal management support for the enterprise and promote its long-term and stable development.

In general, the student study and mastery of accounting and reporting and Tax management, Cost and Management Accounting, Internal Control Audit. It not only constitutes an important content of academic courses, but also the practical ability necessary for success in the future workplace. Through in-depth study and practice in these areas, students will acquire the key skills necessary to succeed in the accounting

field. Actively investing in these fields of study enables students to quickly adapt to the professional environment and provide strong support for the company's financial health and management decisions. Taken together, the mastery of these skills will lay a solid foundation for students' future careers in accounting.

### 3.2 The importance of accounting professional skills for accounting students

Accounting professional skills are important to accounting students, not only to successfully complete their studies, but also to succeed in their future careers. As the global business environment continues to change and evolve, the accounting profession has become increasingly complex and competitive, so it has become vital for students to have a strong set of accounting professional skills (Armstrong, 1987). The importance of accounting professional skills to accounting students will be discussed in detail below.

First and foremost, accounting professional skills are the cornerstone of a student's career path. In the process of studying accounting, students will be exposed to knowledge in various fields such as financial statement preparation, cost accounting, tax management, and auditing procedures. These skills are not only course content, but also the practical ability required for future work. After graduation, accounting students are likely to be put into practical work immediately, and their proficient skills can help them quickly adapt to the working environment, thereby creating value for the company faster (De Lange et al., 2003).

Second, accounting professional skills can increase students' competitiveness in the job market. As we all know, accounting is a profession that widely involves many fields. During the hiring process, employers often prefer to select candidates with a wide range of skills. For example, an accounting student not only needs to understand the preparation of financial statements, but also needs to master tax regulations and cost accounting methods. Possessing a variety of skills enables students to be competent in different fields, thus improving their employability.

Third, accounting professional skills are the key factors for students to become comprehensive accounting professionals. In the modern accounting environment, accountants not only need to undertake basic financial recording and reporting responsibilities but also need to participate in business decision-making, manage risk, conduct internal control assessments and so on (Thottoli, 2022). These requirements go beyond accounting jobs in the traditional sense and require students to have a wider range of skills to be competent. For example, through financial analysis skills, students can help companies predict future financial trends and provide support for decision-making.

In addition, accounting professional skills can provide students with more possibilities for career development. Having a wealth of skills can make it easier for students to adapt to the needs of different career fields, allowing them to switch positions flexibly during their careers. For example, a skilled accountant can gain experience in finance before moving to a management role or even branching out into business consulting. This flexibility allows students to continually pursue new opportunities and challenges throughout their careers.

Finally, accounting professional skills help students to better serve the company and society in practical work. Accurate preparation of financial statements, compliance audits, tax planning and other skills are directly related to the company's financial stability and operating efficiency. Accountants with these skills can help businesses better manage risk, make strategic decisions, and thus contribute to the sustainable growth of the company.

To sum up, the importance of accounting professional skills to accounting students cannot be ignored. These skills are not only part of academic completion, but also the key to achieving professional success. By learning and mastering accounting professional skills, students can increase their employment opportunities, enhance professional competitiveness, achieve career development goals, and create greater

value for enterprises and society in their future careers. Therefore, accounting students should fully realize the importance of these skills, and strive to develop and improve their accounting professional skills during the learning process.

### 3.3 How to improve professional skills?

1. Optimize the course design. The era of digital economy is an era of rapid change. In order to meet the ever-changing needs of accounting talents in the era of digital economy, vocational colleges should further optimize their curriculum.

① Strengthen the correlation between accounting disciplines and integrate knowledge and skills related to the digital economy (Andiola et al., 2020). Higher vocational colleges should further strengthen the cross-integration of basic accounting disciplines, and at the same time strengthen the connection between accounting professional disciplines and information technology background disciplines such as big data, the Internet, blockchain, and artificial intelligence, so that students can further understand digital accounting. The new development and new requirements of accounting skills under the economic environment gradually strengthen students' "digital" thinking. It is also possible to try to reform the original public basic curriculum, and integrate a series of digital-related knowledge such as big data, artificial intelligence, and blockchain into the accounting professional curriculum system as "general education courses"(Andiola et al., 2020). To form interdisciplinary comprehensive accounting talents that meet current and future needs.

② Update the course content in time. According to Andiola et al. (2020), the content of accounting theory courses is the core element of teaching, which is directly related to the development direction of students in this major. In the face of the rapidly developing digital economy, vocational colleges should pay more attention to the reform of the curriculum system, and the core of the curriculum should transition from traditional accounting theory to "accounting informatization", so as to gain an in-depth understanding of the new requirements of the digital economy for accounting

curriculum. When necessary, enterprises can be invited to participate in the design of talent training programs and curriculum settings in colleges and universities, and real-time revision and update of accounting course content to make up for the deficiencies in traditional accounting disciplines. Make the course content of the accounting major consistent with the market demand at all times, and alleviate the contradiction between the difficulty of vocational college graduates meeting job requirements and the difficulty of recruiting by employers.

③ Enrich the teaching mode and strengthen the construction of the teaching staff. In order to strengthen students' effective integration of the knowledge and skills they have learned with the digital economy, vocational colleges can cooperate with new teaching methods such as micro-classes and flipped classrooms while carrying out teaching in accordance with the traditional teaching mode. And encourage colleges and universities to use Internet teaching to share excellent teaching resources. At the same time, carry out school-enterprise cooperation projects, hold training lectures or seminars on digital economy-related knowledge and skills, and provide diversified channels for college teachers to deepen their understanding of the new situation and future trends of digital economy development. This can improve students' knowledge skills and business skills in accounting professional skills.

2. Strengthen the practical teaching link, combining on-campus and off-campus practice. In view of the problems existing in the current accounting practice links of various colleges and universities, colleges and universities must further increase the emphasis on practical teaching links in the future. When formulating the training plan for accounting professionals, it is necessary to combine knowledge imparting and ability training, and integrate theory and practice. As the most basic form of cultivating accounting skills and working ability, practical training teaching should run through the whole teaching process, match with the progress of theoretical teaching, and occupy a large proportion in the teaching plan, rather than just as a

supplementary link of core theoretical teaching (Berikol & Killi, 2020). At the same time, in order to better solve the problem that practical courses are superficial in form, colleges and universities should further improve the organization and management of teaching links, and establish a comprehensive practical training system that integrates advanced concepts, practical training methods, and supporting teachers.

Students are required to master basic skills such as accounting computerization in practice, while strengthening big data thinking and digital skills, focusing on mastering new job skills required for front-line positions in this professional field (Andiola et al., 2020). Under the premise of meeting the requirements of the professional teaching plan, the coverage of practical training should be appropriately expanded, and the teaching content of comprehensive practical training should be transitioned from single practical training. Combining comprehensive accounting training with the Internet and modern information technology, through ERP sand table and other scenario simulation training, students can be directly involved in business operations and deepen their understanding and application of theoretical knowledge. In addition, strengthen the construction of on-campus practical training infrastructure, and promote the combination of on-campus and off-campus practical training, so that students can apply what they have learned in the enterprise on the premise of basic theory and professional knowledge. Appropriately introducing financial and accounting personnel and management personnel from enterprises to the school to give lectures or part-time teaching, and giving full play to the role of social professional accounting talents also play a vital role in ensuring the quality of practical teaching for accounting students (Jue & Jianhua, 2019). These improve the practical and communication skills of accounting students.

#### **4. Digital literacy**

##### **4.1 The Development History of the Digital Literacy**

In order to promote the improvement of citizens' digital literacy, the European

Union released the "Digital Skills Declaration", which listed digital literacy as the primary skill for workers and consumers in the 21st century, and launched a digital literacy education framework. The US Department of Education also released the "21st Century Skills Framework", which systematically sorted out the basic skills that learners should have in the face of social informatization and economic globalization (Alkali & Amichai-Hamburger, 2004). Digital literacy is listed as an important skill. In China, the connotation of digital literacy mainly includes eight aspects: digital acquisition, digital communication, digital creation, digital consumption, digital security, digital ethics, digital norms, and digital health (Duan, 2021). The National Development and Reform Commission issued the "Guiding Opinions on Developing Digital Economy Stability and Expanding Employment", which gave clear guidance on digital talent education: by 2025, the digital literacy of Chinese nationals should not be lower than the average level of national digital literacy in developed countries.

Cam and Kiyici (2017) say that in the context of the 21st century, "digital literacy is the process of skill acquisition" that has become more relevant and productive in the current digital world. It is widely associated with software literacy, information literacy, visual literacy, and computer literacy. There are various definitions and parameters for digital literacy, but there are substantial similarities and overlaps (Gillen & Barton, 2009). Most early definitions of digital literacy focused on functional skills or the ability to use, communicate and create using digital tools and platforms. The term "digital literacy" was originally simplified by Paul Gilster (1997) in his 1997 book "Digital Literacy". Describing digital literacy as the use and understanding of information in the digital age, and emphasizing the importance of digital technologies as "essential life skills". In 1987, information scientist Patrieia Breivik defined information literacy as the basic ability to identify the value of information, select and obtain information channels, and grasp and store information

on the basis of understanding and providing information.

The American Library Association (2012) defines digital literacy as "the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills." Greene et al. (2014) stated that a person must be able to search, manage, scrutinize and integrate digital information to be considered digitally literate. Some researchers say that digital literacy equips individuals with the necessary skills to read text from a screen and interpret the meaning of digital words, symbols, and pictorial expressions (Kress, 2003; Gee, 2003). Despite covering a broad range of skills and competencies in digital and online tools, not a single one talks about the social, moral or ethical aspects of digital literacy.

Later versions of digital literacy began to incorporate social and ethical aspects into the framework. Chan et al. (2017) define digital literacy as an umbrella framework for developing knowledge, skills, and ethics in the digital world. Adeoye and Adeoye (2017) take this further, saying that digital literacy is more than just being able to access the digital world and being able to use it. It's about collaborating, staying safe, communicating effectively, and being accountable to others when interacting online. Digital literacy is also about social and cultural understanding and awareness, and using digital tools and platforms in a responsible manner. It's about knowing and understanding when, where and how to use digital technology appropriately. Due to the availability and easy accessibility of these digital media, and the fact that the people behind these devices and platforms are invisible, the ethical and social aspects of digital literacy become even more important. Spires et al. (2019) pointed out that although digital technology has been widely used in the past decade and is considered to be one of the basic human capabilities in the 21st century, academic circles are increasingly concerned about its safe and socially responsible use. Digital literacy is a very important concept in the online world because it requires not

only proficient use of technology, but also ethical and responsible use, which ultimately leads the user to be a responsible citizen. Students and young adults are more active users of new technologies and thus face a greater risk of negative influence and misleading in the online world (Burnett & Merchant, 2011). Therefore, the role of researchers and educators becomes more important (Gruszczynska, Merchant, & Pountney, 2013).

The EU Digital Literacy Framework for Educators is based on the educational work carried out by the European Directorate-General for Education and Culture, reaching a consensus on the main areas and content of digital literacy for educators, and then defining the stages of digital competence development in each area (Alshurafat et al., 2021).

To sum up, the so-called digital literacy refers to comprehensive scientific skills and cultural literacy that can quickly and effectively discover and acquire information, evaluate information, integrate information, and exchange information in a digital environment by using certain information technology means and methods. Digital literacy covers the most basic ability to find and select useful information. It is necessary to master certain information technology, have innovative thinking, have the ability to understand and speculate on the social and cultural background, have digital security awareness, be good at cooperation, and communicate effectively.

#### 4.2 Framework for Digital Literacy in the World

The researchers' systematic review of the literature revealed that there are now multiple frameworks for digital literacy in society. Although there are some similarities, they all have their own unique characteristics, advantages and limitations. By sifting through the literature, the researchers identified a number of different digital literacy frameworks that have been proposed over the years, and listed the five most widely used among them.

Yoram Eshet Alkalai (2004) based on years of research and work experience,

after analyzing relevant literature and conducting pilot studies, proposed five frameworks for the concept of digital literacy: (1) Picture-picture pixel cultivation refers to the ability to learn to understand visual graphic information. (2) Re-creation literacy refers to the creative "replication" ability. (3) Branch literacy refers to mastering hypermedia literacy skills. (4) Information literacy refers to the ability to identify the applicability of information. (5) Social-emotional literacy, we must not only learn to share knowledge, but also communicate emotionally in the form of digital communication, identify all kinds of people in the virtual space, and avoid falling into the trap of the Internet.

Although, it also includes social-emotional literacy, it consists mostly of the ability to think, use, communicate and create. Martin and Grudziecki (2006) proposed a digital literacy framework with three levels. All three levels focus on knowledge, use and creation of new knowledge. In 2012, Ng proposed another framework with three dimensions. It also includes socio-emotional aspects as one of the three dimensions. Spiers and Bartlett (2012) categorized the various intellectual processes associated with digital literacy into three categories: (1) locating and consuming digital content, (2) creating digital content, and (3) disseminating digital content. Learners must develop an evaluative disposition when navigating digital content. In order to accurately interact with online resources, a sharp mind is essential. Without critical assessment, learners may be vulnerable to technology rather than learner-directed inquiry. Bawden's (2008) framework has four components. While attitude and perspective are one of these dimensions, it is still dominated by understanding, background knowledge and the ability to use digital tools effectively. Spiers et al. (2019) propose a framework adapted from Spiers and Bartlett (2012). It divides digital literacy into three categories: searching and using, creating and using digital tools and content to communicate.

After 2012, the framework initially developed and proposed began to focus more

on the social, psychological, moral and ethical aspects of digital literacy. Gruszczyńska, Merchant, & Pountney, (2013) describe the anatomy of digital literacy from two different but related perspectives. The first question is about acquisition, skills and practice. These skills demonstrate functional skills and abilities to use networks, devices, software and content. The second perspective refers to the context of these skills and practices. This includes the learning environment, personal aspects and contextual factors. Inskip (2014) proposes a context-sensitive framework that also focuses on collaboration and identity management.

In 2015, Chen proposed another digital literacy framework with 9Cs, which include; communication, collaboration, critical thinking, creativity, citizenship, character, management, copyright and connectivity.

In conclusion, the framework can enable educators to better understand the impact of digital teaching and to assess and further develop their own digital teaching competencies. Educators need to be able to develop effective, inclusive and innovative teaching strategies; as mentors to students, educators need to clearly demonstrate their digital capabilities to learners and guide them in their creative and critical use of digital technologies.

#### 4.3 Digital literacy framework in China

Recently, the "2022 National Digital Literacy and Skills Improvement Key Points" document jointly issued by the State Cyberspace Administration, the Ministry of Education, the Ministry of Industry and Information Technology, and the Ministry of Human Resources and Social Security has attracted widespread attention from society. This document clearly defines digital literacy. The document describes it as "a collection of a series of qualities and capabilities that citizens of a digital society should possess in their study, work and life, such as digital acquisition, production, use, evaluation, interaction, sharing, innovation, security, ethics and morality." This

document marks the first time that my country's official documents have clearly defined "digital literacy", and it also reflects China's deep understanding and summary of digital literacy. The definition and framework of China's digital literacy described in the document will provide important guidance and basis for my country's digital education.

According to the definition of the Cyberspace Administration of China, digital literacy is interpreted as a series of qualities and abilities that citizens of a digital society need to possess, including digital acquisition, production, use, evaluation, interaction, sharing, innovation, security, and morality. This means that digital literacy is not just a simple mastery of digital technology, but a comprehensive quality that covers various abilities and attitudes that individuals need to possess in a digital environment. This broad definition makes digital literacy a necessary quality for adapting to an increasingly digital society and work environment.

In China's education system, digital literacy education has become an important issue. Especially in the stages of compulsory education and higher education, students gradually develop digital literacy through courses such as "Information Technology", "Information Technology" and "University Computer". However, digital literacy has gone beyond a single technical education, and it involves a broader level, such as information acquisition, innovative thinking, ethics and so on. Therefore, how to effectively realize the connection and integration of digital literacy education between different stages of schooling and different courses has become an urgent problem to be solved. In this context, my country needs to establish a digital literacy framework based on national conditions, and accordingly develop digital literacy courses suitable for each school stage to achieve comprehensive digital literacy education.

To sum up, China recently released the document "National Digital Literacy and Skills Improvement Key Points", which clearly elaborates the definition and framework of digital literacy, which will provide important guidance and support for

the development of digital education in my country. The cultivation of digital literacy has gone beyond technical education and involves multiple dimensions, such as information acquisition, innovation ability, and ethical awareness. Therefore, China needs to formulate a digital literacy education framework in line with its national conditions, and achieve comprehensive digital literacy training by integrating educational resources at various stages of schooling. This will help develop well-rounded citizens for the digital age.

Digital technology empowers teaching and learning, and is a bridge to transform digital course content into student literacy. The traditional teacher-led lecturing and unitary teaching methods can no longer meet the requirements of the digital age. However, teaching and learning empowered by digital technology is not simply a superposition of technology and traditional teaching methods, but a student-centered technology and teaching integration innovation for more complex learning environments.

In China, the composition of digital literacy includes the following elements:

**Digital Awareness:** This covers an individual's awareness of the sensitivity and value of numbers, and their motivation to actively discover and apply accurate digital data. In collaborative learning and work, real, scientific, and effective data can be shared while maintaining data security.

**Digital Technology and Skills:** actively use rich digital resources, a wide range of digital tools and ubiquitous digital platforms to explore and innovate in learning and life. Digital technology and tools are used not only to improve efficiency but also as the basis for exploration and innovation, which requires the cultivation of innovative thinking and habits, as well as the formation of teamwork spirit.

**Digital Application:** Digital Application refers to the application of digital technology in various fields and businesses to achieve digitization, automation, intelligence and information efficiency optimization. These applications use

computers, networks, software and other digital technologies to process, store, communicate and analyze data to improve and innovate businesses and services.

**Digital Social Responsibility:** This includes establishing correct values, ethics and legal concepts, and following digital ethics. In the digital environment, maintain patriotism and respect for the law, while maintaining national security and national dignity, and avoid harming others and society in digital scenarios.

**Digital Professional Development:** With the popularization and application of digital technology, all professional fields are developing and changing. Digital professional development spans multiple fields such as software development, data science, cybersecurity, artificial intelligence, and more.

To sum up, China's digital literacy framework is a comprehensive and comprehensive system covering five key dimensions: digital awareness, digital technology and skills, digital application, digital social responsibility, and professional development. By developing digital awareness, we can recognize the challenges and opportunities of the digital age. Mastering digital technologies and skills enables us to better deal with digital tools and applications. Through digital applications, we integrate digital technology into real life and work to improve efficiency and quality. Assuming digital social responsibility, we can build a harmonious and sustainable digital society. Professional development provides broad opportunities and prospects for personal career growth in the digital field. This framework promotes the improvement of the overall literacy of individuals and society in the digital age, and helps China move to the forefront of digital transformation and innovative development.

#### 4.4 How to Improve Students' Digital Literacy

To improve the digital literacy and skills of college students, in addition to mastering the basic framework of digital literacy constructed from digital awareness and other highly recognized aspects. The characteristics of the training process of

college students should also be considered, and a digital literacy integration framework with the curriculum system as the main line should be constructed (Bedah et al., 2021). The construction of any system should not only be universal and scientific, but also specific. Therefore, when building a framework for digital literacy, in addition to learning from the advanced experience of other countries and regions, we should also consider the characteristics of the times and regions. Because digital literacy is a competency standard. Different disciplines, different industries, different groups, and different regions should be targeted and differentiated, and we should think about how to build a unique digital literacy framework for college students that can play an effective role in economic and social development with a new perspective and orientation (Möller et al., 2020). The core is to insist on building morality and cultivating people, and construct a basic framework for college students' digital literacy that conforms to the characteristics of the times, regions and industries (Özkan, 2010).

Digital literacy education is not simply popularizing computer knowledge, nor is it training every college student to be a computer expert. It is to improve the information awareness of college students and develop "computational thinking" that adapts to the digital age. Students should form the habit of using "Internet +" and "Artificial Intelligence +" to innovate learning, living and working modes (Sarea et al., 2021). It is necessary to strengthen the responsibility of the information society, so that they can live in the information society in a calm, confident, responsible and responsible manner. It is necessary to educate and guide students to form correct values, morals, and the rule of law, and follow digital ethics. In the digital environment, maintain love for the country, awe for the law, identification with national culture, pursuit and love for science. Actively safeguard national security and national dignity, do not harm others and society in various digital scenarios, and actively maintain the order and ecology of the healthy development of the digital

economy.

The digital age requires digital literacy. As an important component of citizens' digital literacy, the social value and era connotation of college students' digital literacy education are increasingly evident. To carry out digital literacy education in higher vocational colleges, the government, schools and enterprises should jointly shape the favorable environment and mechanism for digital literacy education for college students (Sarea et al., 2021). For the government, it is necessary to grasp the direction of digital literacy education through policy guidance. Formulate and introduce an implementation plan in line with the current situation of regional development, and build a scientific and complete digital literacy evaluation framework. It is used to evaluate the digital literacy development level of schools and students, and strengthen policy guidance and business training. For colleges and universities, it is necessary to attach great importance to the digital literacy education of students, and integrate digital literacy education into the whole process of professional teaching, course teaching and management. Teachers should take the initiative to improve digital literacy, take the lead in having good digital literacy and digital economy awareness, so as to maintain integrity and innovation in education and teaching, and further help students improve digital literacy and skills. At the same time, new occupations such as digital management engineers, artificial intelligence engineering and technical personnel, Internet of Things engineering and technical personnel, and cloud computing engineering and technical personnel should be oriented to accelerate professional upgrading and transformation, and optimize teaching management processes such as students' career planning. For enterprises, as the main body with the most innovative vitality, it is necessary to give full play to the advantages of emerging information technology development and application. Adopt the model of integration of production and education, participate in experiential learning, applied problem solving, etc. In college courses, and develop more rich and interactive educational and

teaching content.

#### 4.5 Evaluation of Digital Literacy

According to Cornell University's Digital Literacy Resource, digital literacy is "the ability to find, evaluate, utilize, share and create content using information technology and the Internet." It involves a working knowledge of current technology and how best to use it. Don't confuse this with computer literacy, which means knowing how to use the basic functions of a computer, or even being proficient or knowing how to browse the internet (Sony, 2021).

It is about understanding how to find and communicate information through computer hardware and software, the Internet, smartphones, tablets and other digital devices, and understanding how to use these digital channels to interact with society in an ethically responsible way.

Digital literacy skills are becoming very important in the workplace, as most employees should understand the basics of our digital world at least to some extent. Some companies, such as those dealing directly with computer and internet technologies or developing software and applications, are only looking for candidates with strong digital literacy skills (Kharbat & Muqattash, 2020). However, most companies would benefit from employees with some level of digital literacy.

Pre-class tests and mock assessments can help teachers determine whether students have the right digital literacy skills, and there are many platforms on which digital literacy can be tested:

*Northstar Digital Literacy Assessment*

([digitalliteracyassessment.org](http://digitalliteracyassessment.org))

Beginning during the 2008 recession, the São Paulo Public Library was asked to assist in finding jobs for people in its community, and since then it has become clear that the need to improve computer and technical skills is the key to success in the job market. From there came the Northstar Digital Literacy Assessment, which helps

identify your skills and then improve them.

Many teachers use this assessment, and it even provides proof of completion. The generated certificate can also be used as a certificate when students are looking for a job after graduation, which is very practical.

There is also an assessment at the end, which is a comprehensive overview of the material, and questions covering the most important points - presented to teachers in the form of real situations that students may encounter in their daily lives (Solomon & Schrum, 2007). Upon completion, teachers will receive a personalized learning plan based on students' scores, which is a great way to assess students' next steps and set future goals for them.

These platforms provide standardized test papers, and teachers only need to select the platform according to their needs, and use the papers to test students before the course starts. Check again after the course is over. It can be concluded whether the digital literacy of students has been improved.

On the other hand, digital literacy can also be measured with the Digital Literacy Scale. The Digital Literacy Inventory is a tool used to assess an individual's ability and skills to process, understand and apply information in a digital environment (Solomon & Schrum, 2007). It quantifies the performance level of individuals in digital technology, information acquisition, information evaluation, and information application through a series of indicators and topics. The digital literacy scale aims to measure the proficiency of individuals in digital technology, including the ability to search, analyze, integrate, create, and share information. This scale is designed to help assess the extent to which individuals adapt, innovate, and effectively use information in the digital age, as well as their abilities in problem solving, decision making, and participation in social interactions. It can be used in fields such as education, training and research to help measure and improve the digital literacy level of individuals.

Overall, measuring digital literacy is a key means of assessing an individual's ability to cope with information, technology, and data in a digital environment. Using specific websites or digital literacy scales is an effective way to do this. These tools quantitatively measure an individual's level of digital technology use, information acquisition, analysis, innovation, and social interaction through structured indicators and topics. By using these sites or scales, we can gain insight into an individual's ability to adapt, be creative, and use information in the digital age. In addition, these tools help to assess an individual's performance when solving problems, making decisions, and participating in social interactions. Therefore, by measuring digital literacy, we can better understand the capabilities of individuals in the digital environment and provide them with better training and development opportunities to adapt to the rapidly changing digital world.

### **5 ORPA cycle**

The term "action research" was coined in the 1940s by American social psychologist Kurt Lewin, who is widely regarded as the founder of the field. The basic principles of action research described by Lewin are still in use today.

"Action research" in education refers to principals, teachers, etc. carrying out research work in combination with the actual situation of education, formulating plans, systematically collecting data, analyzing problems, proposing improvement plans, putting them into practice, and testing and reflecting on the results. Based on the research results, carry out educational reforms to improve the quality of education in schools and individuals (Brydon-Miller et al., 2003).

O'Leary's (2004, p. 141) model recognizes that research may be shaped in the classroom as knowledge emerges from the teacher's observations. O'Leary's (2004, p. 141) model recognizes that research may form in the classroom as knowledge emerges from the teacher's observations. O'Leary emphasized that action research

needs to focus on situational understanding and implementation of actions, starting organically with real-time problems. As shown in the following figure:

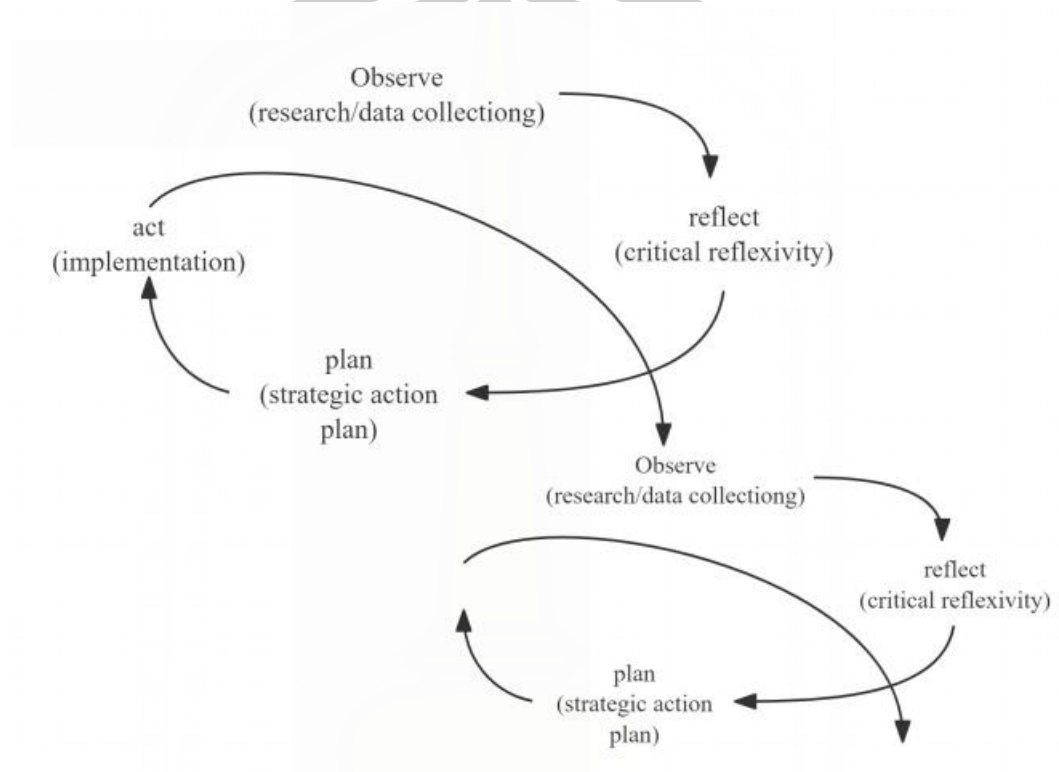
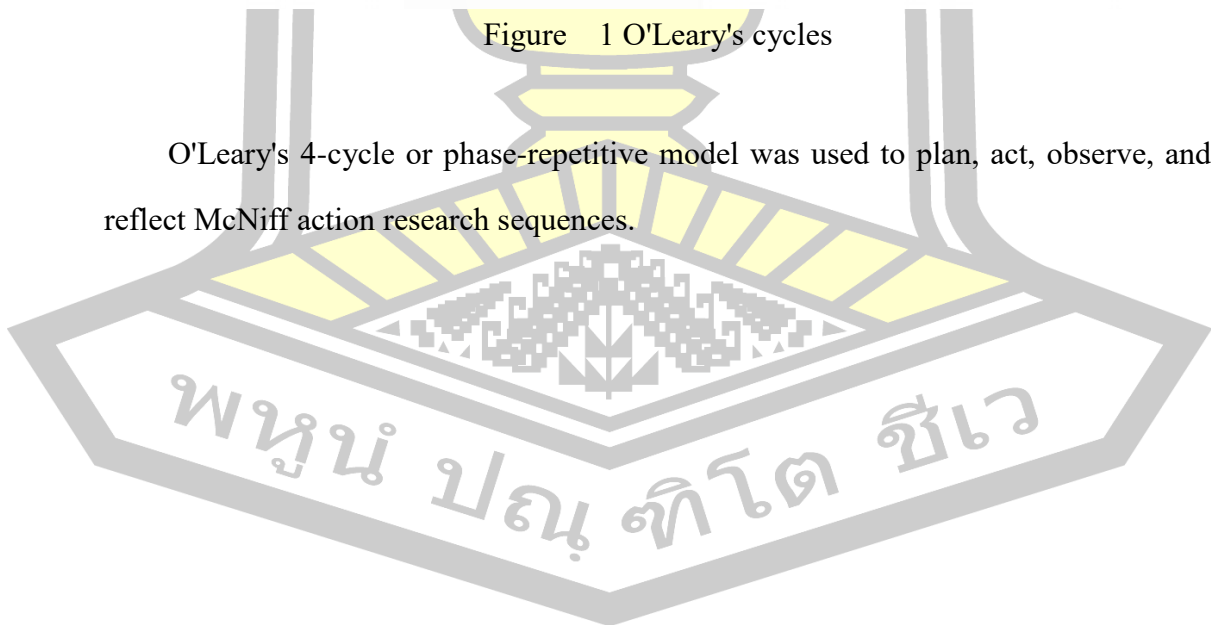


Figure 1 O'Leary's cycles

O'Leary's 4-cycle or phase-repetitive model was used to plan, act, observe, and reflect McNiff action research sequences.



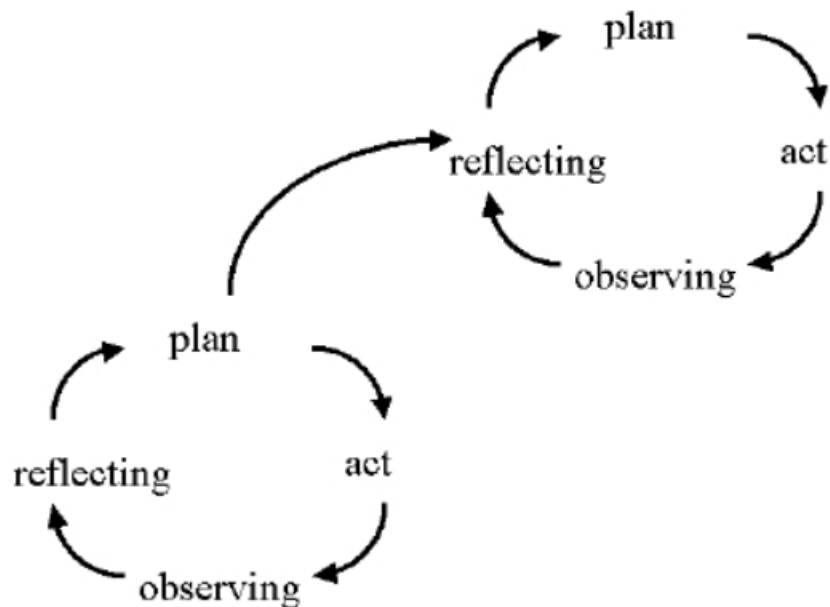


Figure 2 McNiff action research

In summary, O'Leary's cycle is an excellent cycle model, which allows teachers to have a good understanding of students' knowledge mastery, and can improve teaching methods in a timely manner according to students' learning conditions. Closer to the needs of students to solve the problems students encounter in their studies.

## 6 Introduction of Hilda Taba

Born Hilda Taba in Estonia, a renowned educator and disciple of John Dewey, Professor Taba received her first degree from Tartu University. She then studied at Bryn Mawr College and Columbia University Teachers College, and completed her doctoral dissertation "The Dynamics of Education." She was Director of the Center for Intergroup Education in 1938, Director of the Center for Human Relations at the University of Chicago, UNESCO Professor in São Paulo, Brazil, and Director of Research at San Francisco State College (now San Francisco State University) in 1951. Taba, the author of seven books, died in 1967 (Costa & Loveall, 2002).

Taba has worked with many leading contemporary scholars, such as John Dewey, Benjamin Bloom, Ralph Tyler, and Robert Havighurst, and has also influenced her

thinking about pedagogy. Taba defines a "course" as a document that contains statements of goals and specific goals; it indicates the selection and organization of some content; it either implies or shows some mode of learning and teaching. Because objective needs or content organization requires it to include an outcome evaluation procedure.

### 6.1 Steps of Hilda Taba Course Development Mode

Hilda Taba is the developer of this learning mode. Taba believes that there is a certain logical order and sequence to creating courses. She advocates a "bottom-up model" or grassroots approach. Taba's grassroots model has the following seven steps, advocating for the primary role of the teacher (Portillo et al., 2020).

#### 1. Learner needs diagnosis:

It is also the teacher who is the curriculum designer who begins the process by identifying the needs of the students for whom the curriculum is to be planned. Under the pressure of the current environment, it is necessary to increase digital education for accounting students in higher vocational schools.

#### 2. Goal formulation:

After the teacher has identified the needs of the learners who need attention, he or she specifies goals to meet the needs. The determination of the goal is also consistent with Taylor's thinking in the early years. To achieve this goal, our teachers work hard.

#### 3. Content selection:

Objectives selected or created by the teacher suggest the theme or content of the lesson. Not only do goals and content match, but the validity and meaning of the selected content needs to be determined, that is, the relevance and importance of the content.

#### 4. Organization of content:

Teachers cannot just select content, but must organize it in a specific order taking

into account the maturity of learners, their academic achievements and their interests. This is teaching in accordance with aptitude.

5. Choice of learning experience:

What needs to be understood is that the content has to be presented to students and they have to be involved. At this point, teachers should choose appropriate teaching methods to engage students.

6. Organization of learning activities:

The order in which learning activities are organized depends on the sequence of content and the characteristics of the learner. The teacher needs to remember and examine the characteristics of the students he or she will teach, and arrange the learning reasonably.

7. Evaluation:

Assessment is the key to improving the quality of the course. Curriculum planners (i.e., teachers) must identify goals that have been accomplished. In order to assess the achievement of learning objectives, assessment procedures need to be designed. Such as questionnaires and exams. Improve lessons based on feedback.

Table 1 The connection between the Taba principle and the new Digital Accounting Course Curriculum

<b>Taba Course Development principle</b>	<b>Digital Accounting Course Curriculum</b>
Diagnosing learner needs	1. The researcher surveyed accounting professional skills among accounting students at Ningxia Vocational and Technical College of Finance and Economics.  2. The researcher conducted a survey on digital literacy among accounting students at Ningxia Vocational and Technical College of

<b>Taba Course Development principle</b>	<b>Digital Accounting Course Curriculum</b>
	Finance and Economics. 3. The researcher analyzes existing data surveys on accounting digital literacy.
<b>Goal formulation</b>	1. Survey to collect teachers' opinions on accounting courses, design a questionnaire, analyze the survey data, and prepare a survey report.  2. The researchers interviewed course and accounting experts and finally developed a preliminary syllabus and determined course objectives.
<b>Content selection</b>	Conduct focus groups and use the results to draft an outline. Experts select course content and draw up course plans.
<b>Organization of content</b>	The researchers took the following measures: 1. Break down the course content: Break down the course content into appropriate modules or units to facilitate students to learn and understand step by step. This helps avoid information overload and makes it easier for students to grasp knowledge.  2. Determine the sequence of content: Determine the sequence of course content based on students' learning needs and course objectives. Researchers can start with basic accounting knowledge and gradually deepen it to ensure that students can establish a solid foundation during the learning process.  3. Choose appropriate teaching methods: Choose appropriate teaching methods and learning activities based on the

<b>Taba Course Development principle</b>	<b>Digital Accounting Course Curriculum</b>
	characteristics of the course content and students' learning styles.
Choice of learning experience	The researchers adopted the ORPA cycle model and divided the course evaluation and improvement process into 4 cycles, each lasting 4 weeks. By observing students' performance, reflecting on teaching effects, planning improvement measures, and implementing corresponding actions, we continuously improve the effectiveness of the course. This dynamic cycle process allows the curriculum to adapt to student needs and technological developments promptly, solve problems in the learning process, and continuously optimize teaching methods to ensure continuous improvement of teaching quality.
Organization of learning activities	<p>Design various learning activities to effectively organize course content:</p> <ol style="list-style-type: none"> <li>1. Group discussion: Break down the course content into topics for group discussion, allowing students to discuss specific topics and share each other's opinions and understandings.</li> <li>2. Case analysis: Design case analysis activities related to the course content to allow students to apply the knowledge they have learned by analyzing real or virtual cases.</li> <li>3. Practical operations: Arrange practical activities related to the course content, allowing students to conduct experiments, observations or actual operations by themselves.</li> <li>4. Accounting sandbox role play: Use the flexibility of the</li> </ol>

<b>Taba Course Development principle</b>	<b>Digital Accounting Course Curriculum</b>
	accounting sandbox to let students play specific roles. Participate in simulated situations to experience real work environments or social interaction situations.
Evaluation	1 According to school regulations, students give feedback on the course evaluation. 2 Select 30 students for the questionnaire survey.

## 6.2 Taba's Teaching Strategy Model

Taba's teaching strategy has been reviewed and analyzed by scholars (Mao Lianshuo and Lin Jianping, 1987). Hilda Taba teaches with this mindset: starting from scratch - an induction method. Taba believes that teaching is like a roof, and higher-order thinking is built on a solid foundation, which is the foundation of high-quality information. Then thinking skills are combined with facts to build walls around the foundation. Finally, with foundations and walls in place, students can construct ideas at the highest level—abstract generalizations. Facts, thinking skills, and abstract concepts together form a cohesive set.

Each Taba teaching strategy is designed to develop a different skill. While there are some differences in how much strategy Taba has developed, there are four steps to developing research: Concept Development, Interpretation of Data, Application of Generalizations, and Resolution of Conflict (Gallagher, 2012).

In the Concept Development stage, students are taught to identify the characteristics of each concept, to classify the attributes possessed by the concept, to identify the concept, and to classify it into broad or other conceptual contexts (Riafadilah & Mukhidin, 2018). In the Interpretation of Data, students make

causal inferences, draw conclusions and generalize data to interpret data, use tabulations to collect and understand. In Application of Generalizations, it means instructing students to apply the generalizations to new situations. The final Resolution of Conflict stage is a process in which students learn to deal with the acquired concepts and the related feelings, emotions, attitudes and values obtained after deriving the general principles. Concept Development This strategy deals with the organization of data, and the labeling of projects, where students learn to classify data and validate their classification. Teachers ask questions asking students to list items as responses, asking students to pay attention to similarities and differences between items, and concepts are formed, clarified, and extended (Gallagher, 2012).

## **7 Related Research**

The use of social media as an online medium has become increasingly common during this decade. Younger millennials are the largest users of social media today. For a long time, research on digital literacy has focused on its concepts and theories, with some research on how businesses and companies can improve digital literacy(Alshurafat et al., 2021). Based on previous research discussing digital literacy and the literacy that constitutes it or is related to it, areas listing skills to master turn to the role of digital in personal growth. While the acquired sense of competence is necessary, it is only the beginning or a lower stage in the process of achieving learning, career and life goals through the appropriate use of digital means(Chung \* & Chow, 2004). In this view, digital literacy is an element of the ongoing construction of personal identity (Gulin et al., 2019).

In recent years, research on improving students' digital literacy has increased year by year. For example, in January 2019, the University of Derby delivered its first module, which is entirely dedicated to and built around editing and writing articles for Wikipedia(Yang, 2020). The course focuses on the use of Wikipedia as a means of improving students' writing skills for public consumption, while improving their

numerical and collaboration skills (Ball, 2019). On the other hand, Google Classroom is also identifying the need for interesting, effective, independent and productive learning development. This learning development is based on Google Classroom's comprehensive learning design that has also been used to improve students' digital literacy (Fahrurrozi et al., 2020). Some scholars have found that teaching models can also improve students' digital literacy. Patmanthara and Hidayat (2018) found that by applying a blended learning model, combining traditional learning models (face-to-face) with learning management system (LMS)-based online learning models, students' digital literacy was significantly improved.

Collectively, these studies provide important insights into improving students' digital literacy. However, the focus of such studies remains narrow, with little to no general curriculum development to improve digital literacy. However, accounting is closely related to digitization and is more dependent on digitization than the average profession.

## **8 Research Conceptual Framework**

The main objective of this study is to design, implement, and evaluate a digital accounting course to enhance students' accounting expertise and digital literacy required in an increasingly digital economy. This course syllabus aims to combine the core values of traditional accounting education with the latest developments in modern information technology to ensure that students not only master basic accounting skills, but also can effectively use digital tools and platforms for financial analysis, data management and electronic reporting.

To achieve this goal, the researchers used Taba's curriculum development theory, which emphasizes a bottom-up curriculum development approach, that is, starting from specific teaching content and learning activities and gradually rising to the overall curriculum structure. According to Taba's theory, curriculum development should first be based on real teaching situations and student needs to ensure the

relevance and practicality of teaching activities. In the formulation of curriculum goals, Taba's theory suggests that there should be clear hierarchical goals, including long-term goals and short-term goals, as well as the progressive relationship between them. At the same time, researchers also incorporate the concept of digital literacy, which believes that technology is a basic life skill in modern society and that individuals must master how to effectively use and understand information technology.

The study adopted a mixed research approach, combining qualitative and quantitative research to ensure diversity in data collection and comprehensiveness of research results. In addition, the research also involves the ORPA cycle - the cyclic process of Observation, Reflection, Planning, and Action. This is a dynamic course evaluation and improvement model that enables the course to continuously adapt to student needs and technological developments.

When implementing evaluations, researchers measure the effectiveness of courses based on multiple indicators, including the accessibility, possibility, appropriateness, and accuracy of the courses to ensure that the courses can achieve the intended educational purposes. In addition, in order to obtain deeper insights, the researchers also plan to interview students through interviews to collect their direct feedback on the course, so as to gain an in-depth understanding of the actual effectiveness of the course from the students' perspective.

In summary, this study strives to create a practical and effective accounting education curriculum by combining theory and practice, and using scientific assessment tools and methods, aiming to provide students with the core competencies needed to succeed in the digital age.

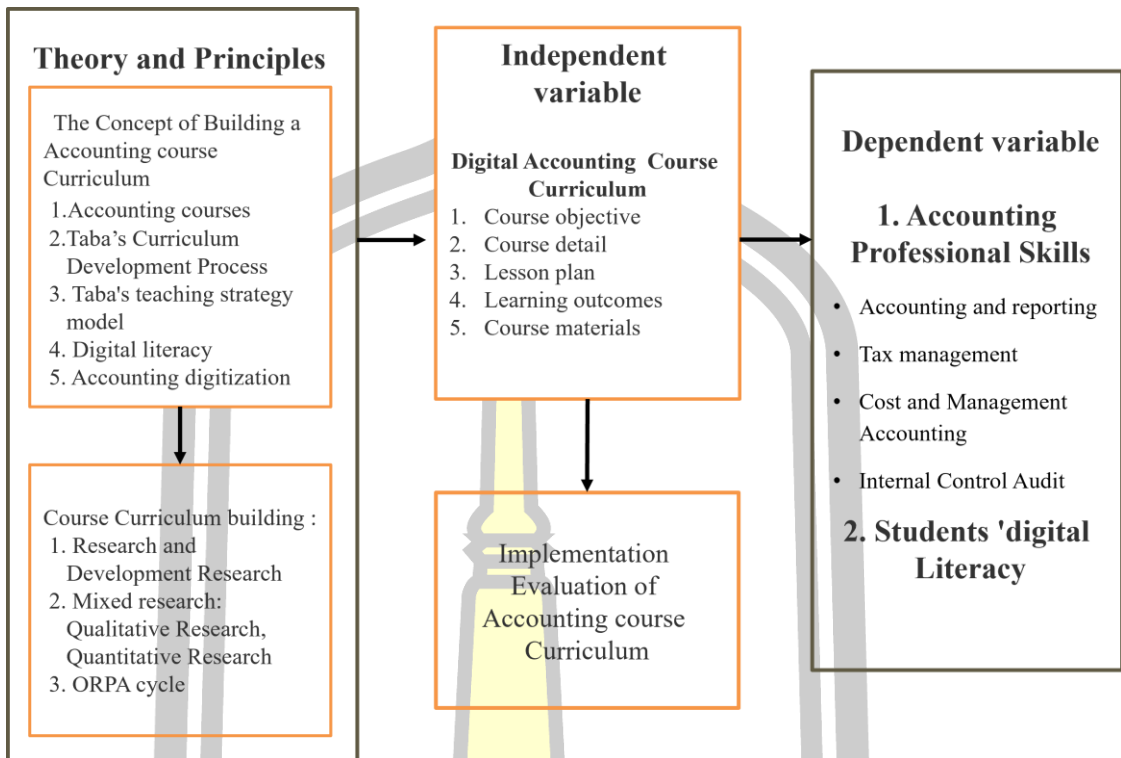


Figure 3 Research conceptual framework



## CHAPTER III

### RESEARCH METHODS

Development of Digital Accounting Course Curriculum to Enhance Accounting Professional Skills and Digital Literacy in Ningxia, China (Research and Development: R&D) has the following 4 stages of steps and methods.

Phase 1 Contextual study: investigate current situation (R1)

1 Investigate the current situation and examine theories, concepts and principles relevant to curriculum development.

2 Research Accounting Students' professional skills include research literature and research framework, design questionnaires, study survey results and write survey reports.

3 Develop a scale for researching digital literacy based on literature reviews, research concepts, and research questions related to digital literacy.

4 Analyze existing data surveys on digital literacy in accounting.

Phase 2 Construct new course curriculum (D1)

1 Conduct surveys to gather teachers' perspectives on accounting courses, design questionnaires, analyze survey data, and compile survey reports.

2 The researcher conducts interviews with curriculum and accounting experts, culminating in the creation of a preliminary syllabus.

3 Organize focus groups and utilize the outcomes to draft an outline.

Phase 3 Implement new course curriculum (R2)

1 Prepare and organize the experimental setup by dividing students into

experimental and control groups.

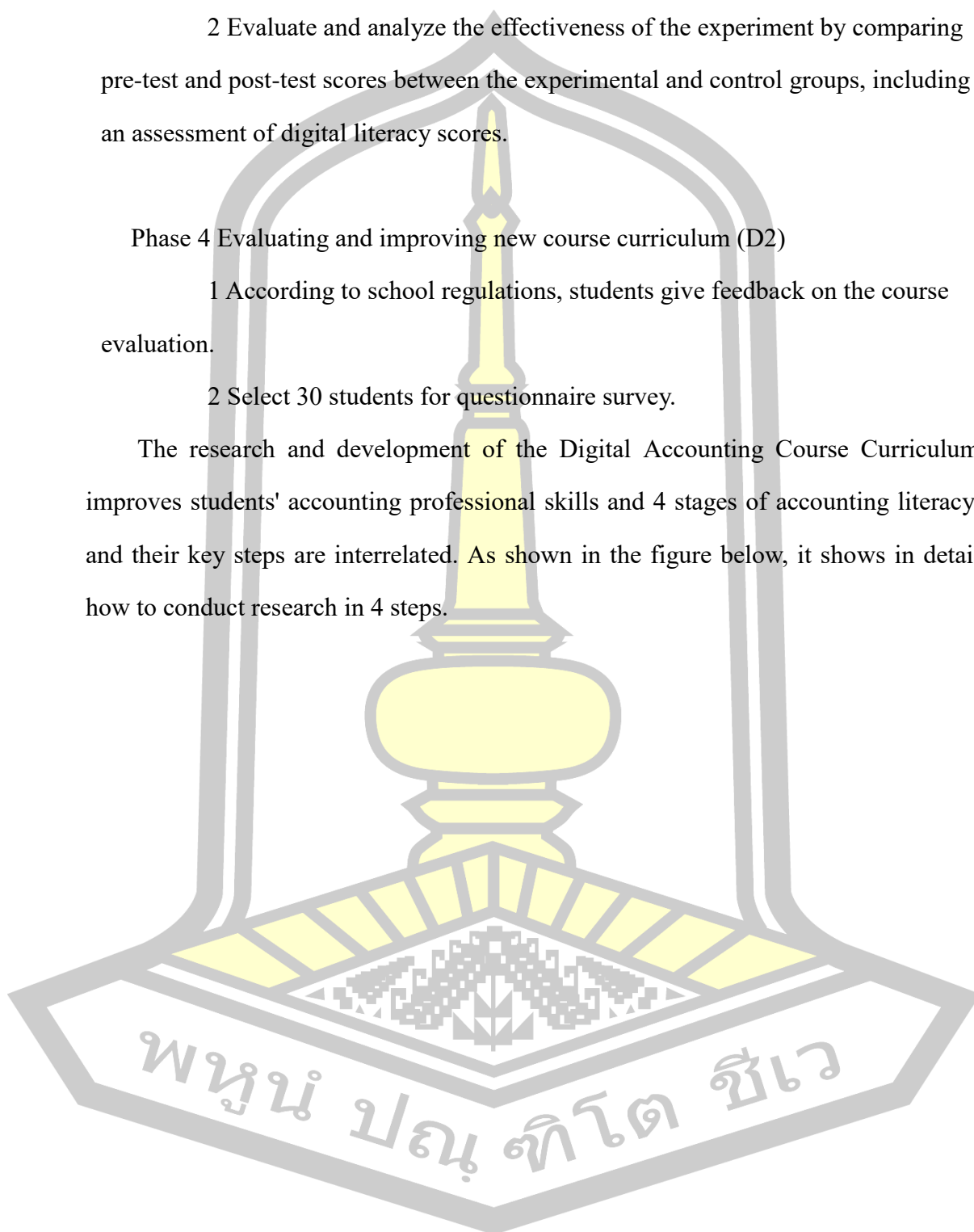
2 Evaluate and analyze the effectiveness of the experiment by comparing pre-test and post-test scores between the experimental and control groups, including an assessment of digital literacy scores.

#### Phase 4 Evaluating and improving new course curriculum (D2)

1 According to school regulations, students give feedback on the course evaluation.

2 Select 30 students for questionnaire survey.

The research and development of the Digital Accounting Course Curriculum improves students' accounting professional skills and 4 stages of accounting literacy, and their key steps are interrelated. As shown in the figure below, it shows in detail how to conduct research in 4 steps.



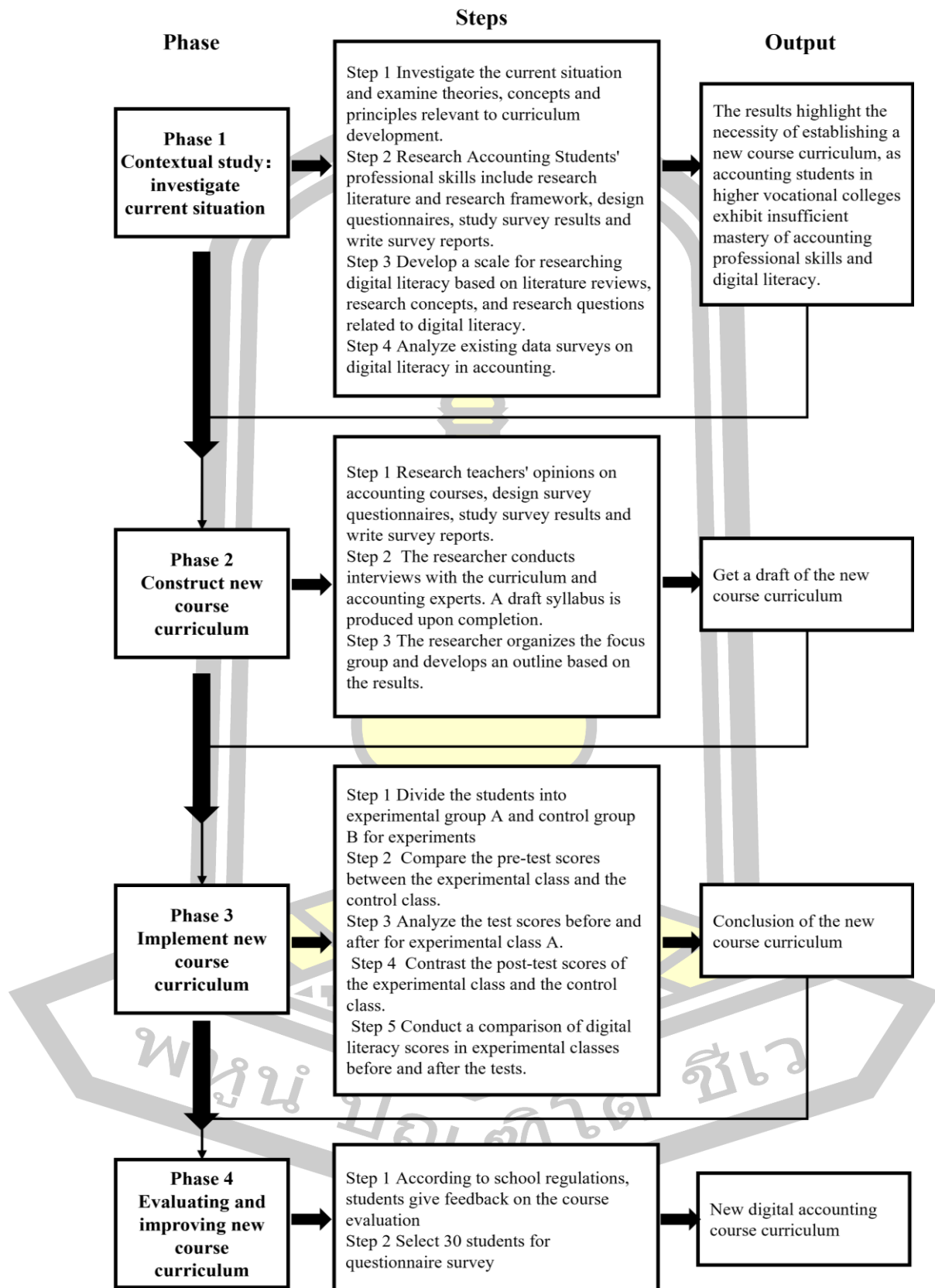


Figure 4 Conduct research in 4 steps.

### **Phase 1 Contextual study: investigate current situation**

The first part is to analyze the basic data (R1) of design innovation. The goal of this step is to analyze some of the data that is important and needed to develop innovations by focusing on collation, analysis, research theory, surveys, and stakeholder needs. The research techniques used in this step are survey research, literature research, meta-analysis, interviewing experts or academicians, etc. The researcher chooses one or more techniques that are suitable for the R1 research objective (R1 objective). The outcome of this step will lead to innovations in curriculum design and teaching.

The specific first stage is to study the theories, concepts, related principles and factors that affect accounting professional skills and digital literacy of vocational college students, so as to serve as the basis for the new curriculum. In this stage, questionnaire survey and literature data collection methods are used to determine the teaching mode. The details of each step are as follows:

The first stage is to study the theories, concepts, related principles and factors that affect accounting professional skills and digital literacy of vocational college students as the basis for the new curriculum.

Research purposes

Research on the current situation of accounting courses in Ningxia Vocational College of Finance and Economics.

Research methods

The researcher conducted a study on accounting courses in school accounting, using a quantitative research method.

Population Size and Sample

Determine the sample method:

There are a total of 568 students majoring in accounting in Ningxia Vocational

College of Finance and Economics in 2022. Using the principle of probability, the researchers randomly selected 240 students from four accounting classes.

Using the formula for Yamane (1967)

$$n = \frac{N}{1 + N(e)^2}$$

—  $n$  means sample size

—  $N$  means Population size

—  $e$  means margin of error, here  $e = 0.05$

will yield the following table:

Table 2 Sample size in phase 1

	Population	Sample
Students of 2022 accounting students at Ningxia Vocational College of Finance and Economics	568	204
Accounting teacher at Ningxia Vocational College of Finance and Economics	76	64
Total	644	268

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{644}{1 + 644(0.05)^2}$$

$$n = \frac{644}{2.61}$$

$$n \approx 247$$

In this study, the researchers selected a sample size of more than 247 people, specifically 268 people. Such a sample size helps to improve the reliability and statistical significance of the research results, making the trends and conclusions identified by the research more representative.

The research tool used consists of the following components:

1. Research Accounting Students' professional skills include research literature and research framework, design questionnaires, study survey results and write survey reports. There are 39 multiple-choice questions in total.

2. Develop a scale for researching digital literacy based on literature reviews, research concepts, and research questions related to digital literacy. The scale uses a 5-point scale: 1 point strongly disagree, 2 points disagree, 3 points moderate, 4 points agree, and 5 points strongly agree.

3. Study existing data.

Tool creation and inspection:

1. The procedures for researching the professional skills of accounting students, creating tools and checking the quality of tools are as follows:

1.1 The researcher studies the concept of accounting professional skills. Investigate the components of the skill, then synthesize variables and define terms.

1.2 The researchers set a total of 56 questions. For consideration and selection of the full test, a total of 50 questions, details are as follows:

Table 3 Number of questions in the questionnaire

Content	Number of questions	Actual number of questions
Accounting and reporting	15	13
Tax management	13	12
Cost and Management Accounting	14	12
Internal Control Audit	15	13
Total	57	50

1.3 The researchers handed over the prepared test papers to the school leaders to consider the coverage and completeness of the test content. Improvements are then made based on the advisor's suggestions.

1.4 The researcher gave the test considered by the consultant to 5 experts, and considered the content validity by considering the consistency index. The list of

experts is in the appendix A.

1.5 Researchers select items with The Item Objective Congruence Index of 0.50 or higher (Sirichhai Kanchanawasi, 2009). In this study, the IOC ranged from 0.80 to 1.00, attached table (As shown in Appendix C ).

1.6 The researchers used 22 students to do the tryout experiment. They were accounting students of Ningxia Vocational College of Finance and Economics, but they were outside the sample.

1.7 The researcher analyzed the tryout data with spss software. Through the formula and software calculation, the alpha coefficient of Cronbach, that is, the validity analysis of this questionnaire, was 0.97, higher than 0.80. The questionnaire is valid (As shown in Appendix C ).

1.8 The researchers issued a complete questionnaire for further data collection.

2. The digital literacy status questionnaire, the steps to create the tool and check its quality are as follows.

2.1 The researcher examines the concept of digital literacy, studies the digital literacy framework, then synthesizes variables and identifies and defines terms.

2.2 The researchers made a complete questionnaire with 50 questions in total.

2.3 The researchers handed over the prepared test papers to the school leaders to consider the coverage and completeness of the test content. Improvements are then made based on the advisor's suggestions.

2.4 The researcher gave the test considered by the consultant to 5 experts, and considered the content validity by considering the consistency index. The list of experts is in the appendix.

2.5 The researchers selected items with The Item Objective Congruence Index of 0.50 or higher (Sirichhai Kanchanawasi, 2009), a total of 35 questions. In this study, the IOC ranged from 0.80 to 1.00, details are given in the attached table(As shown in

Appendix C ).

2.6 The researchers used 22 students to do the tryout experiment. They were accounting students of Ningxia Vocational College of Finance and Economics, but they were outside the sample.

2.7 The researcher analyzed the tryout data with spss software. Through the formula and software calculation, the alpha coefficient of Cronbach, that is, the validity analysis of this questionnaire, was 0.85, higher than 0.80. The questionnaire is valid (As shown in Appendix C ).

2.8 The researchers issued a complete questionnaire for further data collection.

3. Analysis based on existing accounting data

3.1 Sample and population

4,264 finance and accounting professionals worldwide, including ACCA members, associate members and students.

3.2 Data sources

The digital accountant: Digital skills in a transformed world (2017)

3.3 The questionnaire questions mainly include:

1 How relevant do you think digital skills are for accountants and finance professionals in your industry?

2 How often do you need to use digital skills at work?

3 Do you think you are mainly active or reactive in developing your digital skills? and so on.

3.4 Data conclusion

Among survey respondents, 89% believe digital skills are necessary or very necessary in their industry. 63% say they have the right level of digital skills for their roles. They have strong capabilities in traditional areas such as spreadsheets and enterprise resource planning solutions, but only 20 percent have strong capabilities in

emerging technologies such as blockchain, artificial intelligence and machine learning. Only 4% felt that they did not need digital skills at all.

### 3.5 Data Analysis

According to the survey results, most enterprises are willing to carry out digital transformation of accounting, and they believe that digital accounting means efficiency, the possibility of cost reduction, and new opportunities for enterprises and employees. Enterprises no longer doubt the arrival of digital transformation, but focus on how to quickly seize opportunities and keep in touch with customers. Traditional digital tools long used by accountants have been replaced by new technologies that increasingly bring in diverse data sources and apply machine learning (ML) capabilities to predict trends. The digitalization of accounting in the future is inevitable.

#### Data analysis

1. The researcher analyzes the data using descriptive statistics, which describe the basic characteristics of the sample and study variables by presenting values of frequencies, percentages, means, and standard deviations. as follows:

1.1 Calculate the percentage using the following formula (Sincharu, 2010)

$$\text{Percent (\%)} = \frac{X}{n} \times 100$$

—  $X$  represents the required data (frequency) percentage

—  $n$  represents the total number of data

1.2 Calculate the mean using the following formula (Department of Education Research and Development, Faculty of Education, Maharakham University, 2015)

$$\bar{X} = \frac{x_1 + x_2 + \dots + x_n}{n} = \frac{\sum_{i=1}^n x_i}{n}$$

—  $\bar{X}$  represents the sample mean

—  $x$  represents each data

—  $n$  represents the total number of data

1.3 Standard Deviation uses the following formula (Mahasarakham University, Faculty of Education, Ministry of Educational Research and Development, 2015)

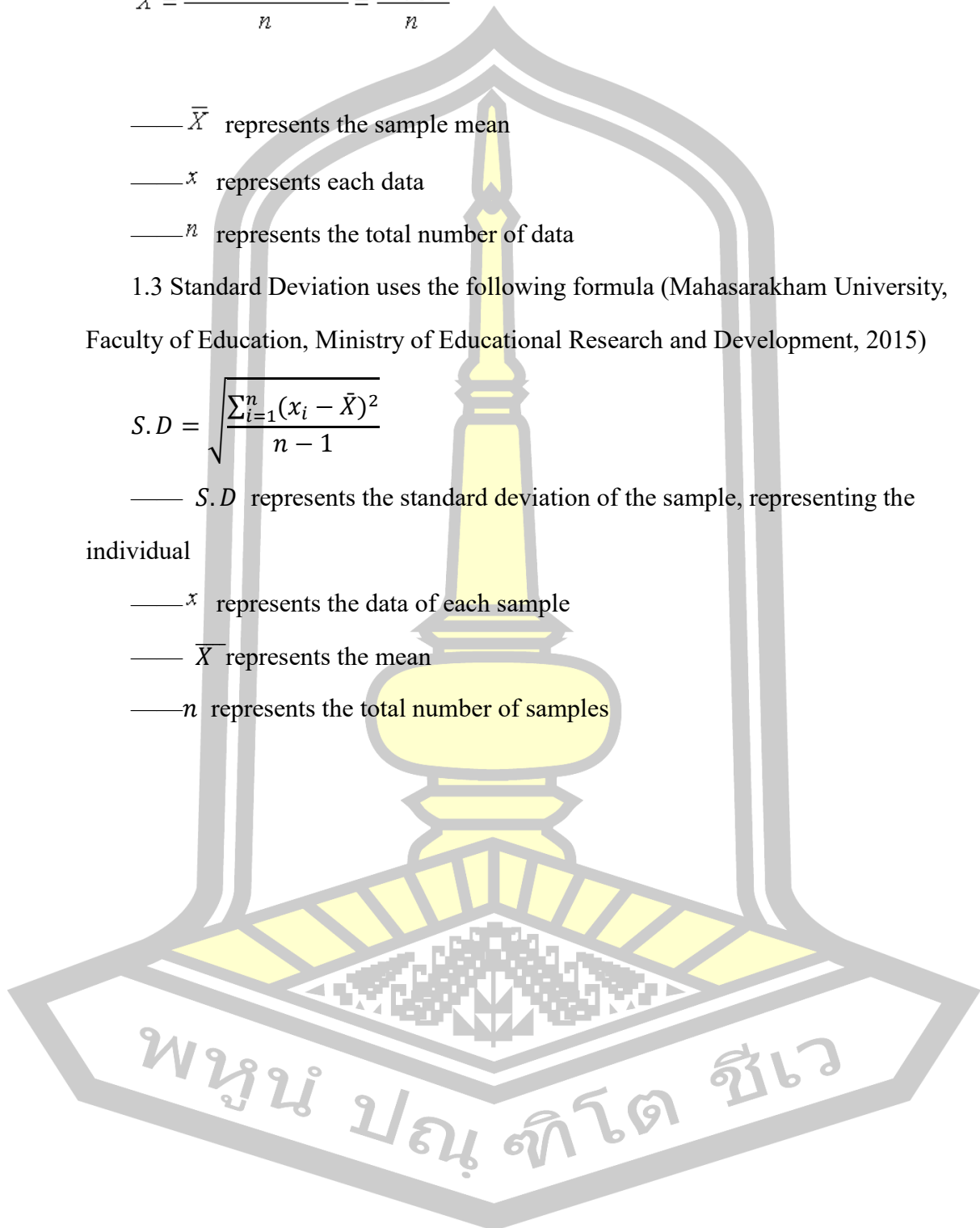
$$S.D = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{X})^2}{n - 1}}$$

—  $S.D$  represents the standard deviation of the sample, representing the individual

—  $x$  represents the data of each sample

—  $\bar{X}$  represents the mean

—  $n$  represents the total number of samples



## Phase 2 Construct new course curriculum

At this stage, the researchers will look for a teaching model suitable for the new accounting course and design the teaching model of this study based on the information collection and analysis in the first stage.

Research purposes

Research and develop accounting courses that enhance students' professional skills and digital literacy

Research methods.

Researchers conduct research to develop framework for accounting classes that enhance students' professional skills and digital literacy

In three steps:

1. Research teachers' opinions on accounting courses, design survey questionnaires, study survey results and write survey reports. There are 37 questions in total.
2. The researcher conducts interviews with the curriculum and accounting experts. A draft syllabus is produced upon completion.
3. The researcher organizes the focus group and develops an outline based on the results.

Step 1: Seek advice on how to improve students' professional skills and digital literacy

### 1.1 Population and Sample

Taking 76 accounting teachers in Ningxia Vocational College of Finance and Economics as the total population, 64 samples were selected.

1.2 The researchers and teachers' reflections on the current accounting curriculum, the procedures for creating questionnaires and checking the quality of tools are as follows.

1.3 The researcher studies concepts and needs, then synthesizes variables and identifies and defines terms.

1.4 The researchers produced a complete questionnaire with a total of 56 questions.

1.5 The researchers handed over the prepared test papers to the school leaders to consider the coverage and completeness of the test content. Improvements are then made based on the advisor's suggestions.

1.6 The researcher handed over the test considered by the consultant to 5 experts, and improved it according to the expert's suggestion. The list of experts is in the appendix.

1.7 The researchers used 10 students to do the try out experiment. They were accounting teachers of Ningxia Vocational College of Finance and Economics, but they were outside the sample. Through the formula and software calculation, the alpha coefficient of Cronbach, that is, the validity analysis of this questionnaire, was 0.83, higher than 0.80. The questionnaire is valid (As shown in Appendix D )

1.8 The researchers issued a complete questionnaire for further data collection.

#### Data analysis

Researchers conducted a content analysis, drew descriptive conclusions, and presented findings on how to improve students' professional skills and digital literacy.

Step 2: The researcher conducts interviews with the curriculum and accounting experts. A draft syllabus is produced upon completion.

#### Research methods

##### Qualitative research

Using a qualitative approach, the researchers examined ways in which students' professional skills and digital literacy can be improved. During the interview, there

were 12 experts in total, including 4 with research courses and 8 with accounting expertise. They then researched concepts, theory and related research to draft a syllabus for accounting courses on professional skills and digital literacy for students.

#### Information provider

Information providers are 8 experts, 4 experts with research course knowledge and 4 with accounting expertise.

#### Criteria for selection of course experts

1. Completion of a doctorate in educational research or in the field of education.
2. Professional knowledge in education research
3. Teacher development work or research staff with work experience
4. There are research results for developing courses.

#### Criteria for Accounting Expert Selection:

1. Currently engaged in accounting professional and technical work, and have worked in this field for 10 years.
2. Possess the professional title of senior accountant or professional title of professor or above in accounting and related majors for more than 3 years.
3. Possess high professional technical level and academic level, have certain authority and influence in accounting theory and practice, and enjoy a high reputation among peers.

#### Research tool

Research tools are interview formats used to enhance students' professional skills and digital literacy. It consists of three parts, the first part is the profile of the interviewees, and the second part is the interview questions for the improvement of students' accounting professional skills. The third part is the interview questions for the improvement of accounting students' digital literacy.

### Tool making and quality judgment

1. The researcher conducts research on theoretical concepts and research on ways to improve students' professional skills and methods of array literacy.

2. The researcher creates interview questions from research on theoretical concepts and related research.

3. The researcher presents the completed interview form to the school leaders, considers the coverage and completeness of the interview content, and then makes improvements according to the leaders' suggestions (As shown in Appendix D).

4. The researcher brings the interview form reviewed by the supervisor to 5 experts for review and verifies the accuracy of the interview form. Experts consider issues of content coverage and completeness, and judge the correctness of the structure and language used. Then make improvements based on expert advice.

5. The researcher prints the original interview form for further data collection.

### Data analysis

The researchers analyzed qualitative data. The content analysis method is used with Excel software, which then generates descriptive conclusions. Used to draft student professional skills and digital literacy accounting course syllabi.

Step 3, The researcher organizes the focus group and develops an outline based on the results.

Researchers held focused discussions with experts to discuss a syllabus for accounting students' professional skills and digital literacy.

Go through the following steps:

1. The researcher selects 8 experts who meet the specified criteria to participate in the focus group discussion, and invites the experts.

2. The researcher confirms the selection of the moderator and invites the moderator.

3. On January 13, 2023, from 10:00 am to 12:00 am, the researchers conducted a focused online discussion through the ZOOM software to discuss the syllabus of accounting students' professional skills and accounting literacy.

4. According to the discussion and research results of item 2, the researcher has come up with a curriculum outline to improve the professional skills and accounting literacy of accounting students.

5. The researcher submits the syllabus formulated as a result of the discussion to the school leaders and revises it according to the consultant's opinion.

6. The researcher submits the revised course outline to 4 course experts, and then revises according to the opinions of the experts.

The researchers released a complete syllabus for improving the professional skills and accounting literacy of accounting students, and then used it in practical teaching.

#### Information provider

Those who participated in the focus discussion were divided into three groups, a total of 9 people: 1) 4 experts with professional knowledge of the course, 2) 4 experts in accounting, 3) 1 expert with leadership and hosting of accounting course research and development.

The conditions are as follows:

#### Curriculum Specialist Selection Criteria

1. Completion of a doctorate in educational research or in the field of education.
2. Professional knowledge in education research
3. Teacher development work or research staff with work experience
4. There are research results for developing courses.

#### Accounting Specialist Selection Criteria:

1. Currently engaged in accounting professional and technical work, and have worked in this field for 10 years.

2. Possess the professional title of senior accountant or professional title of professor or above in accounting and related majors for more than 3 years.

3. Possess high professional technical level and academic level, have certain authority and influence in accounting theory and practice, and enjoy a high reputation among peers.

Selection criteria for leading and hosting experts with accounting course development:

1. Professional knowledge in educational research

2. Experienced teacher development work or researcher

3. There are research results for developing courses.

4. Possess the professional title of senior accountant or professional title of professor or above in accounting and related majors for more than 3 years.

5. Possess high professional technical level and academic level, have certain authority and influence in accounting theory and practice, and enjoy a high reputation among peers.

Research tool

Research tools include: 1) Focus group research outline. 2) Focus Group Discussion Table.

The specific steps are as follows:

1. Focus group research outline

1.1 The researcher clarifies the main themes and concepts of the focus group

1.2 According to the research, the researcher makes the problem outline of the focus interview, and arranges the order of the topics reasonably according to all the topics to be discussed in the group.

1.3 The researcher submits the prepared research outline to the consultant, and revises it according to the consultant's requirements.

1.4 The researcher presents the outline to 5 experts for comprehensive evaluation, and revises and improves the results.

1.5 The researcher draws the final focus group research report and submits it.

## 2. Focus Group Discussion Sheet

2.1 The researchers conducted research on improving students' accounting professional ability and digital literacy.

2.2 Researchers create focus group discussion sheets.

2.3 The researcher submits the completed focus group discussion minutes to the consultant for consideration of coverage. And the integrity of the focus group. Improvements are then made based on the advisor's suggestions.

2.4 The researcher submits the group discussion record form modified by the consultant to 5 experts for inspection, and then improves it according to the experts' suggestions.

2.5 The researcher draws up the final focus group discussion sheet and submits it.

The focus session resulted in a draft syllabus for enhancing the professional skills and digital literacy of accounting students.

## Research Findings Develop Accounting Curriculum for Upgrading Students' Professional Skills and Digital Literacy

1. The researcher handed over the prepared syllabus to the school leaders to consider the coverage and completeness of the content of the syllabus. Improvements are then made based on the advisor's suggestions.

2. The researcher handed over the outline after the consultant's consideration to 5 experts, and made improvements according to the experts' suggestions. The list of experts is in the appendix.

3. The researchers used 22 students to do the tryout experiment. They were

accounting students of Ningxia Vocational College of Finance and Economics, but they were outside the research sample.

4. The researcher conducted a questionnaire survey on 22 students to test the effectiveness of the course.

5. The researcher determines the final syllabus.

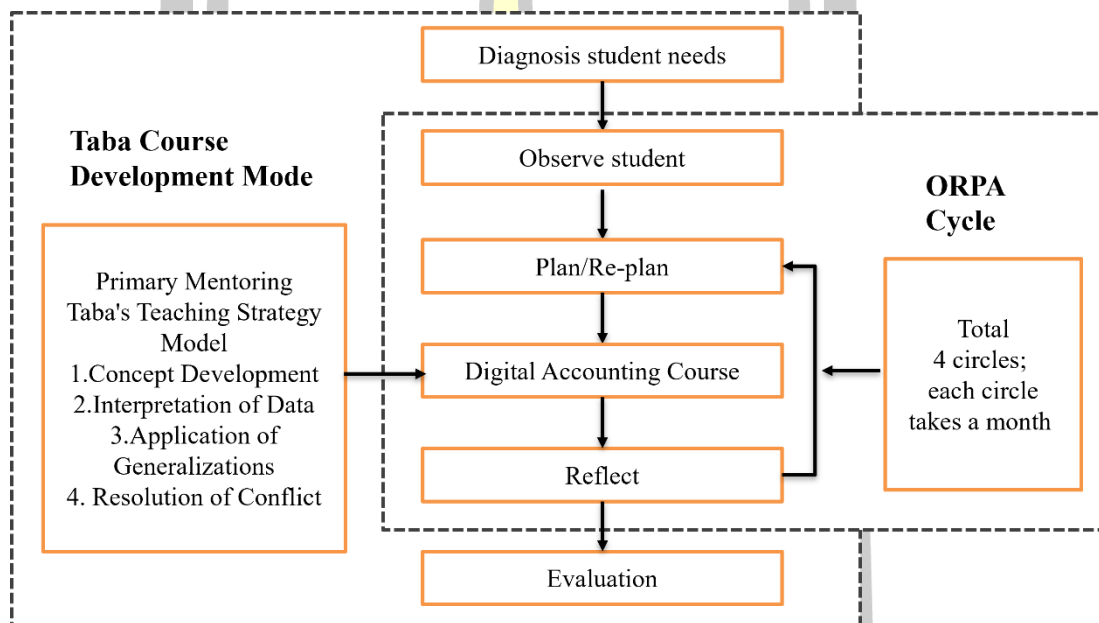


Figure 5 Curriculum framework

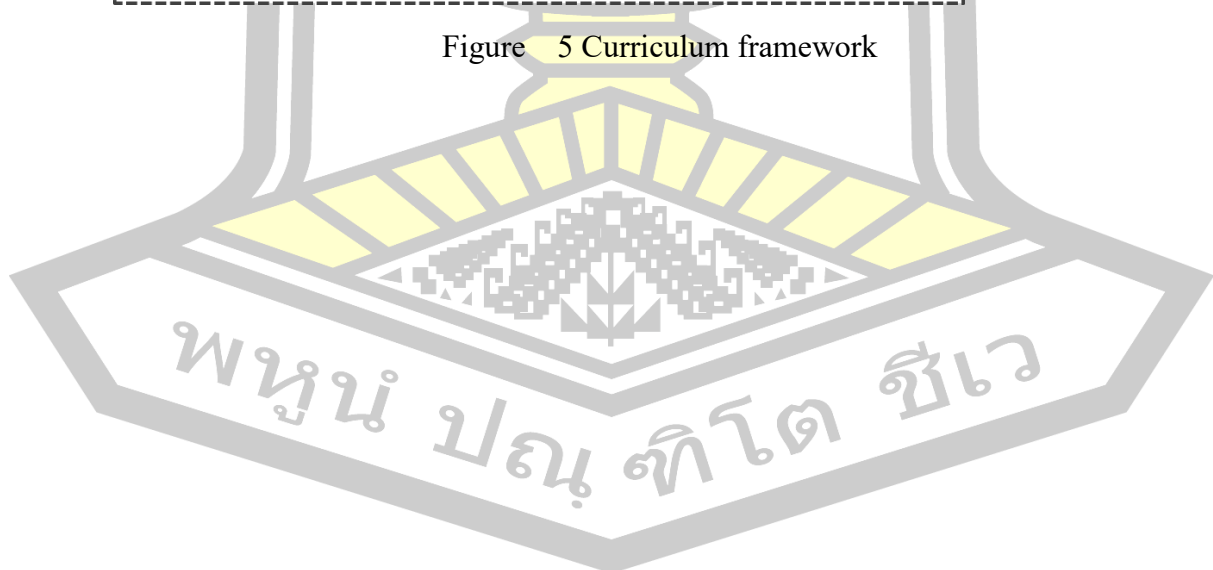


Table 4 lesson plan

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	<p>The meaning, object, function and role of accounting</p> <p>Focus: Definition of Accounting</p> <p>Difficulties: Objects and Functions of Accounting</p> <p>Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession</p> <p>Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.</p>	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	<p>Understanding of accounting elements and accounting equations</p> <p>Focus: Elements of Accounting</p> <p>Difficulty: Accounting Equations</p>	After-school exercises	computer room	3
3	Accounting Fundamentals	<p>Understanding of accounting assumptions, cash basis and accrual basis</p> <p>Focus: Accounting Assumptions</p> <p>Difficulties: cash-based, accrual-based courses</p>	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	<p>The meaning, object, function and role of accounting</p> <p>Focus: Definition of Accounting</p> <p>Difficulties: Objects and Functions of Accounting</p> <p>Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.</p>	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	<p>Understanding of accounting elements and accounting equations</p> <p>Focus: Elements of Accounting</p> <p>Difficulty: Accounting Equations</p>	After-school exercises	computer room	3
4	Accounting Cycle II	<p>The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and</p>	After-school exercises	computer room	3

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	<p>The meaning, object, function and role of accounting</p> <p>Focus: Definition of Accounting</p> <p>Difficulties: Objects and Functions of Accounting</p> <p>Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.</p>	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	<p>Understanding of accounting elements and accounting equations</p> <p>Focus: Elements of Accounting</p> <p>Difficulty: Accounting Equations</p>	After-school exercises	computer room	3
		ends with its inclusion in the financial statements.			
5	Accounts and Double Entry	<p>Understanding of accounting subjects and account structure, principle of double-entry bookkeeping</p> <p>Focus: setting of</p>	After-school exercises	Online And computer room	1

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	<p>The meaning, object, function and role of accounting</p> <p>Focus: Definition of Accounting</p> <p>Difficulties: Objects and Functions of Accounting</p> <p>Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.</p>	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	<p>Understanding of accounting elements and accounting equations</p> <p>Focus: Elements of Accounting</p> <p>Difficulty: Accounting Equations</p>	After-school exercises	computer room	3
		<p>accounting subjects</p> <p>Difficulties: Accounting Rules for Debit and Credit Accounting</p>			
6	Financial Assets	Understanding of accounting Financial Assets	Students are required to complete the exercises in	Offline and computer room	2

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	<p>The meaning, object, function and role of accounting</p> <p>Focus: Definition of Accounting</p> <p>Difficulties: Objects and Functions of Accounting</p> <p>Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.</p>	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	<p>Understanding of accounting elements and accounting equations</p> <p>Focus: Elements of Accounting</p> <p>Difficulty: Accounting Equations</p>	After-school exercises	computer room	3
			the “Practices of Investment Decision Making” chapter		
7	Inventories	Understand that inventory is the accounting of items,	No	Offline and computer	2

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	<p>The meaning, object, function and role of accounting</p> <p>Focus: Definition of Accounting</p> <p>Difficulties: Objects and Functions of Accounting</p> <p>Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession</p> <p>Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.</p>	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	<p>Understanding of accounting elements and accounting equations</p> <p>Focus: Elements of Accounting</p> <p>Difficulty: Accounting Equations</p>	After-school exercises	computer room	3
		parts and raw materials that a company uses in production or sales		room	
8	Plant Assets	Understand that a plant asset is an asset that has a useful life of more than one year and is used to generate revenue in business operations. Plant assets	After-school exercises	Offline and computer room	3

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	<p>The meaning, object, function and role of accounting</p> <p>Focus: Definition of Accounting</p> <p>Difficulties: Objects and Functions of Accounting</p> <p>Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession</p> <p>Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.</p>	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	<p>Understanding of accounting elements and accounting equations</p> <p>Focus: Elements of Accounting</p> <p>Difficulty: Accounting Equations</p>	After-school exercises	computer room	3
		are also known as fixed assets. Plant assets are carried at cost and depreciation expense is carried over their useful lives.			
9	midterm exam				1
10-14	Accounting of the main economic	Business Accounting of Manufacturing Enterprises at Various	After-school exercises	Offline and computer	13

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	<p>The meaning, object, function and role of accounting</p> <p>Focus: Definition of Accounting</p> <p>Difficulties: Objects and Functions of Accounting</p> <p>Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession</p> <p>Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.</p>	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	<p>Understanding of accounting elements and accounting equations</p> <p>Focus: Elements of Accounting</p> <p>Difficulty: Accounting Equations</p>	After-school exercises	computer room	3
	business of manufacturing enterprises	<p>Stages</p> <p>Focus: Common economic business content accounting scores</p> <p>compilation of records</p> <p>Difficulties: the production process and profit distribution process</p>		room	

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	<p>The meaning, object, function and role of accounting</p> <p>Focus: Definition of Accounting</p> <p>Difficulties: Objects and Functions of Accounting</p> <p>Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession</p> <p>Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.</p>	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	<p>Understanding of accounting elements and accounting equations</p> <p>Focus: Elements of Accounting</p> <p>Difficulty: Accounting Equations</p>	After-school exercises	computer room	3
		Accounting for economic business			
15	Asset valuation, cost accounting	<p>Valuation of various assets, cost calculation in the process of business operation</p> <p>Accounting for key product procurement, production and sales costs</p>	After-school exercises	Offline and computer room	3

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	<p>The meaning, object, function and role of accounting</p> <p>Focus: Definition of Accounting</p> <p>Difficulties: Objects and Functions of Accounting</p> <p>Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession</p> <p>Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.</p>	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	<p>Understanding of accounting elements and accounting equations</p> <p>Focus: Elements of Accounting</p> <p>Difficulty: Accounting Equations</p>	After-school exercises	computer room	3
		<p>Difficulty: understanding of common valuation methods for inventories, fixed assets and receivables</p>			
16	Accounting organization procedures, property	Various accounting organizational procedures, inventory systems, property	After-school exercises	Offline and computer room	3

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	<p>The meaning, object, function and role of accounting</p> <p>Focus: Definition of Accounting</p> <p>Difficulties: Objects and Functions of Accounting</p> <p>Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession</p> <p>Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.</p>	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	<p>Understanding of accounting elements and accounting equations</p> <p>Focus: Elements of Accounting</p> <p>Difficulty: Accounting Equations</p>	After-school exercises	computer room	3
	inventory	<p>inspection results</p> <p>Accounting treatment</p> <p>Emphasis: Basic procedures for accounting processing; monetary funds, inventory, fixed</p> <p>Inventory and accounting treatment of assets, claims and</p>			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	<p>The meaning, object, function and role of accounting</p> <p>Focus: Definition of Accounting</p> <p>Difficulties: Objects and Functions of Accounting</p> <p>Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.</p>	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	<p>Understanding of accounting elements and accounting equations</p> <p>Focus: Elements of Accounting</p> <p>Difficulty: Accounting Equations</p>	After-school exercises	computer room	3
		<p>other assets</p> <p>Difficulty: Accounting Processing of Inventory Results</p>			

### **Phase 3 Implement new course curriculum (R2)**

This phase is a phase of experimental research into courses that improve the professional skills and digital literacy of accounting students.

#### **Research purposes**

To explore courses for improving accounting professional skills and digital literacy among accounting students at Ningxia Vocational College of Finance and Economics, China.

#### **Research methods**

Using an experimental research design approach, the researchers aimed to improve accounting professional skills and digital literacy among accounting students at Ningxia Vocational College of Finance and Economics. To assess the effectiveness of the courses, the researchers used t-tests to compare the overall mean or median of the students' professional ability.

At the end of the course, the researchers analyzed the students' grades. Before data analysis, the researchers first checked whether the accounting professional skill scores of the students in the research sample met the normal distribution requirements of the T test. If the student's grades are normally distributed, the researcher will use the t-test to analyze the data. But if grades are not normally distributed, the researchers will use the Wilcoxon signed rank test.

The students will be divided into the experimental group A who received the new course and the control group B who did not receive the new course.

When using the T-test, the researcher performed a comparison between two groups through an independent-sample T-test (Analysis—Mean Comparison—Independent Sample T-Test). For the comparison of the pre-test and post-test data of the same group of students, the paired sample T test (analysis-mean comparison-paired sample T test) is used.

Through such a design and statistical method, the researchers can more

comprehensively evaluate the impact of the curriculum on students' accounting professional skills and digital literacy, ensuring the logic and credibility of the paper. At the same time, the researchers test the normality of the samples, which helps to ensure the rationality and applicability of the statistical methods used.

### **Research variable**

Developing New Digital Accounting Course Curriculum to improve the digital literacy of vocational college students, digital literacy is an important dependent variable.

To develop New Digital Accounting Course Curriculum and improve the professional skills of vocational college students, the main dependent variable is professional skills.

The development of New Digital Accounting Course Curriculum is an independent variable.

### **Population and Sample**

124 accounting students from the Accounting Department of Ningxia Vocational College of Finance and Economics 2021-2022 as experimental group A, 124 students as control group B.

### **Method of selecting samples**

Researchers use cluster sampling (Cluster Sampling): Cluster sampling is a probability sampling method used in research. This method involves dividing the population into smaller groups and then randomly selecting some of these clusters to be part of the sample. All individuals within the selected cluster were included in the study (Wooldridge, 2003). Randomly select several groups as samples, and then conduct a comprehensive survey or sample survey on the selected groups. In this study, the selection of samples is divided according to classes.

### **Research tool**

1. Accounting professional skills test paper: It is a test paper used to measure students' professional accounting skills before and after the course.

2. Digital Literacy Scale: A questionnaire or testing tool used to measure students' digital literacy levels before and after a course.

3. Four Accounting Professional Skills Tests: Four tests used in the course to assess students' performance in accounting professional skills at different time course stages.

### **Tool construction and inspection**

1. Accounting professional skills test paper, the researchers did the following research

1.1 Researchers clarify the concepts and theories of accounting professional skills, and define key terms.

1.2 According to the research objectives and questions, the researchers compiled a test paper for measuring accounting professional skills, with a total of 90 questions, and finally selected 75 questions. Among them, there are 50 multiple choice questions and 25 true or false questions.

1.3 The researcher submits the test paper questions to the leader for consideration, and then makes revisions according to the suggestions made by the consultant.

1.4 The researcher submits the revised test paper to 5 experts for review, and the validity is considered through the IOC index. The researchers selected items ranging from 0.6 to 1 (As shown in Appendix E ). details as follows:

Table 5 Accounting professional skills test paper question amount

Content	Proposed questions	Actual questions
1.Accounting and reporting	24	20
2.Tax management	21	18

3. Cost and Management Accounting	23	18
4. Internal Control Audit	22	19
Total	90	75

1.5 The researcher obtained the complete test paper and tried out 20 students, who were not included in the sample.

1.6 The researchers conducted a p-value analysis on the difficulty of the test paper, and determined that the difficulty of the test was kept between 0.2-0.8 (As shown in Appendix E).

1.7 The investigator analyzed discrimination power ( $r_{xy}$ ) to determine the quality of the assessment form and selected items with values ranging from 0.20-1.00. In the present study, the discriminatory power values of the evaluation form ranged from 0.27 to 0.89 (As shown in Appendix E).

1.8 The researchers analyzed the confidence level of the evaluation form using the Cronbach's alpha coefficient formula of the statistical package analysis. The study has a confidence value of 0.97, which is higher than 0.80 and is considered reliable (As shown in Appendix E).

1.9 The researcher released the complete test paper.

2. The digital literacy scale, the researchers did the following research

2.1 Researchers examine theoretical concepts of digital literacy, then synthesize variables and create term definitions.

2.2 The researchers created a rating scale with 5 levels of strongly disagree, disagree, undecided, agree, and strongly agree, with a total of 50 items.

2.3 The researcher submits the prepared evaluation form to the leader for consideration of the coverage and completeness of the content of the evaluation form, and then revises it according to the leader's suggestion.

2.4 The researcher submits the evaluation form considered by the consultant to 5

experts to consider the validity of the content by considering the consistency (IOC).

2.5 The researcher selects topics with a consistency index of 0.6 or higher, ranging from 0.6 to 1.0, with a total of 40 questions(As shown in Appendix E ).

2.6 The researcher uses the created scale to try out 20 students from Ningxia Vocational College of Finance and Economics. These 20 students are not included in the sample.

2.7 The investigator analyzed discrimination power (rx<sub>y</sub>) to determine the quality of the assessment form and selected items with values ranging from 0.20-1.00. In the present study, the discriminatory power values of the evaluation form ranged from 0.27 to 0.89(As shown in Appendix E ).

2.8 The researchers analyzed the confidence level of the evaluation form using the Cronbach's alpha coefficient formula of the statistical package analysis. The study has a confidence value of 0.83, which is higher than 0.80 and is considered reliable(As shown in Appendix E ).

2.9 Researchers published a complete scale for digital literacy of accounting students.

3. Four stages of accounting professional skills test, the researchers did the following research.

#### 3.1 First cycle test

3.1.1 Researchers clarify the concepts and theories of accounting elements and accounting equations, and define key terms.

3.1.2 According to the research objectives and questions, the researchers compiled a test paper for measuring accounting professional skills, with a total of 22 questions, and finally selected 18 questions. 12 multiple choice questions, 6 true or false questions.

3.1.3 The researcher submits the test questions to the leader for consideration,

and then revises them according to the consultant's suggestions.

3.1.4 The researcher submits the revised test paper to 5 experts for review, and the validity is considered through the IOC index. The researchers selected items ranging from 0.6 to 1 (As shown in Appendix E).

3.1.5 The researcher obtained the complete test paper and tried out 20 students, who were not included in the sample.

3.1.6 The researchers analyzed the p-value of the difficulty of the test paper, and determined that the difficulty of the test was kept between 0.2-0.8.

3.1.7 The researcher analyzed discrimination ( $r_{xy}$ ) to determine the quality of the assessment form and selected items with values ranging from 0.20-1.00. In the present study, the discriminatory power values of the evaluation form ranged from 0.27 to 0.89 (As shown in Appendix E).

3.1.8 The researcher analyzed the confidence of the evaluation form using the Cronbach's alpha coefficient formula analyzed by the statistical package. The study has a confidence value of 0.87, which is higher than 0.80 and is considered reliable (As shown in Appendix E).

3.1.9 The researcher released the complete test paper.

### 3.2 Test of the second cycle

3.2.1 Researchers clarify the concepts and theories of accounts and double-entry bookkeeping, and define key terms.

3.2.2 According to the research objectives and questions, the researchers compiled a test paper for measuring accounting professional skills, with a total of 22 questions, and finally selected 18 questions. 12 multiple choice questions, 6 true or false questions.

3.2.3 The researcher submits the test questions to the leader for consideration, and then revises them according to the consultant's suggestions.

3.2.4 The researcher submits the revised test paper to 5 experts for review, and the validity is considered through the IOC index. The researchers selected items ranging from 0.6 to 1.

3.2.5 The researcher obtained the complete test paper and tried out 20 students, who were not included in the sample.

3.2.6 The researchers analyzed the p-value of the difficulty of the test paper, and determined that the difficulty of the test was kept between 0.2-0.8(As shown in Appendix E ).

3.2.7 The researcher analyzed discrimination ( $r_{xy}$ ) to determine the quality of the assessment form and selected items with values ranging from 0.20-1.00. In the present study, the discriminatory power values of the evaluation form ranged from 0.27 to 0.89(As shown in Appendix E ).

3.2.8 The researcher analyzed the confidence of the assessment form using the Cronbach's alpha coefficient formula analyzed by the statistical package. The study has a confidence value of 0.83, which is higher than 0.80 and is considered reliable(As shown in Appendix E ).

3.2.9 The researcher released the complete test paper.

### 3.3 Test of the third cycle

3.3.1 Researchers clarify the concept and theory of factory assets, and define key terms.

3.3.2 According to the research objectives and questions, the researchers compiled a test paper for measuring accounting professional skills, with a total of 22 questions, and finally selected 20 questions. 12 multiple choice questions, 8 true or false questions.

3.3.3 The researcher submits the test questions to the leader for consideration, and then revises them according to the consultant's suggestions.

3.3.4 The researcher submits the revised test paper to 5 experts for review, and the validity is considered through the IOC index. The researchers selected items ranging from 0.6 to 1(As shown in Appendix E ).

3.3.5 The researcher obtained the complete test paper and tried out 20 students, who were not included in the sample.

3.3.6 The researchers analyzed the p-value of the difficulty of the test paper, and determined that the difficulty of the test was kept between 0.2-0.8(As shown in Appendix E ).

3.3.7 The investigator analyzed discrimination ( $r_{xy}$ ) to determine the quality of the assessment form and selected items with values ranging from 0.20-1.00. In the present study, the discriminatory power values of the evaluation form ranged from 0.27 to 0.89(As shown in Appendix E ).

3.3.8 The researcher analyzed the confidence of the evaluation form using the Cronbach's alpha coefficient formula analyzed by the statistical package. The study has a confidence value of 0.82, which is higher than 0.80 and is considered reliable(As shown in Appendix E ).

3.3.9 The researcher released the complete test paper.

#### 3.4 The fourth cycle test

3.4.1 Researchers clarify the concepts and theories of asset evaluation and cost accounting, and define key terms.

3.4.2 According to the research objectives and questions, the researchers compiled a test paper for measuring accounting professional skills, with a total of 21 questions, and finally selected 18 questions. 12 multiple choice questions, 6 true or false questions.

3.4.3 The researcher submits the test questions to the leader for consideration, and then revises them according to the consultant's suggestions.

3.4.4 The researcher submits the revised test paper to 5 experts for review, and the validity is considered through the IOC index. The researchers selected items ranging from 0.6 to 1(As shown in Appendix E ).

3.4.5 The researcher obtained the complete test paper and tried out 20 students, who were not included in the sample.

3.4.6 The researchers analyzed the p-value of the difficulty of the test paper, and determined that the difficulty of the test was kept between 0.2-0.8(As shown in Appendix E ).

3.4.7 The researcher analyzed discrimination ( $r_{xy}$ ) to determine the quality of the assessment form and selected items with values ranging from 0.20-1.00. In the present study, the discriminatory power values of the evaluation form ranged from 0.27 to 0.89(As shown in Appendix E ).

3.4.8 The researcher analyzed the confidence of the assessment form using the Cronbach's alpha coefficient formula analyzed by the statistical package. The study has a confidence value of 0.92, which is higher than 0.80 and is considered reliable(As shown in Appendix E ).

3.4.9 The researcher released the complete test paper  
Data analysis.

1. The researcher analyzes the data using the data analysis parameters by presenting the mean and standard deviation of the sample. The details are as follows:

1.1 Content effectiveness (Rovinelli & Hambleton, 1977) uses the following formula:

$$IOC = \frac{\sum R}{N}$$

—  $IOC$  represents correspondence between a target and a test.

—  $\sum R$  represents the sum of all expert scores.

—  $N$  represents number of experts

1.2 Determination of test difficulty (Fan, 1998), using the following formula:

$$p = \frac{H + L}{2n}$$

—  $P$  represents exam difficulty

—  $H$  represents the number of people who answered correctly in the previous group

—  $L$  represents the number of people who answered correctly in the next group

—  $n$  represents the total number of people in a particular group.

1.3 Calculate the mean using the following formula (Department of Education Research and Development, Faculty of Education, Mahasarakham University, 2015)

$$\bar{X} = \frac{x_1 + x_2 + \dots + x_n}{n} = \frac{\sum_{i=1}^n x_i}{n}$$

—  $\bar{X}$  represents the sample mean

—  $x$  represents each data

—  $n$  represents the total number of data

1.4 Calculate the percentage using the following formula (Sincharu, 2010)

$$\text{Percent } (\%) = \frac{X}{n} \times 100$$

—  $X$  represents the required data (frequency) percentage

—  $n$  represents the total number of data

1.5 Standard Deviation uses the following formula (*Department of Educational*

Research and Development Faculty of Education Maharakham University, 2015)

$$SD = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{X})^2}{n-1}}$$

—  $SD$  represents the standard deviation of the sample, representing the individual

—  $x$  represents the data of each sample

—  $\bar{X}$  represents the mean

—  $n$  represents the total number of samples

2. Data analysis was performed by t-test or Wilcoxon signed-rank test:

2.1 t-test for one sample (Hawkins and Weber, 1980) uses the following formula

$$t = \frac{\bar{X} - \mu_0}{\frac{s}{\sqrt{n}}}; df = n - 1$$

—  $t$  is the t-value indicating whether the difference between the sample mean and the population mean is significant.

—  $\bar{X}$  is the sample mean.

—  $\mu_0$  is the hypothetical value of the population mean.

—  $S$  is the sample standard deviation.

—  $n$  is the sample size.

The larger the absolute value of the t value, the more significant the difference between the sample mean and the population mean.

2.2 Wilcoxon signed rank test for one sample (Ruannakarn, 2016)

$W^+$  is the rank sum of the differences, denoted as  $(X - M_0)$ , or the sum of the

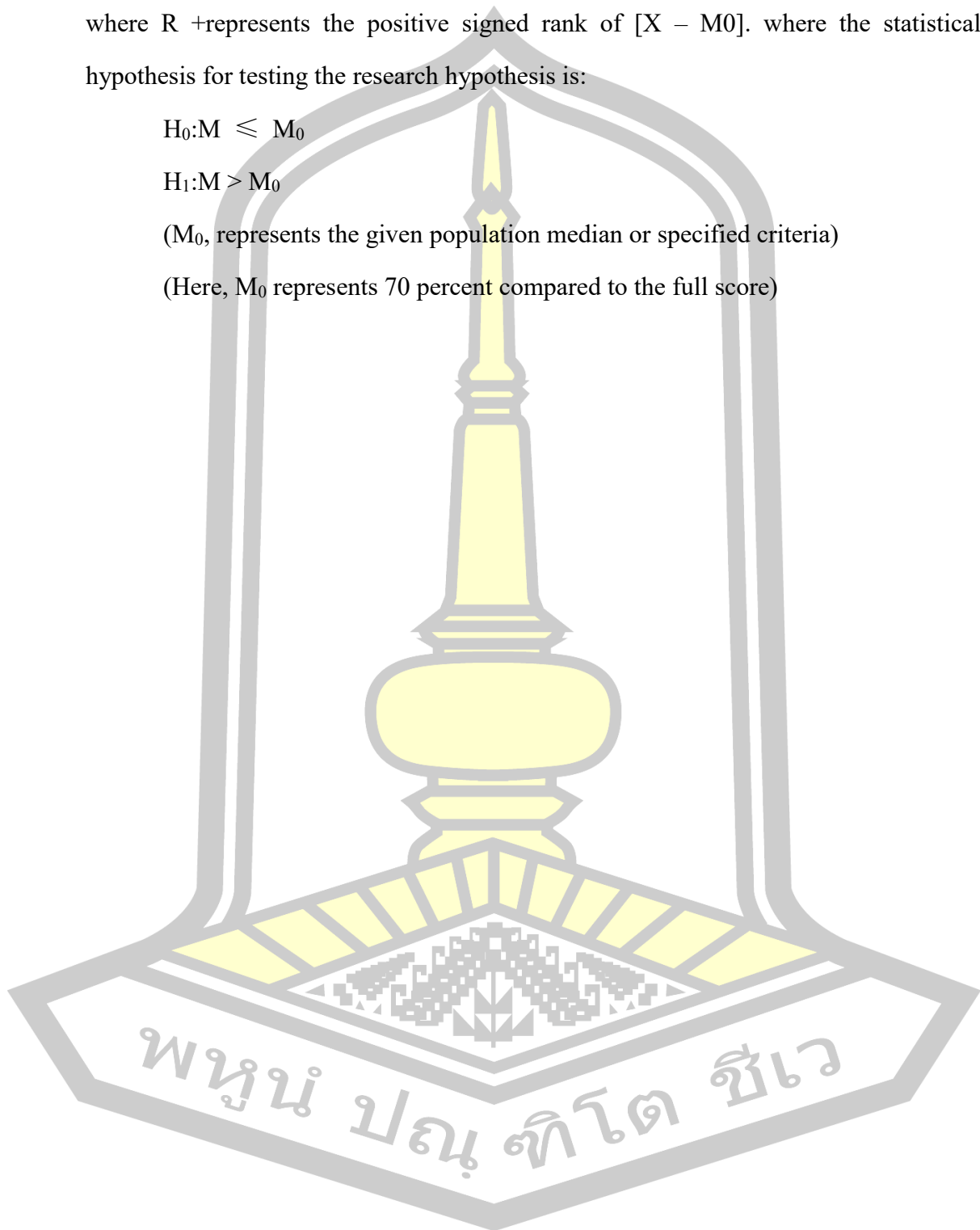
ranks of these differences when they have a positive sign. This is expressed as  $\sum R^+$ , where  $R^+$  represents the positive signed rank of  $[X - M_0]$ . where the statistical hypothesis for testing the research hypothesis is:

$$H_0: M \leq M_0$$

$$H_1: M > M_0$$

( $M_0$ , represents the given population median or specified criteria)

(Here,  $M_0$  represents 70 percent compared to the full score)



#### **Phase 4 Evaluating and improving new course curriculum**

According to Taba's course development model, after the end of the semester, THE RESEARCHER will evaluate the course. This is the last D of R&D research. The purpose of this step is to assess the effectiveness of curriculum innovations or instructional innovations and improve them for completion. For this step, the researcher will assess the effectiveness of the innovation against some criteria that the researchers set before implementing the innovation. The results of the implemented innovation are also compared to the standard, and if the comparison results meet the standard, the researcher can draw conclusions about the effectiveness of the innovation.

According to the different evaluation objects, it is divided into school evaluation, and student evaluation. Summarize experience, draw lessons, and develop advantages.

Follow-up interviews will be conducted with graduates, and a sample of 30 people will be interviewed for their thoughts on digital accounting. The main questions are: changes brought about by digital accounting, whether you feel the practicality of digital accounting in your current work, etc.

1. In order to comprehensively examine the teaching effect: curriculum evaluation organized by the school

The course evaluation form organized by the school is prepared as follows:

1.1 The researcher first conducted an in-depth study of the relevant concepts and theoretical frameworks of educational evaluation, comprehensively analyzed multiple variables related to course evaluation, and clearly defined relevant terms.

1.2 Based on the theoretical research results, the researcher developed a preliminary draft questionnaire containing 50 questions, aiming to comprehensively capture students' feedback on course content, teaching methods and course effectiveness.

1.3 The researcher submitted the first draft of the questionnaire to the school

leaders for review, focusing on the content coverage and completeness of the questionnaire, and made corresponding modifications based on the feedback from the leaders.

1.4 The revised questionnaire was submitted to 5 experts for detailed review. Experts mainly evaluated the content validity of the questionnaire based on IOC and recorded their opinions in the appendix.

1.5 Based on the consistency index standard, the researcher screened out 35 questions with IOC values between 0.80 and 1.00. The detailed information is recorded in the attached table(As shown in Appendix F ).

1.6 The researcher used 22 accounting students from Yinchuan Vocational and Technical College of Finance to conduct a trial run of the questionnaire to test its reliability and applicability.

1.7 Perform SPSS software analysis on the trial run data and calculate Cronbach's alpha coefficient to evaluate the reliability of the questionnaire. The results show that the validity of the questionnaire is 0.95, which is much higher than the standard value of 0.80(As shown in Appendix F ).

1.8 After confirming that the questionnaire has a good theoretical and empirical basis, the researchers released the complete questionnaire for wider data collection and comprehensive evaluation of students' feedback on the new course.

2. To gain deeper insights into the student experience: Sample interviews with 30 students

To provide an in-depth assessment of the impact of the new accounting curriculum on students' professional skills and digital literacy, the research team conducted the following qualitative research steps:

2.1 The researcher conducted a comprehensive literature study on curriculum evaluation methods, including reviewing relevant theoretical frameworks and practical application cases.

2.2 Based on the results of the literature review, the researcher designed a set of semi-structured interview questionnaires with the purpose of exploring students' perceptions of the content, teaching methods, effectiveness of the new course, and the improvement of their skills and knowledge.

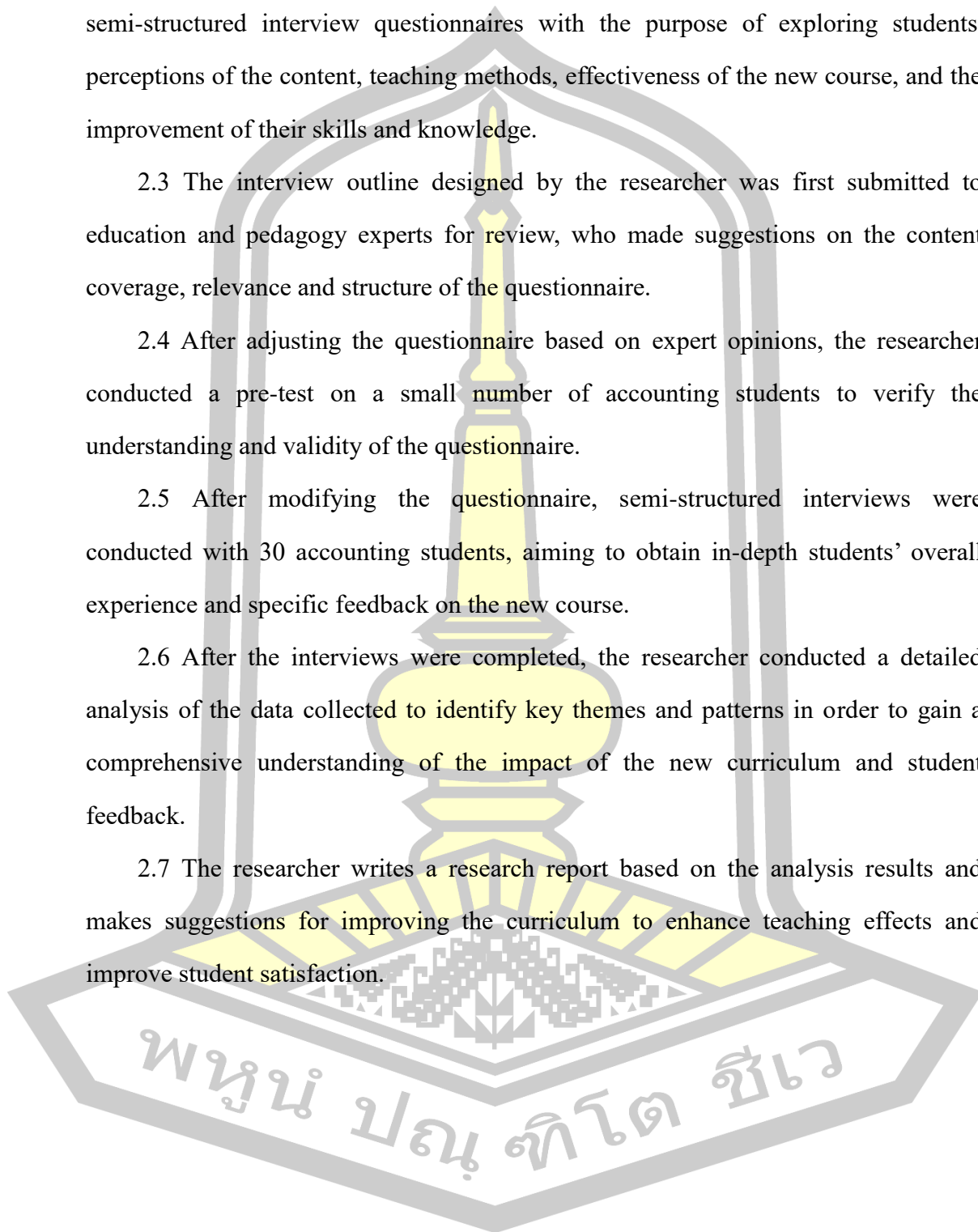
2.3 The interview outline designed by the researcher was first submitted to education and pedagogy experts for review, who made suggestions on the content coverage, relevance and structure of the questionnaire.

2.4 After adjusting the questionnaire based on expert opinions, the researcher conducted a pre-test on a small number of accounting students to verify the understanding and validity of the questionnaire.

2.5 After modifying the questionnaire, semi-structured interviews were conducted with 30 accounting students, aiming to obtain in-depth students' overall experience and specific feedback on the new course.

2.6 After the interviews were completed, the researcher conducted a detailed analysis of the data collected to identify key themes and patterns in order to gain a comprehensive understanding of the impact of the new curriculum and student feedback.

2.7 The researcher writes a research report based on the analysis results and makes suggestions for improving the curriculum to enhance teaching effects and improve student satisfaction.



## CHAPTER IV

### DATA ANALYSIS RESULTS

This research aimed to develop an accounting curriculum that enhances the professional skills and digital literacy of accounting students. 1. Examine the current state of accounting classes for accounting students' professional skills and digital literacy. 2. Research and formulate an accounting curriculum framework to improve students' professional skills and digital literacy. 3. Experimental research on accounting courses that enhance students' professional skills and digital literacy 4. Evaluation of accounting courses to improve students' professional skills and digital literacy.

The researchers presented four findings:

The First part studies the results of the accounting class status quo of accounting students' professional skills and digital literacy, mainly including the following contents.

1.1 Questionnaire survey on general data about professional skills of accounting student samples in Ningxia Vocational College of Finance and Economics

1.2 The survey results of the current state of accounting professional skills of the sample of accounting students in Ningxia Vocational College of Finance and Economics.

1.3 A survey on digital literacy among accounting students of Ningxia Vocational College of Finance and Economics.

The Second part studies the results of accounting courses that improve students' professional skills and digital literacy, mainly including the following contents.

2.1 Research teachers' reflections on accounting courses, design questionnaires, study survey results and write survey reports. There are 37 questions in total.

2.2 Researchers conduct interviews with experts.

2.3. The researcher organizes the focus group and develops an outline based on the results.

The third part is an experimental study on accounting courses to improve students' professional skills and digital literacy, which mainly includes the following contents.

- 3.1 Compare the Pre-test scores of the experimental class and the control class
- 3.2 Comparison of test scores before and after about experimental class A
- 3.3 Compare the post-test scores of the experimental class and the control class
- 3.4 Pre-test and post-test comparison of digital literacy scores in experimental classes

The fourth part is a study on the evaluation of accounting courses to improve students' professional skills and digital literacy, which mainly includes the following contents.

4.1 Ningxia Vocational College of Finance and Economics School curriculum evaluation: Analyze the evaluation of the curriculum at the school level, covering aspects such as curriculum content, teaching quality and effectiveness.

4.2 Ningxia Vocational College of Finance and Economics Student course evaluation: Through random sampling surveys and interviews with 30 students, their feedback and evaluation of the course were collected.

#### **Symbols used to display data analysis results**

$F$	stands for	Frequency
$\%$	stands for	Percentage
$n$	stands for	Sample Size
$\bar{X}$	stands for	Sample Mean
$SD$	stands for	Sample Standard Deviation
$\mu$	stands for	Population Mean
$\sigma$	stands for	Population Standard Deviation
$t$	stands for	t-test value
$df$	stands for	Degree of Freedom.
Sig.	stands for	the P value of the t-test.
Wilcoxon test	stands for	Wilcoxon test

## Data Analysis Results

### The first part

The first part examines the findings of the Current State of Accounting Classes study on accounting students' professional skills and digital literacy.

1.1 Research results on professional skills of the accounting student sample of Ningxia Vocational College of Finance and Economics.

In Ningxia Vocational College of Finance and Economics, the sample data of accounting students were collected through random sampling, and a total of 204 accounting students of the 2022 grade were selected. The specific questionnaire results are as follows:

Table 6 Research results on the current status of accounting and reporting among accounting students

Accounting and reporting	$\bar{X}$	<i>SD</i>	Percentage of average relative to full score
1. Definition of accounting (2 points)	0.75	0.58	37
2. Accounting principles (2 points)	0.95	0.56	47
3. Use of accounting reports (3 points)	1.43	0.90	48
4. The concept of finance (3 points)	0.88	0.92	29
5. Concept of accounting system (3 points)	1.03	0.86	34
Overall (13)	5.04	2.56	39

From the table, the results of the Accounting and reporting study are shown. The accounting knowledge level of accounting students in all aspects is lower than 60% of the standard set by the researchers, with a full score of 13 points, accounting for 39%

of the full score, with an average of 5.04 points and a standard deviation of 2.56.

Divided by questions, students know the most about the use of accounting statements, accounting for 48%, with an average of 5.25 points and a standard deviation of 0.9.

The second is accounting standards, accounting for 47%, with a mean of 0.95 and a standard deviation of 0.56. This is followed by the framework of accounting concepts, accounting for 37%, with a mean of 0.75 and a standard deviation of 0.58.

Table 7 Research results on the current status of Tax management among accounting students

<b>Tax management</b>	$\bar{X}$	<i>SD</i>	Percentage of average relative to full score
1.Tax Planning (2 points)	0.94	0.66	47
2.Compliance with Tax Regulations (2 points)	0.87	0.70	44
3.Tax Audits and Compliance (3 points)	1.32	0.82	44
4.International Tax Management (2 points)	1.14	0.76	57
5.Tax Technology and Software(3 points)	1.28	0.97	43
Overall (12 points)	5.57	2.67	46

From the table 6, the researcher concluded that the Tax Management level of accounting students in all aspects is lower than the 60% standard set by the researcher. Specifically, the average score of Tax Planning is 0.94, which is lower than the 60% standard, indicating that students have insufficient understanding of tax planning. The average score of Compliance with Tax Regulations is 0.87, which is lower than the 60% standard, indicating that there is large room for improvement in students' compliance with tax regulations. The average score of Tax Audits and Compliance is 1.32. Although relatively high, it is also lower than the 60% standard, showing that students

still have room for improvement in tax auditing and compliance. Overall, students' level in Tax Management is lower than the 60% standard set by the researchers, showing that their understanding and application of overall tax management knowledge still needs to be improved. This provides clear direction for adjusting teaching methods and strengthening relevant courses.

Table 8 Research results on the current status of Cost and Management Accounting among accounting students

<b>Cost and Management Accounting</b>	$\bar{X}$	<i>SD</i>	Percentage of average relative to full score
1. Cost Accounting and Cost Control (3 points)	1.12	0.80	56
2. Budgeting and Forecasting (2 points)	0.90	0.67	45
3. Decision Support (3 points)	1.83	0.83	61
4. Performance Evaluation and Control (2 points)	1.14	0.82	52
5. Strategic Planning and Analysis (3 points)	1.37	0.90	46
Overall (12 points)	6.36	2.47	53

From the table, that accounting students' performance in all aspects of cost and management accounting is lower than the 60% standard set by the researcher. The average score of Budgeting and Forecasting is 0.90, and the percentage of average score to full score is 45%. This shows that students' performance in budgeting and forecasting is relatively weak and more learning and practice in this area is needed. Decision Support has an average score of 1.83, and the percentage of average score to full score is 61%. This shows that students' abilities in decision support are relatively strong, but there is still room for further improvement. Strategic Planning and Analysis has an average score of 1.37, and the percentage of average score to full

score is 46%. In strategic planning and analysis, there is still room for improvement in student performance, requiring a deeper understanding and application of relevant knowledge. Overall, students' levels in cost and management accounting are lower than the 60% standard set by the researcher, showing that the understanding and application of overall management accounting knowledge needs to be improved. This provides a clear direction for adjusting teaching methods and strengthening relevant courses.

Table 9 Research results on the current status of Internal Control Audit among accounting students

<b>Internal Control Audit</b>	$\bar{X}$	<i>SD</i>	Percentage of average relative to full score
1.Risk Assessment and Management (3 points)	1.59	0.83	53
2.Effectiveness of Control Activities (2 points)	0.75	0.76	38
3.Compliance and Regulatory Compliance (3 points)	1.41	0.88	57
4.Information Systems and Data Security (2 points)	0.99	0.69	49
5.Internal Auditing and Improvement Recommendations (3 points)	1.20	0.93	40
Overall (13)	5.94	2.47	46

From the table, the results of the study on Internal Control Audit are shown. Risk Assessment and Management has an average score of 1.59, and the percentage of average score to full score is 53%. This shows that students have some understanding of risk assessment and management, but there is still room for improvement. Effectiveness of Control Activities has an average score of 0.75, and the percentage of average score to full score is 38%. Students are relatively weak in controlling the effectiveness of activities and need to strengthen their learning and practice. Internal Auditing and Improvement Recommendations The average score is 1.20, and the

percentage of average score to full score is 40%. Students' performance in internal auditing and improvement suggestions is average and requires more learning and practice. Overall, students' level in internal control auditing is lower than the 60% standard set by the researcher, showing that the understanding and application of overall internal control auditing knowledge needs to be improved.

1.2 The results of the digital literacy survey questionnaire are as follows:

At Ningxia Vocational College of Finance and Economics, sample data of accounting majors were collected through random sampling, and a total of 204 accounting majors in the class of 2022 were selected. The specific results of the digital literacy scale are as follows:

Table 10 Research results on digital literacy among accounting students

Digital literacy	$\bar{X}$	n	Criteria	Level
Digital Awareness	2.08	7	3.5	Below Average
Digital Technology and Skills	1.94	7	3.5	Below Average
Digital Application:	2.04	7	3.5	Below Average
Digital Social Responsibility	1.93	7	3.5	Below Average
Digital Professional Development	2.12	7	3.5	Below Average

According to the data, students performed “below average” in all aspects of digital literacy. Specifically, the average score for Digital Awareness is 2.08, which is significantly lower than the full score of 7 and the standard score of 3.5. In digital technologies and skills, students scored an average of 1.94, showing ability in this area is also well below average. The score for digital application is 2.04, the score for digital social responsibility is 1.93, and the score for digital professional development is 2.12, which are all significantly lower than the standard score of 3.5 points. This set

of data overall reflects that students' abilities in understanding and application of digital technology, as well as responsibility and professional development in digital environments need to be improved, indicating potential room for improvement in digital education and practical applications.

In conclusion, through the survey results on the current situation of accounting professional skills, it is found that the accounting students of Ningxia Vocational College of Finance and Economics of Finance do have deficiencies in accounting professional skills.

In the questionnaire survey of accounting students at Ningxia Vocational College of Finance and Economics, data analysis in the accounting subject area showed that students as a whole have deficiencies in professional skills and knowledge. In accounting and reporting, the average score was 39%, with the weakest grasp of financial concepts.

The average score in tax management was slightly higher at 46%, indicating that students performed relatively well in the field of international tax management. The overall performance in the field of cost and management accounting is the best, with an average score of 53%, with the highest score in decision support.

However, for internal controls audits, the average student score fell back to 46%, with particularly low scores for the effectiveness of control activities.

These data reflect the need for students to enhance their learning and understanding in many core areas of the accounting profession, especially in key areas such as accounting principles, financial concepts, and the effectiveness of control activities. In response to these shortcomings, colleges and universities should consider adjusting teaching methods and course content to improve students' professional skills and knowledge levels.

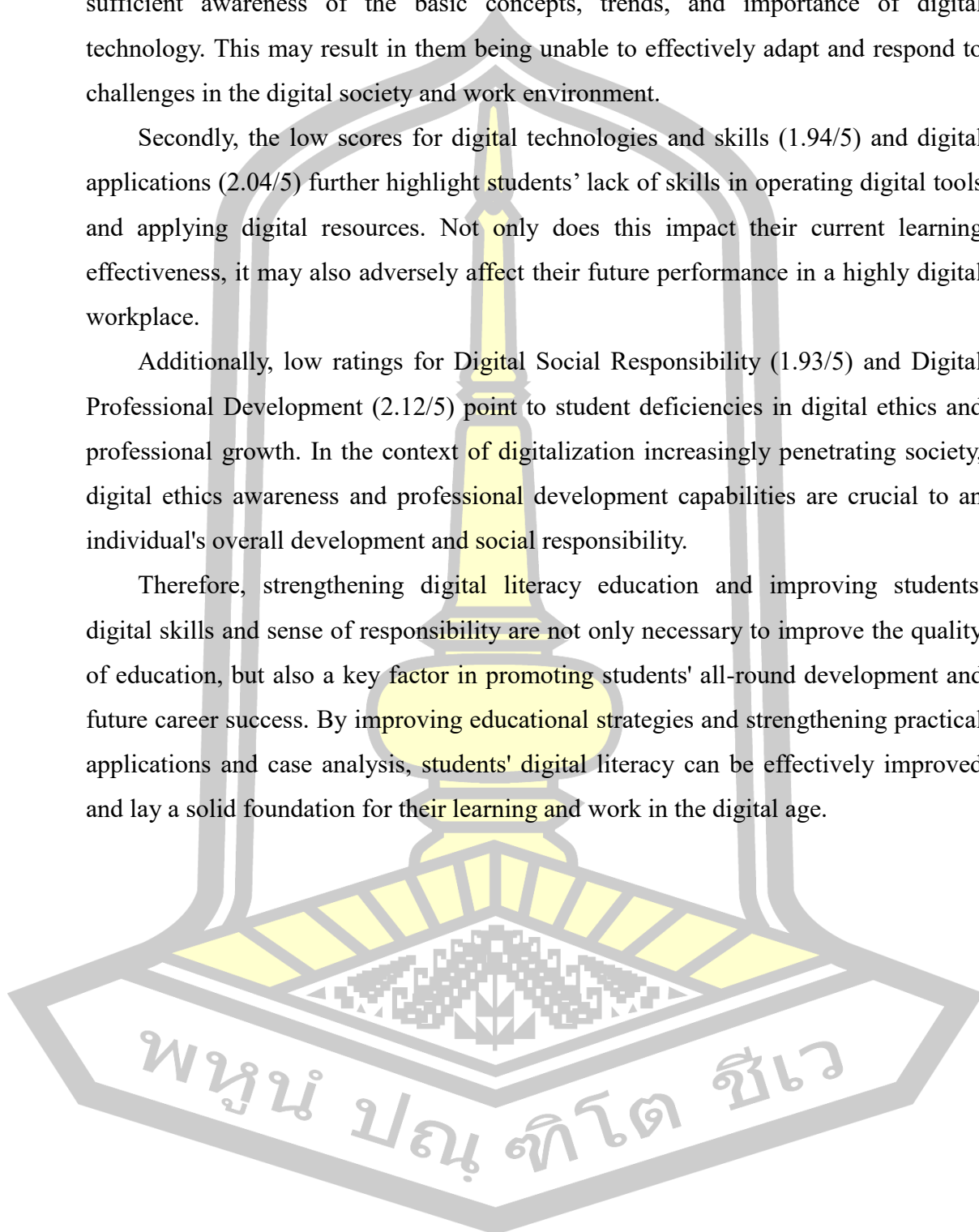
As for digital literacy, students' overall performance in digital literacy is significantly below par, which is a matter of concern in today's rapidly evolving digital age. Digital literacy not only includes the basic understanding and application capabilities of digital technology, but also involves social responsibility and professional development capabilities in the digital environment. Students' deficiencies in these areas may limit their ability to fully exploit the potential of digital technologies in their studies and future career development.

First, the low score of digital awareness (2.08/5) indicates that students lack sufficient awareness of the basic concepts, trends, and importance of digital technology. This may result in them being unable to effectively adapt and respond to challenges in the digital society and work environment.

Secondly, the low scores for digital technologies and skills (1.94/5) and digital applications (2.04/5) further highlight students' lack of skills in operating digital tools and applying digital resources. Not only does this impact their current learning effectiveness, it may also adversely affect their future performance in a highly digital workplace.

Additionally, low ratings for Digital Social Responsibility (1.93/5) and Digital Professional Development (2.12/5) point to student deficiencies in digital ethics and professional growth. In the context of digitalization increasingly penetrating society, digital ethics awareness and professional development capabilities are crucial to an individual's overall development and social responsibility.

Therefore, strengthening digital literacy education and improving students' digital skills and sense of responsibility are not only necessary to improve the quality of education, but also a key factor in promoting students' all-round development and future career success. By improving educational strategies and strengthening practical applications and case analysis, students' digital literacy can be effectively improved and lay a solid foundation for their learning and work in the digital age.



## The second part

The second part studies the results of accounting courses that improve students' professional skills and digital literacy, mainly including the following contents.

2.1 Research teachers' reflections on accounting courses, design questionnaires, study survey results and write survey reports. There are 37 questions in total. Taking 76 accounting teachers in Ningxia Vocational College of Finance and Economics as the total population, 64 samples were selected. The details are as follows:

Table 11 Accounting teachers' new course questionnaire results

General characteristics	f	%
1. Gender		
1.1 Female	51.00	79.68
1.2 Male	13.00	20.31
Total	64.00	100.00
2. Working time		
2.1 Less than 1 year	3.00	4.69
2.2 1-5 years	15.00	23.44
2.3 5-10 years	20.00	31.25
2.4 More than 10 years	26.00	40.63
Total	64.00	100.00
3. School		
3.1 Ningxia Vocational College of Finance and Economics	37.00	57.81
3.2 Ningxia University	12.00	18.75
3.3 Gansu Vocational College of Finance and Trade	5.00	7.81
3.4 Lanzhou Business School	7.00	10.94
3.5 Inner Mongolia Institute of Finance and Economics	3.00	4.69
Total	64.00	100.00

General characteristics		f	%
1. Gender			
1.1	Female	51.00	79.68
4. The degree of the student			
4.1	Knowledge level of junior high school students	14.00	21.88
4.2	Knowledge level of high school students	38.00	59.38
4.3	The knowledge level of college students	12.00	18.75
4.4	Not sure	-	-
Total		64.00	100.00
5. School accounting professional equipment			
5.1	With cutting-edge technical support	47.00	73.44
5.2	Only have traditional accounting software	10.00	15.63
5.3	Only blackboard and projection	7.00	10.94
Total		64.00	100.00
6. How much knowledge can students master after taking the course?			
6.1	Can master all	28.00	43.75
6.2	Relatively able to grasp	15.00	23.44
6.3	Little knowledge	17.00	26.56
6.4	Can't master it at all	4.00	6.25
Total		64.00	100.00
7. How important is the digital literacy of accounting students to their future career development			
7.1	Very important	48.00	75.00
7.2	General importance	4.00	6.25

General characteristics		f	%
1. Gender			
1.1	Female	51.00	79.68
7.3	General	8.00	12.50
7.4	Not too important	2.00	3.13
7.5	Not important at all	2.00	3.13
Total		64.00	100.00
8. Do students need to learn to improve accounting skills			
8.1	Much needed	37.00	57.81
8.2	General requirements	14.00	21.88
8.3	General	10.00	15.63
8.4	Less necessary	1.00	1.56
8.5	Not required at all	2.00	3.13
Total		64.00	100.00
9. Do students need to improve their digital literacy			
9.1	Much needed	43.00	67.19
9.2	General requirements	14.00	21.88
9.3	General	6.00	9.38
9.4	Less necessary	1.00	1.56
9.5	Not required at all	-	-
Total		64.00	100.00
10. Which teachers should teach accounting skills and digital literacy courses			
10.1	Accounting Teachers	54.00	84.38
10.2	Teachers of digital transformation majors	2.00	3.13
10.3	Teachers of information technology majors	5.00	7.81
10.4	Teachers of other specialties	3.00	4.69
Total		64.00	100.00
11. Curriculum to improve the accounting skills and digital			

General characteristics	f	%
1. Gender		
1.1 Female	51.00	79.68
literacy of accounting students in vocational schools should include		
11.1 Accounting Basics	34.00	53.13
11.2 Accounting Software Application	15.00	23.44
11.3 Data Analysis Skills	8.00	12.50
11.4 Information technology application	7.00	10.94
Total	64.00	100.00
12. Should the school provide relevant teaching resources and equipment to support the course?		
12.1 yes	60.00	93.75
12.2 no	4.00	6.25
Total	64.00	100.00
13. Would you like to participate in creating and teaching such courses		
13.1 yes	56.00	87.50
13.2 no	8.00	12.50
Total	64.00	100.00
14. What are the reasons accounting students need to improve their accounting skills and digital literacy?		
14.1 Current Industry Competition is Fierce	38.00	59.38
14.2 Accounting skills and digital literacy are essential qualities for accounting practitioners	14.00	21.88

General characteristics	f	%
1. Gender		
1.1 Female	51.00	79.68
14.3 Market Demands Have Higher and Higher Requirements for Accounting Practitioners	8.00	12.50
14.4 Students do not have enough mastery of accounting skills and digital literacy	4.00	6.25
Total	64.00	100.00
15. What should accountancy skills and digital literacy courses include for accounting students?		
15.1 Accounting Basics	29.00	45.31
15.2 Accounting Software Application	25.00	39.06
15.3 Data analysis skills	6.00	9.38
15.4 Information technology application	4.00	6.25
Total	64.00	100.00

This table provides a series of survey data on accounting students. Including gender, the importance of digital literacy to career development, the need to improve accounting skills and digital literacy, the support of teaching resources and equipment, and preferences for relevant course content, etc. The vast majority of teachers believe that it is very important for accounting students to improve their digital literacy for their future career development (75%). At the same time, they generally agree that students need to improve their accounting skills (57.81% think it is very necessary) and digital literacy (67.19% think it is very necessary). The majority of teachers favor accounting skills and digital literacy courses being taught by accounting teachers (84.38%). In terms of course content, they tend to include accounting basics (53.13%) and accounting software applications (23.44%). At the same time, the vast majority of

teachers (93.75%) believe that schools should provide relevant teaching resources and equipment to support courses. The majority of teachers (87.50%) are willing to participate in creating and teaching such courses. They believe that the current industry is highly competitive (59.38%) and emphasize the importance of accounting skills and digital literacy as essential qualities for accounting practitioners (21.88%).

2.2 The researcher conducted interviews with experts and the results are as follows:



Figure 6 Mind map about digital accounting class according to interview

2.2.1 To enhance students' accounting skills and digital literacy, curriculum design must balance theory and practice while incorporating innovation like case studies. Addressing past issues with traditional accounting courses at Ningxia Vocational College of Finance and Economics, the new design introduces relevant technologies and theories aligned with the business landscape's evolution. This innovative curriculum construction extends traditional approaches and broadens theoretical foundations.

Previously, the college's accounting courses were too conventional, lacking

modern theories and techniques. This led to low satisfaction and underwhelming grades. To match dynamic business demands, new theories and techniques must be integrated to keep students' accounting skills and digital literacy current.

The new design's core lies in integrating novel technologies, merging theory and practice, and emphasizing case studies. This approach empowers students to grasp accounting concepts and apply them in real-world contexts. Concurrently, case analysis fosters problem-solving skills and practical aptitude.

The interview is as follows:

...Introduce real cases, let students understand the application of theoretical concepts from practical problems, and closely integrate theory and practice...

(Interviewer 1)

...I have found case studies to be very effective. Through practical cases, students can apply theory to practical problems and develop problem-solving skills...

(Interviewer 2)

...In my experience, teaching methods such as case studies, practical simulations, group discussions and practical financial software operations are particularly effective in helping students better understand and apply what they have learned...

(Interviewer 3)

...Accounting courses should have a good blend of theory and practice, aiming to develop students with solid accounting fundamentals and practical skills...

(Interviewer 5)

...the course can focus on practical operation, guide students to use financial software and data analysis tools, and combine theory with practice. Through practical examples, the skills of data cleaning, processing and visualization are taught. Accounting tasks can also be simulated for students to analyze in Excel or other tools...

(Interviewer 6)

In conclusion, the revamped curriculum at Ningxia Vocational College of Finance and Economics merges modern technology with practical case studies to

revitalize accounting education. By addressing previous shortcomings, it prepares students for the evolving business landscape through a blend of theory and practice. This innovative approach aims to enhance students' accounting skills and digital literacy, making them adept at tackling real-world challenges.

2.2.2 Balancing theory and practice is crucial when developing a curriculum aimed at enhancing students' accounting professional skills and digital literacy. Theory provides the foundation for understanding accounting principles, while practical application ensures its relevance in real-world scenarios.

By incorporating practical cases, students can bridge the gap between theoretical knowledge and its practical implementation. Analyzing cases simulates actual accounting scenarios, fostering analytical and decision-making skills. Practical experiences, like using accounting software or inspecting real corporate practices, transform theoretical knowledge into tangible skills.

In the digital era, digital literacy is paramount. Accountants need to adeptly use digital tools for analysis and decision-making. Courses can teach data analysis and visualization, enabling students to derive insights from data. Hands-on practice equips them with digital tools, improving their digital literacy. Thus, a curriculum that combines theory and practical application best prepares students for the complexities of the accounting profession.

The interview is as follows:

... In terms of cultivating students' practical ability, the curriculum should achieve this goal by guiding students to solve real accounting problems. I will choose actual financial data and situations, and let students apply the knowledge and skills learned in the classroom to analyze and solve practical accounting problems. Through such practice, they can better understand how the theory can be applied in real situations...

(Interviewer 4)

...In terms of cultivating students' practical ability, the course should guide students to improve their ability by solving real accounting problems...

(Interviewer 6)

...Focus on practical operation and guide students to use financial software and data analysis tools proficiently. Courses should also include practical case studies where students apply theory to solve real problems...

(Interviewer 7)

... case teaching and hands-on practice are particularly effective. Through real cases, students can apply theoretical knowledge to practical situations to better understand concepts. Hands-on sessions include the use of financial software and data analysis tools, allowing students to gain hands-on experience with accounting workflows, leading to deeper skills acquisition. In addition, interactive discussion and group work can also promote students' thinking and communication, helping them better understand and apply what they have learned...

(Interviewer 7)

...students develop hands-on digital literacy skills that will help them better process and analyze financial data...

(Interviewer 8)

...a successful accounting program should combine practice and theory to develop students' practical competencies and digital literacy so that they can be more competitive in their future careers...

(Interviewer 10)

In conclusion, a successful accounting curriculum must intertwine theory with practical application, guiding students through real-world problems to solidify their understanding and application of accounting principles. By integrating practical case studies and hands-on use of digital tools and financial software, it not only enhances students' analytical and decision-making skills but also elevates their digital literacy, preparing them for the complexities and competitiveness of the accounting profession. This balanced approach ensures that students are well-equipped to navigate the digital era's challenges with confidence and proficiency.

2.2.3 The reason why the theoretical basis of accounting is taken as the first module when constructing the course is to establish students' basic understanding and concepts in the field of accounting, and lay a solid foundation for the subsequent practical operation and case analysis. By first learning the basic concepts, principles and accounting processes of accounting, students can establish an overall understanding of accounting work and understand the basic logic and methods of accounting.

The interview is as follows:

...the question is actually very important. It is reasonable to include the fundamentals of accounting theory as the first module of the course. You know, accounting involves many complex concepts and principles, and these underlying theories are key for students to understand the entire field. So, we put the theoretical basis of accounting at the front to ensure that students have a solid foundation for further study...

(Interviewer 1)

...When students master the basic concepts and principles of accounting at the beginning of the course, they will be more handy in the subsequent practical operation and case analysis. As you can imagine, if students do not have a theoretical foundation, it will be difficult for them to understand the meaning of financial statements or the logic of accounting processing, which will bring difficulties to future study and practice...

(Interviewer 3)

...with a solid theoretical foundation to support it. So, putting accounting theory fundamentals at the front of the curriculum is all about making sure that students are able to make steady progress throughout their studies without getting confused or disorientated...

(Interviewer 4)

...The reason why the theoretical basis of accounting is placed at the forefront of the course is to establish the learning framework and way of thinking of students...

(Interviewer 6)

In conclusion, positioning the theoretical foundations of accounting as the initial module in the curriculum is crucial for establishing a robust understanding and solid grounding in accounting principles and concepts for students. This foundational knowledge not only facilitates a smoother transition to more complex practical operations and case analysis but also equips students with the necessary framework and logical thinking skills essential for comprehending the intricacies of the accounting field. Ensuring students have this fundamental understanding from the outset supports their overall learning journey, enabling them to progress confidently and competently through their studies.

2.2.4 An important reason to include data analytic in building your curriculum is the increasing need for digital literacy in the modern accounting field. Data analysis is not only a part of accounting work, but also one of the key tools to help students understand and apply accounting knowledge.

Data analysis can help students gain a deeper understanding of the meaning of accounting data and financial information. Through the collation, analysis and interpretation of a large amount of data, students can discover the trends, patterns and potential problems behind the data, so as to grasp the financial situation more accurately. This helps develop students' acumen and insight, giving them greater depth when dealing with accounting issues.

The interview is as follows:

...Accounting often involves complex data and information, and students need to learn how to analyze and interpret this information in order to make informed decisions...

(Interviewer 1)

...has become an integral part of the accounting field. As the business activities of businesses and organizations generate more and more data, accountants need to be able to effectively process, analyze and interpret this data to make informed decisions and provide valuable insights...

(Interviewer 4)

... I feel that integrating data analysis and data visualization into the curriculum is critical to improving students' digital literacy. In real work, data analysis capabilities help accountants gain a deeper understanding of financial conditions, while data visualization makes information easier to understand and communicate...

(Interviewer 8)

...teach students the use of various accounting software and data analysis tools and familiarize them with the operation and application of digital tools...

(Interviewer 9)

...emphasis on data analysis and data visualization to foster digital literacy...

(Interviewer 10)

To sum up, incorporating data analysis into the accounting curriculum addresses the growing demand for digital literacy in the field, equipping students with essential skills for modern accounting practices. It enables them to process, analyze, and interpret vast amounts of data, fostering a deeper understanding of financial conditions and trends. This not only enhances their decision-making capabilities but also improves their ability to communicate complex information effectively. By familiarizing students with accounting software and data visualization tools, the curriculum prepares them to meet the challenges of the digital age with competence and confidence.

2.2.5 The importance of incorporating case studies when constructing accounting courses is that case studies can help students integrate abstract accounting theories with practical situations and develop their problem-solving, analytical and decision-making abilities. Case analysis can stimulate students' thinking, allow them to consider problems from different angles, analyze the causal relationship of problems, and cultivate excellent analysis and judgment skills. In addition, case analysis can also cultivate students' teamwork ability. When analyzing a case, students may need to discuss, collaborate with peers, and share different perspectives and solutions. This helps develop their communication, collaboration and teamwork skills.

The interview is as follows:

...I have found concrete analysis to be very effective in class. Through practical examples, students can apply theory to real problems and develop problem-solving skills...

(Interviewer 2)

...the course should lead students to solve real accounting problems through case analysis, simulated situations, data processing and analysis, and group discussion and cooperation. In the face of complex situations, it is necessary to cultivate students' decision-making ability, let them evaluate the risks and benefits of different options, and continuously improve their ability to respond through reflection and summary...

(Interviewer 3)

...It is very difficult for students to really understand how accounting theory is applied in practical situations when it is on paper. And case analysis is like building a bridge to connect theory and practical problems...

(Interviewer 6)

...students can face real accounting problems and solve challenges as if they were there. This not only helps them better understand theoretical concepts, but also exercises their analytical and decision-making skills...

(Interviewer 7)

In conclusion, integrating case studies into accounting courses is pivotal for bridging the gap between theoretical knowledge and real-world application, enhancing students' problem-solving, analytical, and decision-making skills. By engaging with practical examples and simulated situations, students learn to navigate complex accounting problems, assess risks and benefits, and make informed decisions. Furthermore, case analysis fosters teamwork and communication skills as students collaborate and share diverse perspectives. This comprehensive approach not only deepens their understanding of accounting principles but also prepares them to tackle real-world challenges effectively.

2.2.6 Teachers need to integrate software learning into accounting courses. As the

modern accounting field continues to evolve, digital technologies are profoundly changing the way accounting is practiced. Therefore, helping students master the use of accounting software and tools has become an integral part of improving their professional capabilities. Through software learning, students can actually operate various accounting software, such as financial software, data analysis tools and data visualization platforms. This not only helps them understand the accounting process more deeply, but also improves their practical ability. In their future careers, proficient use of accounting software will enable them to handle complex accounting tasks more efficiently, reduce errors and improve work efficiency.

The interview is as follows

...I introduce actual data into the course and teach the use of tools such as Excel, data analysis software, etc. to process and analyze the data. Through practical cases, let students experience the process of data analysis and gain insights from it. At the same time, I will also teach data visualization skills, such as using charts and graphs to present data, so that students can communicate the results of analysis in a clear and concise manner...

(Interviewer 3)

... I once guided students in my class to use spreadsheet software to analyze a company's financial data, such as revenue, cost, profit, etc. They need to use formulas and functions to calculate various indicators and perform trend analysis and comparison. Through this case, students not only learned how to use spreadsheets for data processing, but also learned how to extract valuable information from the data to provide support for the company's financial decisions...

(Interviewer 5)

...Through the explanation of QuickBooks, students learn to track income and expenses, generate financial reports, and even connect with bank accounts and credit cards to facilitate real-time recording of financial data...

(Interviewer 10)

In short, integrating software learning into accounting courses equips students with essential skills for the digital accounting landscape. Mastery of tools like Excel,

QuickBooks, and data visualization platforms enhances their understanding and efficiency in handling accounting tasks. This preparation is crucial for their future success in the profession, enabling them to perform complex tasks accurately and communicate financial insights clearly.

2.2.7 Accounting ethics are the moral standards and values that accounting professionals should follow in order to maintain integrity, fairness, transparency and accountability in professional conduct. Covering areas such as financial reporting, auditing, and taxation, as well as when interacting with customers, colleagues, and the public, follow ethical principles and norms to ensure that financial information is true, accurate, and complete, and maintain professional reputation and trust. The content includes honesty, confidentiality, legal compliance, avoiding conflicts of interest, not interfering with audit independence, etc. By following accounting ethics, accounting professionals can create sustainable value and maintain financial market stability and transparency. In Ningxia Vocational College of Finance and Economics, the teachers pay special attention to the ethical issues of accounting.

The specific interview survey is as follows:

...an accountant deliberately conceals some of the company's debts and liabilities and exaggerates asset values when preparing financial statements to make the company's financial situation look healthier and more stable...

(Interviewer 2)

...Earnings didn't meet their expectations and investors started to feel disappointed...

(Interviewer 3)

...inflicting enormous economic loss to businesses and individuals, as well as undermining trust, reputation and social harmony...

(Interviewer 5)

...analyze the impact of different options, weigh the pros and cons, and consider ethics and regulations to make informed decisions...

(Interviewer 6)

...Formal accounting education and strict professional ethics education will help to cultivate qualified accounting professionals and avoid illegal activities...

(Interviewer 10)

To conclude, incorporating accounting ethics into the curriculum at Ningxia Vocational College of Finance and Economics is crucial for fostering integrity, transparency, and accountability in future professionals. By emphasizing the importance of honesty, confidentiality, and compliance, and addressing ethical dilemmas through education, the program aims to prepare students to make informed, ethical decisions. This not only helps prevent illegal activities and financial misrepresentation but also contributes to sustaining financial market stability and trust.

2.2.8 Teamwork is a collective process in which a group of individuals collaborate and support each other to achieve common goals and tasks. In accounting courses, it is important to emphasize teamwork. Behind this emphasis is the development of key competencies that students need in the professional world.

Teamwork helps students develop a spirit of cooperation and communication skills. By interacting closely with their peers, they are able to effectively exchange ideas and share knowledge to jointly build innovative solutions as a team.

In a real accounting work environment, teamwork is even more essential. Accountants often need to collaborate with colleagues, clients, auditors, etc. to complete complex tasks and projects.

The results of the interview are as follows:

...set up group projects that require students to collaborate on tasks such as accounting case analysis and report writing. This helps students experience first-hand the value of a team and gain feedback and opportunities to improve...

(Interviewer 3)

... I look at teamwork in my assessment. Motivate students to make progress in teamwork by assessing their cooperative attitude, contribution and interaction in group projects...

(Interviewer 5)

...Accounting often involves complex financial data and information, and collaboration and coordination can facilitate information sharing and exchange, leading to a more comprehensive understanding of problems and challenges and improving the quality of solutions...

(Interviewer 6)

...I often organize group discussions where students think collaboratively in teams and develop solutions together. Through such exercises, they are able to develop the ability to apply knowledge, analyze situations, and make informed decisions in practical problems. ...

(Interviewer 8)

...multiple review and cross-checking reduces the risk of errors and mistakes and ensures the accuracy and compliance of financial statements. It helps to identify potential problems and make timely corrections, thereby maintaining the credibility and trust of accounting information...

(Interviewer 9)

To conclude, emphasizing teamwork in accounting courses is vital for developing essential competencies needed in the professional world, such as cooperation, communication, and the ability to innovate collectively. Through group projects, discussions, and collaborative assessments, students experience the value of teamwork, enhancing their problem-solving skills and decision-making abilities. This collaborative approach not only mirrors the real-world demands of the accounting profession, where collaboration is key to accuracy and compliance, but also prepares students to effectively handle complex financial data and contribute to the integrity and trustworthiness of financial reporting.

2.2 9 Course assessment is an integral part. It can not only help teachers understand students' learning progress, but also discover problems and improvement points in teaching in time. Through assessment, teachers can adjust teaching strategies

to better meet the needs of students and ensure that they can achieve the expected learning goals. In addition, curriculum assessment can also encourage students to actively participate in learning, prompt them to continuously improve their knowledge and skills, and achieve continuous learning growth. Therefore, in the process of curriculum construction, fully considering curriculum evaluation is an important step to ensure teaching effectiveness and student learning outcomes.

The results of the interview are as follows:

...In addition to traditional exams, I will design project tasks that require students to apply theoretical knowledge to solve practical problems, or analyze real cases. This provides a more complete picture of their knowledge and skills...

(Interviewer 3)

...is the key to ensuring that students acquire a comprehensive knowledge and skills. In addition to traditional examinations, I prefer comprehensive assessment methods to better understand students' actual abilities...

(Interviewer 6)

...My usual methods are exams, assignments, group projects and class participation. This provides a comprehensive picture of the knowledge and skill levels of the students. I also provide specific feedback on a regular basis, pointing out student strengths and areas for improvement...

(Interviewer 7)

...in addition to traditional exams, I tend to include project assignments, group discussions, and case studies. This provides a comprehensive assessment of students' theoretical understanding and practical application...

(Interviewer 8)

...I cover theory and practice with a combination of written exams, practical case studies and project assignments. In addition, I will introduce peer review and self-assessment, so that students can understand their progress from different perspectives. To help students continue to improve, I provide regular feedback,

pointing out their strengths and room for improvement...

(Interviewer 10)

To conclude, incorporating a multifaceted approach to course assessment is crucial for accurately gauging students' learning progress and identifying areas for teaching improvement. By blending traditional exams with project tasks, real case analyses, group projects, and class participation, educators can obtain a comprehensive understanding of students' theoretical knowledge and practical skills. This method not only encourages students to actively engage in their learning journey but also facilitates continuous growth through regular, constructive feedback and self-assessment. Ultimately, this approach ensures that teaching strategies are effectively aligned with student needs and learning objectives are achieved.

2.3 Focus group on developing a course syllabus for improving digital literacy among accounting students.

The focus group focused on developing an accounting course syllabus to improve students' digital literacy. This course is designed to provide students with a solid foundation in accounting and a keen understanding of numerical information to support their career development. Through the comprehensive use of theoretical teaching, practical case analysis, and expert interviews, students will gain an in-depth understanding of core concepts in the accounting field while developing key skills such as data analysis and digital decision-making.

The participants in the study were divided into three groups, with a total of 9 people: 1) including 4 experts with course expertise, 2) 4 accounting experts, and 3) 1 expert specializing in accounting course development as the moderator.

The following are the key results of the study:

#### 2.3.1 Basic introduction to the course

The main goal of this course is to improve students' professional skills and digital literacy. After in-depth discussion and analysis, the following key points can be drawn:

First, this course focuses on developing students' professional skills in the accounting field. Secondly, this course aims to improve students' digital literacy. In today's digital age, data processing and analysis are crucial skills. This course

encourages innovation and creative thinking. Students are not just enforcers of accounting rules, but also learn how to innovatively solve problems, use technology to improve accounting processes, and predict future trends.

The results of the interview are as follows:

..... This is definitely a very important topic when it comes to accounting courses that improve students' digital literacy. In the digital age, the accounting profession needs to constantly adapt to new technologies and data tools. Therefore, our education system must also adjust accordingly.....

(Expert 3)

.....is having an increasingly significant impact on the accounting field, so we must ensure that the new generation of accounting professionals has strong digital skills.....

(Expert 8)

.....One of the core points is digital culture and ethics. We must not only teach students how to use digital tools, but also emphasize the concepts of data privacy, ethics, and cybersecurity.....

(Expert 3)

.....Students need to learn how to read and interpret balance sheets, income statements, and cash flow statements. This is the basis of accounting but is also part of digital literacy as they have to understand the meaning behind the numerical information.....

(Expert 1)

.....One should understand how emerging technologies such as blockchain, artificial intelligence and big data have changed the accounting field in order to be able to keep up with these trends and prepare for the future.....

(Expert 6)

.....enable them to handle and analyze financial data with ease, while also focusing on ethical and regulatory compliance to ensure they demonstrate a high degree of professionalism and ethics in the digital environment.....

(Expert 2)

.....We must ensure students understand how to handle sensitive data appropriately and comply with relevant regulations and ethical guidelines to maintain professional reputation .....

(Expert 8)

In summary, this course aims to improve students' professional skills and digital literacy. Through in-depth discussion and analysis of these perspectives, the core objectives of this course can be summarized, providing students with a solid foundation for success in the accounting field while cultivating their innovation and problem-solving skills in the digital age. This helps students better understand and deal with various financial challenges in their future careers.

#### 1 Breaking the limitations of traditional courses

The shortcomings of traditional accounting courses. Traditional methods emphasize passive learning and lack practical application and creative thinking. Furthermore, they may overlook the importance of modern digital tools, causing students to lose adaptability in the workplace. At the same time, traditional courses are not flexible enough to keep up with rapidly evolving digital technologies and emerging trends. Therefore, it is necessary to redesign accounting courses to emphasize practical problem solving, active learning, ethics and moral education, and ensure flexibility to cultivate students' digital literacy and professional competitiveness. This will help them better cope with challenges and changes in the workplace.

The results of the interview are as follows::

.....The School of Accountancy has always used traditional teaching methods, emphasizing paper documents and manual calculations. Their students entered an accounting firm after graduation, only to find that the industry was already flooded with modern digital tools and software.....

(Expert 2)

.....They have no exposure to these tools. They need to spend more time learning how to use electronic accounting software and less time doing analytical and strategic work. This may lead to a decrease in their work efficiency and quality.....

(Expert 2)

.....Traditional teaching methods tend to focus on passive learning, where students are indoctrinated with knowledge rather than actively participating in solving practical problems. This passive learning mode limits their practical application ability and creative thinking.....

(Expert 6)

.....In the field of accounting, theoretical knowledge alone is not enough. Students need to have practical problem-solving skills and be able to apply their knowledge to real financial challenges. This requires cultivating active learning, critical thinking and innovation skills, while traditional teaching methods.....

(Expert 3)

.....Traditional approaches may also lack connections to real business settings, so students need more time to adapt to real accounting work after graduation. We need more emphasis on practical experience.....

(Expert 4)

.....Another shortcoming of traditional courses. Traditional accounting courses often focus on technology and theory and lack a comprehensive focus on ethics and moral education. However, digital literacy encompasses more than just mastery of technology, but also involves the importance of maintaining ethics and regulations in the digital age.....

(Expert 6)

.....Traditional curricula are often not flexible enough to keep up with rapidly evolving digital technologies and emerging trends. We need more updates and

adaptations to ensure students remain competitive after graduation.....

(Expert 8)

.....Ethics and morals are critical because accounting professionals often handle sensitive financial information and they must perform their duties honestly and transparently. The digital age brings new ethical challenges, such as.....

(Expert 1)

To conclude, traditional accounting courses face significant challenges in adequately preparing students for the contemporary workplace. These courses often emphasize passive learning and lack engagement with practical applications, creative thinking, and modern digital tools, leaving graduates unprepared for the realities of the accounting profession. Additionally, there is a notable deficiency in ethics and moral education, which is essential in the digital age where accountants handle sensitive information. To address these issues, it is imperative to redesign accounting curricula to focus on active learning, practical problem-solving skills, digital literacy, and ethical standards. Such a transformation will ensure that students are not only adept at using modern technologies but are also equipped with the critical thinking and ethical framework necessary to navigate the complexities of the accounting field effectively.

## 2. Digital literacy plays a vital role in accounting education.

With the advent of the digital age, the skill requirements in the accounting field have undergone major changes, requiring students not only to master traditional accounting principles, but also to have digital technology and data analysis skills. Digital literacy not only increases the productivity of accounting professionals, it also helps improve the quality and innovation of their work. In addition, digital literacy stimulates students' interest in emerging technologies and promotes innovation in the accounting field. Most importantly, digital literacy also helps accounting professionals collaborate better with other departments, driving cross-functional collaboration. Taken together, digital literacy is an integral part of accounting education, training students to become core forces in the digital age.

The results of the interview are as follows:

.....There has been a fundamental change in the skill requirements in accounting, which is really critical.....

(Expert 1)

.....A multinational company is processing massive amounts of financial data scattered across different regions and departments. Traditional manual calculation and document processing methods can no longer meet their needs. They need accounting professionals who can use data analysis tools to quickly and accurately process these big data and extract valuable information. This is why today's students need to understand how to handle big data and be proficient in using data analysis tools. Not only do they need to master accounting principles, they also need to have technical skills to adapt to the requirements of the modern accounting field. Therefore, education that emphasizes digital technologies and data analytics in the curriculum is crucial.....

(Expert 3)

.....highlights an important aspect of digital literacy, which is the proficiency in using modern tools to increase productivity and accuracy. Therefore, it is very necessary to strengthen training on these tools in courses.....

(Expert 1)

.....For example, a small and medium-sized enterprise is continuously expanding its business scale, and the number of transactions and data volume are also increasing rapidly. Traditional manual data entry and processing methods can no longer keep up with this growth and are prone to errors. That's why they decided to adopt accounting software and workflow automation solutions. These tools can help them process and automate financial data in real time, reducing the need for manual intervention. Students need to acquire knowledge of these accounting software and workflow automation now to process financial data more efficiently in their future careers .....

(Expert 3)

.....I strongly believe that there is a strong and complementary relationship between

digital literacy and accounting skills. Digital literacy not only provides students with a deeper understanding and application of accounting principles, but also equips them with a wider range of skills and tools to better fulfill their accounting responsibilities .....

(Expert 4)

.....When talking about digital literacy, an important point is how it can make accounting professionals more productive. This means they can process large amounts of data more quickly, reducing potential errors. It's not just about speed, it's also about accuracy.....

(Expert 2)

.....Digital technology has profoundly impacted the accounting field. Digital literacy is not only a basic skill, it is the foundation upon which solid accounting skills are built.....

(Expert 3)

.....Through digital technology and data analysis tools, accounting professionals can process huge data sets in less time and more reliably. This means financial statements can be prepared in a more timely manner and decision-making becomes faster. This is crucial for the day-to-day operations of the business.....

(Expert 2)

.....Digital literacy really promotes innovation in accounting. Once students master digital tools and data analysis methods, they are equipped with the ability to improve and create new accounting methods, which helps businesses stay competitive.....

(Expert 1)

.....Taken together, the relationship between digital literacy and accounting skills are mutually reinforcing. Digital literacy is the foundation for building solid accounting skills and also enables accounting professionals to adapt to the modern digital accounting environment, increase efficiency and make more strategic decisions

(Expert 6).

To sum up, digital literacy is indispensable in modern accounting education, serving as the bedrock for equipping students with the necessary skills to thrive in the digital age. The shift in skill requirements underscores the importance of integrating digital technologies and data analytics into the curriculum, preparing students for the challenges of handling big data and utilizing advanced data analysis tools. This not only enhances their productivity and accuracy but also fosters innovation in the accounting field. Moreover, digital literacy facilitates better collaboration across departments, contributing to a more cohesive and efficient work environment. Ultimately, the synergy between digital literacy and accounting skills not only strengthens the foundation of accounting practices but also empowers students to become more adaptive, innovative, and strategic in their future roles.

3. Teaching students how to use digital accounting tools and software to improve efficiency and accuracy is critical.

This involves developing their hands-on skills, including using financial software, data analysis tools and automated processes. This will help students complete tasks more quickly and make fewer errors. Balancing the relationship between using the tools and understanding the underlying concepts is critical. Students need to build a solid theoretical foundation and understand the core principles and concepts of accounting and not just rely on the automation of tools. In the course, theoretical education and practical application are combined to enable students to master basic concepts and skills in using digital tools at the same time.

In short, through diversified teaching methods, we can help students establish a balance between digital tools and core concepts, so that they have both the practical application ability of digital technology and a deep understanding of basic accounting concepts. This will make them more competitive and capable in the accounting profession in the digital age.

The results of the interview are as follows:

.....A balance must be found between theoretical knowledge and practical skill development. Students need to build a solid theoretical foundation, but they also need to have practical problem-solving skills. Personally, I think case analysis is an

excellent approach because it places students in real-world financial challenges. This not only exposes them to real-world problems but also stimulates their creativity and critical thinking. Through case analysis, students are able to draw from experience and learn how to apply the theoretical principles they have learned to develop solutions.....

(Expert 5)

.....For example, an accounting student is asked to analyze a company's financial statements to determine the reasons for its decline in profitability. Through case studies, students are required to carefully review financial data, consider market factors, competitor dynamics, and industry trends. They must apply learned accounting principles, such as financial ratio analysis and cost accounting, to identify potential problems and opportunities. This process strengthened their analytical skills and enabled them to make informed recommendations .....

(Expert 3)

.....Case analysis provides a platform for practical application of knowledge, helping to cultivate students' critical thinking, problem solving and teamwork skills, laying a solid foundation for their future success in the accounting field.....

(Expert 2)

.....Case analysis has unique advantages in cultivating students' ability to solve practical problems. Not only does it combine theoretical knowledge with practical situations, it also helps students develop key skills that will be very valuable in their future careers.....

(Expert 7)

.....Need to ensure that students not only understand theoretical knowledge, but also be able to apply this knowledge to solve practical problems. One way is to put students into real financial situations through case analysis and let them use data analysis skills to solve problems.....

(Expert 1)

.....We should also teach students how to use emerging technologies to make accounting more efficient. Digital technologies are constantly developing, such as artificial intelligence, blockchain, etc., which can be used to automate tasks, improve data security, and more. In the course, we can introduce these new technologies and give students hands-on experience in how they can be used to improve accounting processes.....

(Expert 2)

.....it's important to balance the relationship between using the tools and understanding the underlying concepts. Students need to build a solid theoretical foundation and understand the core principles and concepts of accounting and not just rely on the automation of tools. In the course, we can combine theoretical education and practical application, so that students can master basic concepts and the use of digital tools at the same time.....

(Expert 2)

.....Ensure students not only master the use of digital accounting tools, but also have a deep understanding of basic accounting concepts. This is a necessary task because modern accounting is increasingly dependent on technology and automation, but theoretical knowledge remains a solid foundation. By adopting diversified teaching methods, we can help students create a balance between digital tools and core concepts.....

(Expert 5)

To encapsulate, teaching students to proficiently use digital accounting tools alongside a solid grounding in accounting principles is crucial for their success in the modern accounting landscape. By integrating theoretical knowledge with practical skills through diverse teaching methods, including case analysis and exposure to emerging technologies, students can achieve a balanced understanding that prepares them for the complexities and demands of the accounting profession in the digital age.

4 It is crucial to integrate data analysis, information processing and modern tools

into the accounting curriculum.

Field placements play a key role in developing practical skills and digital literacy, setting clear goals, providing feedback and encouraging questions. Modern educational technologies such as Xuexuetong, sand table simulation, and computer practical operations can establish a theoretical foundation before internship. Integrating multiple methods such as case analysis, online learning, simulation exercises, and field internships can help students adapt to the needs of modern accounting work.

The results of the interview are as follows:

.....We can introduce some specific data analysis tools, such as Excel or professional accounting software, so that students can use these tools proficiently. In addition, the case analysis mentioned before is also a good method for students to use data analysis skills to solve real accounting problems.....

(Expert 1)

.....Students have the opportunity to apply their data analysis and information processing skills in real-life situations, thereby gaining a better understanding of industry needs and challenges. This practical experience is crucial for their career development .....

(Expert 3)

.....Data analysis can be embedded into the core content of the course. This includes teaching students how to use data analysis tools, such as Excel and professional accounting software, to process and interpret financial data. Students need to master skills in data cleaning, statistical analysis, visualization and prediction.....

(Expert 1)

.....According to me, field internships play a vital role in improving students' digital literacy and accounting practical skills. According to my experience through practical work experience, students are able to put into practice the theoretical knowledge learned in the classroom, understand the real-life challenges in the accounting field, and improve their.....

(Expert 4)

.....Sandbox simulation is a very inspiring teaching method. By simulating real accounting scenarios, students can practice in a safe environment and deal with a variety of challenges and situations. This helps them transform theoretical knowledge into practical skills and improve digital literacy.....

(Expert 6)

.....Learning skills, sandbox simulations and computer practical operations are tools and methods that are very helpful in promoting the combination of field practice and theoretical knowledge. These methods not only help students build a solid theoretical foundation, but also provide opportunities for practical operation and application. During field internships, students will be able to apply the knowledge gained in learning passes and sandbox simulations to real work. Through simulation exercises and practical computer operations, they can develop practical skills and become familiar with the use of accounting software and tools.....

(Expert 7)

In summary, the incorporation of data analysis, information processing, and modern technological tools into the accounting curriculum is fundamental for equipping students with the necessary practical skills and digital literacy. This approach, enriched by field internships and simulation exercises, ensures that students are well-prepared to meet the dynamic challenges of the accounting profession and excel in the digital age.

### 2.3.2 Objectives of the course

Accounting courses that improve students' digital literacy are designed to achieve multiple goals, including developing core accounting skills, applying digital literacy to solve real-world problems, strengthening ethical and regulatory awareness, and stimulating innovation and creative thinking. Achievement of these goals will provide students with comprehensive preparation, enabling them to be competent in complex accounting environments and make valuable contributions to organizations.

The results of the interview are as follows:

.....Ensuring students master core accounting skills is critical. This means that students need to have an in-depth understanding of the structure and analysis of financial statements. For example, students should be able to interpret balance sheets, income statements, and cash flow statements, identify key financial indicators, and extract key information from them. This is because in real work, accountants need to analyze these financial statements to help corporate management make important financial decisions .....

(Expert 1)

.....If the accountant does not master the bookkeeping skills, it may lead to erroneous financial reporting, thus affecting the assessment of the financial status of the business.....Students need to understand the different types of accounting entries, such as debits and credits , and how to record transactions to maintain accurate financial records. Consider a small business, they may need to track sales, costs and expenses.....

(Expert 3)

..... Not only do you need to master traditional accounting skills, but you also need to know how to process, analyze and utilize data to provide valuable insights and recommendations. For example, consider a retail business that has a large amount of sales data every day. Students need to be digitally literate to effectively use this data to identify sales trends, analyze product performance, determine optimal inventory levels, and provide data support for promotional activities. Through digital literacy, students are able to better understand the workings of a business, thereby providing more precise financial advice to businesses.....

(Expert 2)

.....In addition to technical skills and data analysis, students should also understand ethics and regulations. Accounting involves a lot of compliance and ethical issues, so

we should cultivate students' ethical awareness and ensure that they understand relevant laws and regulations.....

(Expert 3)

..... In modern businesses, there are vast amounts of data, and students can use creative thinking to mine this data to find new business opportunities. For example, a retail company could use big data analytics to predict customer buying patterns and thereby adjust inventory and marketing strategies. This innovative approach can give businesses a competitive advantage and provide new revenue streams.....

(Expert 7)

.....Predicting future trends also requires creative thinking. Students should be able to analyze market, industry and technology trends to help businesses make future decisions. For example, a food manufacturing company can use creative thinking to predict future health trends and thereby adjust its product portfolio to meet market needs. This kind of prediction can bring market share growth and brand value improvement to the company.....

(Expert 4)

In summary, accounting courses aimed at enhancing students' digital literacy are designed with the objectives of developing comprehensive accounting skills, applying digital techniques to real-world scenarios, fostering ethical and regulatory compliance, and encouraging innovation and creative thinking. Through mastering core accounting principles, digital data processing, and analytical skills, alongside an understanding of ethical standards and the ability to innovate, students are well-prepared to navigate complex accounting environments. This holistic approach ensures that graduates can contribute significantly to organizational success, leveraging their skills to provide insightful financial advice, ensure compliance, and drive business innovation.

### 2.3.3 Course Arrangement

When discussing the content and sequence of accounting courses, experts emphasized the importance of ensuring students build a solid foundation, starting with

basic accounting principles and concepts such as assets, liabilities, income and expenses. They also emphasized the importance of digital technology and ethical regulations and discussed the logical sequence of course content. Ultimately, they came up with a sequence of lessons that made sense. Including financial accounting knowledge, monetary funds, receivables and prepayments, inventories, financial assets, long-term equity investments, fixed assets and investment real estate. Intangible assets and other assets, current liabilities, non-current liabilities, owners' equity, and different aspects of owners' equity. This sequence helps students gradually build their understanding of accounting systems and financial management.

The results of the interview are as follows:

.....We need to start with basic accounting principles and concepts, such as assets, liabilities, income and expenses, etc. These are the cornerstones of accounting, and without these basic concepts, students will have difficulty understanding more complex accounting principles and methods.....

(Expert 3)

.....We should also consider the sequence of courses to ensure that content gradually increases in complexity in an orderly manner to help students gradually build their body of knowledge. It's a reasonable sequence to start with the basics and work your way up to more complex topics.....

(Expert 2)

.....The order of lessons is important. Comprehensiveness and balance are keys to designing accounting courses. Students should end the course with solid theoretical knowledge, digital technology skills, ethical principles and practical problem-solving abilities.....

(Expert 3)

.....We can introduce the basic principles and concepts of accounting such as accounting equation, accounting cycle, revenue recognition and cost accounting. By understanding these basic principles, students can develop a solid financial accounting framework.....

(Expert 7)

.....I think the best order should be Chapter 1 Financial Accounting Cognition, Chapter 2 Monetary Funds, Chapter 3 Receivables and Prepayments, and Chapter 4 Inventory. It helps students gradually build an understanding of the accounting system and gradually dive into specific financial elements.....

(Expert 6)

.....I think we can put intangible assets and other assets at the end because these may be more complex and require students to have a certain accumulation of knowledge from previous chapters. The treatment of tangible and other assets often varies by industry and business. This arrangement helps students better understand how to deal with these abstract and complex assets and provides them with a solid financial foundation for their careers.....

(Expert 2)

.....Chapter 5 Financial Assets, Chapter 6 Long-term Equity Investment, Chapter 7 Fixed Assets and Investment Real Estate, Chapter 8 Intangible Assets and Other Assets. Hope this sequence will help students learn accounting courses better.....

(Expert 8)

.....I agree that current liabilities should come first, then non-current liabilities, then owner's equity. Finally, we discuss the different aspects of owners' equity. The final conclusion is Chapter 9 Current Liabilities, Chapter 10 Non-Current Liabilities, Chapter 11 Owners' Equity, and Chapter 12 Different Aspects of Owners' Equity. This sequence should help students learn accounting courses better.....

(Expert 3)

In summary, the optimal course arrangement for accounting starts with foundational principles, progressively covering complex topics like financial assets and intangible assets, before concluding with liabilities and owners' equity. This sequence is designed to build a solid base and gradually deepen students' understanding, ensuring they acquire both theoretical knowledge and practical skills

essential for their accounting careers.

#### 2.3.4 Methods of teaching courses

The use of multimedia and mobile learning platforms, such as Xuedutong, in education is a very promising idea. They emphasize the advantages of multimedia, including improving learning interactivity, catering to different learning styles, personalized education, better customizing teaching content, simulating actual situations, and tracking student progress and performance. Furthermore, multimedia plays a key role in distance education and online learning, allowing learning regardless of geographical location. The use of multimedia can help improve teaching effectiveness and provide students with a richer, creative and flexible learning experience, which is crucial to modern education.

The results of the interview are as follows:

.....It is a good idea to use Xuetong, a mobile learning platform, in our courses. This application is for mobile terminals such as smartphones and tablets, and should make it easier for students to integrate into learning.....

(Expert 1)

.....During the epidemic, distance teaching became the main education method. The application effect of Xuetong is quite significant. For example, many teachers use the Xuetong platform to conduct online classes. They can upload teaching materials, arrange discussions, and interact with students. This flipped classroom teaching method is very suitable for current teaching needs because it provides students with more independent learning opportunities and can learn anytime and anywhere. The flexibility of this application makes education more inclusive and accessible .....

(Expert 3)

.....Students can watch courses taught by some famous university teachers through the app to broaden their knowledge and horizons. I tried to watch it, and it worked pretty well. You can even see teachers from Tsinghua University giving lectures, which is really good. This breaks through the current situation of unfair educational resources to a certain extent. Our place is still too backward.....

(Expert 6)

.....Opportunities to study the school's professional courses, as well as a platform for group discussions, which should be very helpful for students' collaborative learning. I can see everyone's updates on the Xuetong teacher platform, issue tasks to them, and watch each student's completion status. In this way, each student's learning progress can be controlled in his own hands.....

(Expert 4)

.....Multimedia can enhance the interactivity of learning, making course content more engaging and vivid through elements such as audio, video and interactive presentations. This helps improve student engagement and concentration.....

(Expert 2)

.....Information can also be presented in a variety of ways, such as text, images, sounds, and videos, to meet different student learning styles. This helps personalize education so that each student can understand and absorb knowledge in a way that suits them.....

(Expert 2)

.....It can also simulate actual situations and provide a more practical learning experience. For example, through simulation software, students can actually operate complex accounting software or simulate actual financial decisions, which will make them more confident in a real work environment.....

(Expert 8)

In summary, integrating multimedia and mobile learning platforms like Xuetong into accounting education enhances interactivity, accessibility, and personalization, catering to various learning styles and needs. This approach not only facilitates distance learning but also simulates real-world situations, significantly improving teaching effectiveness and enriching students' learning experiences.

### 2.3.5 Exam Measurements

Pre-tests and post-tests are important tools for evaluating accounting courses and can be used to understand where students start and how they perform at the end of the course. They emphasized that Pre-tests should be diagnostic tools to understand students' existing knowledge and should not cause undue stress. The exam design should include a variety of questions covering different areas of knowledge and skills. In addition to exams, other assessment methods such as projects and group discussions should be considered to obtain a comprehensive picture. Assessment should focus on applied skills, ensuring students can apply knowledge and skills to real-world situations. These methods will help improve the assessment validity and student learning benefits of accounting courses.

The results of the interview are as follows:

.....We should consider using Pre-tests and post-tests to fully assess student learning outcomes. Pre-tests can help us understand students' baseline levels at the beginning of the course so that we can adjust teaching strategies and content to meet their needs.....

(Expert 8)

.....should ensure that exam questions are consistent with the content and learning objectives of the course. This will help ensure the accuracy and validity of the assessment. The test paper should not be too difficult or too simple, so as not to harm students' enthusiasm for active learning. Everything still needs to encourage them to learn.....

(Expert 7)

.....Other assessment methods, not just exams, should also be considered. Assessment in the form of projects, group discussions and case studies can also provide important information about students' abilities.....

(Expert 4)

In summary, implementing pre-tests and post-tests alongside diverse assessment methods such as projects and group discussions enriches the evaluation of student progress in accounting courses. This multifaceted approach ensures assessments align

with course objectives, cater to students' baseline knowledge, and focus on applied skills, significantly enhancing both the validity of assessments and the real-world applicability of student learning.

### 2.3.6 study suggestions

The key to students' success in improving their accounting professional abilities and digital literacy lies in firm learning methods. Develop good study habits, allocate daily study time, and avoid last-minute review. Actively participate in classroom interactions, not be afraid to speak, and take the initiative to improve digital skills. Learn independently, deepen your knowledge, and seek help from teachers in a timely manner when you encounter questions. Teachers are willing to offer support and answer questions, making connections is crucial as they are mentors and guides to their students.

The results of the interview are as follows:

.....Develop good study habits, which means allocating a certain amount of study time every day rather than waiting until exams are approaching and then rushing to start reviewing. Now I know that many students read books before the exam to prepare for the exam. I think that is not advisable.....

(Expert 1)

.....be an active participant in class discussions and interactions. Even if you are studying online, you should actively speak up and share your opinions with teachers and classmates. It doesn't matter if you say it wrong.....

(Expert 4)

..... Independent learning is also very important. Not just limited to classroom teaching, you should read more relevant books and articles to deepen your knowledge.....

(Expert 6)

.....Whenever you have questions or confusion, I hope you won't hesitate to ask for

help. Teachers are one of the best resources for students, and they will be happy to answer your questions, clarify doubts, and even provide additional learning support. Our goal is to help you succeed, so feel free to contact us and don't let questions bother you.....

(Expert 3)

In summary, an in-depth analysis of the survey results of 64 accounting teachers in Ningxia shows that women dominate the teacher group, and most teachers have more than 10 years of rich teaching experience, which may have an impact on the selection of teaching methods and course content. Teachers' evaluation of school accounting education resources shows high recognition of technical support, reflecting the positive attitude of educational institutions in adapting to digital trends.

Students' ability to master course knowledge was seen as uneven, with some teachers believing students had a comprehensive grasp of course content, while other teachers observed students having limited knowledge. This difference may stem from the diversity of students' backgrounds or differences in teaching methods. In terms of the importance of digital literacy, teachers generally agreed that it is critical to students' professional development, which emphasizes the current emphasis on digital skills and understanding in accounting education.

Teachers are positive about the need for students to improve their accounting skills and digital literacy, and generally believe that accounting teachers should be responsible for teaching related courses. This perspective reveals teachers' belief that accounting education should be integrated with real industry needs and highlights the importance of integrating professional skills with digital technologies.

Overall, these survey results not only reveal the current situation and challenges in the field of accounting education. It also provides valuable insights for educational decision-makers and curriculum designers, guiding them on how to better cultivate competitive accounting professionals in the digital era.

As for expert interviews, this expert interview reveals key trends and strategies in curriculum reform for the accounting major at Ningxia Vocational College of Finance and Economics. Experts agree that in order to adapt to the challenges of the digital age, accounting education must move beyond traditional theoretical teaching

models to a more practical and technology-driven approach. This change involves not only the updating of teaching content, but also the innovation of teaching methods and assessment standards.

Experts particularly emphasized the importance of the case study method in the new curriculum. By introducing real-world business cases, students can apply theoretical knowledge in practical situations to better understand the complexities of accounting principles and practices. This approach not only improves students' analytical and critical thinking skills, but also promotes the development of their decision-making and teamwork skills.

When it comes to digital literacy, experts believe it is crucial to incorporate data analysis skills into accounting education. With the development of big data and artificial intelligence technology, accountants are increasingly required to have advanced data processing and analysis capabilities. Therefore, new course designs should include the use of data analysis tools, visual methods for financial data, and an understanding of digital decision-making processes (As shown in Appendix G).

Finally, experts also pointed out that educational institutions should actively respond to these changes and provide students with necessary technical resources and learning support. This includes, but is not limited to, advanced teaching software, access to real-time industry data, and opportunities to interact with industry experts. Through these comprehensive reform measures, accounting education can better prepare students to deal with the rapidly changing business environment and future career challenges.

**Final conclusions about the expert focus group:** In the context of the curriculum reform of the accounting major of Ningxia Vocational College of Finance and Economics, experts jointly constructed a new accounting course outline aimed at improving students' professional skills and digital literacy. This new outline reflects the core views and suggestions raised by experts in interviews, emphasizing the integration of theory and practice, the application of digital technologies, and the importance of ethics and moral education.

The core goal of the new course syllabus is to provide students with solid accounting fundamentals and develop their professional skills and innovative thinking in a digital environment.

To achieve this, the course will include the following key modules: Accounting Fundamentals: Students will learn basic accounting concepts such as assets, liabilities, income and expenses, laying the foundation for an in-depth understanding of more complex accounting principles and methods. Financial Statement Analysis:

The course will cover the interpretation and analysis of balance sheets, income statements and cash flow statements, enabling students to identify key financial indicators and extract important information from them. Digital Technology and Data Analysis: Students will learn how to use modern accounting software and data analysis tools, such as Excel and professional accounting software, to process and interpret financial data. Ethics and Moral Education: Courses will emphasize the importance of upholding ethics and regulations in the digital age, ensuring students demonstrate a high degree of professional ethics and integrity when handling sensitive financial information. Application of emerging technologies: Covers the application of emerging technologies such as blockchain, artificial intelligence and big data in the accounting field, enabling students to adapt to the trends and needs of the modern accounting industry. Innovation and creative thinking:

The course will encourage students to use innovative thinking and creative methods when solving accounting problems, such as through case studies to simulate actual accounting scenarios.

Through these modules, the new accounting syllabus (As shown in Appendix G) not only emphasizes the importance of traditional accounting knowledge, but also highlights the ability to apply this knowledge in a digital environment. This comprehensive teaching approach will help students build a solid theoretical foundation while improving their practical and digital skills, enabling them to remain competitive in a rapidly changing business world.

### **The third part**

The third part studies the implementation results of accounting courses to improve students' professional skills and digital literacy. In this part, the researcher explored the difference in pre- and post-test scores between the experimental class A and the control class B. In order to evaluate the effect of the new curriculum, the researchers conducted a pre-test on two groups of students before the beginning of the semester, then implemented the new curriculum (experimental class) and traditional

teaching methods (control class), and then conducted a post-test.

### 3.1 Compare the Pre-test scores of the experimental class and the control class

#### 3.1.1 Normal distribution test

In this study, the researchers compared the Pre-test scores of experimental class A, which used new teaching methods, with control class B, which used traditional teaching methods. Analyzes were conducted on 124 students per group using skewness and kurtosis tests for normality of scores to assess distribution shape. The null hypothesis (H<sub>0</sub>) assumes that the score data are normally distributed, while the alternative hypothesis (H<sub>1</sub>) states that this is not the case.

SPSS results show:

Table 12 Skewness and kurtosis results of 2 class scores

Statistic	Value	Standard Error
Skewness	0.300	0.165
Kurtosis	-0.423	0.308

Table 11 illustrates a basic statistical description of Pre-Exam Accounting Scores. The skewness Z-score is 1.81 and the kurtosis Z-score is -1.37, indicating that the distribution shape is close to normal as the skewness and kurtosis values are close to zero and the Z-score is within  $\pm 1.96$ .

In a conclusion, "Predicted accounting scores" probably follow a normal distribution. The researcher accepts H<sub>0</sub> and rejects H<sub>1</sub>, which provides a basis for accurate inference and interpretation using statistical methods in subsequent data analysis.

#### 3.1.2 Independent samples t-test

In this study, the aim was to compare the pre-semester achievement levels of students in two different classes. Specifically, the students' scores in the experimental class and the control class were compared. In this study, the null hypothesis is that there is no difference in the average grades of the two classes and that there is no difference in the starting points of the students in the two classes. The researchers collected pre-examination performance data of students in the experimental class and the control class, including 124 students in the experimental class and 124 students in

the control class respectively. These performance data are used to measure student academic performance.

In order to compare the pre-course achievement levels of the two classes, the researcher used an independent samples t-test. This method is used to test whether there is a significant difference between the means of two independent samples.

Enter the results into spss to get:

Table 13 Independent samples t test results

Statistic	Experimental	Control	Notes
N	124	124	
Mean	48.27	47.62	
Std. Dev.	9.941	9.963	
Std. Error	0.893	0.895	
Levene's F	0.045		Variances are equal ( $p > 0.05$ )
t (df=246)	0.517		No significant difference in means ( $p > 0.05$ )
Mean Diff.	0.653		95% CI: -1.836 to 9.387

As can be seen from Table 12, the results of Levene's homogeneity of variance test showed that  $F=0.045$ ,  $p=0.833$ , indicating that the variances of the two sets of data are equal. The t test result is  $t=0.517$ ,  $df=246$ ,  $p=0.606$ , and the mean difference is 0.653 (95% confidence interval is -1.836 to 9.387), showing that there is no significant difference in the scores of the two classes. This shows that the accounting knowledge level of the two groups of students before the experiment is similar, providing a fair basis for subsequent comparisons of teaching methods.

In summary, it can be seen from the analysis that in the accounting pre-test experiment, there was no significant difference in the scores of the experimental class A and the control class B. This shows that the accounting knowledge level of the two groups of students was similar before the experiment. This provides an equal starting point for subsequent teaching experiments and allows researchers to better compare

the impact of different teaching methods on students' academic performance. This also means that the experimental results of the study are more likely to be affected by different teaching methods rather than differences in initial levels. This finding is important for effectiveness analysis in educational research and experiments.

### 3.2 Comparison of test scores before and after about experimental class A

#### 3.2.1 Normal distribution test

In this study, the researcher compared the scores of 124 students in experimental class A before and after the course, with the purpose of evaluating the changes in students' scores and testing whether there were statistically significant differences. At the beginning of the research, a normal distribution test was conducted on the achievement data to confirm that the data met the basic requirements for statistical analysis. The null hypothesis (H0) is that the performance data conforms to the normal distribution, and the alternative hypothesis (H1) is that the data does not conform to the normal distribution.

Enter spss to get:

Table 14 Statistical Summary

Metric	Value
Mean	37.121
Median	41
Std. Deviation	16.004
Min	4
Max	64
Range	60
IQR	25
Skewness	-0.317
Kurtosis	-0.952

Table 15 Normality Test Results

Test	Statistic	df	p-value
Kolmogorov-Smirnov	0.104	124	0.002
Shapiro-Wilk	0.953	124	<0.001

In this study, researchers compared the performance changes of 124 students before and after taking the course. Data analysis showed that the mean of grade changes was 37.121 (median was 41) and the standard deviation was 16.004. The Kolmogorov-Smirnov normality test showed that the performance data did not statistically conform to the normal distribution (K-S statistic value was 0.104, p value was 0.002). This finding guided the researcher to choose the nonparametric Wilcoxon signed-rank test to compare changes in performance in subsequent analyses.

### 3.2.2 Paired samples Wilcoxon signed rank test

This study evaluated the learning progress of 124 students by comparing their test scores before and after the course and determined whether the change in performance was statistically significant. Since the performance data did not conform to the normal distribution, the researcher chose the paired sample Wilcoxon signed-rank test to analyze the performance changes. The research hypotheses are as follows: the null hypothesis (H<sub>0</sub>) states that there is no significant difference between the test scores before and after the course, that is, the median difference is zero; the alternative hypothesis (H<sub>1</sub>) states that there is a significant difference, that is, the median difference is not zero.

Data analysis through SPSS can be obtained:

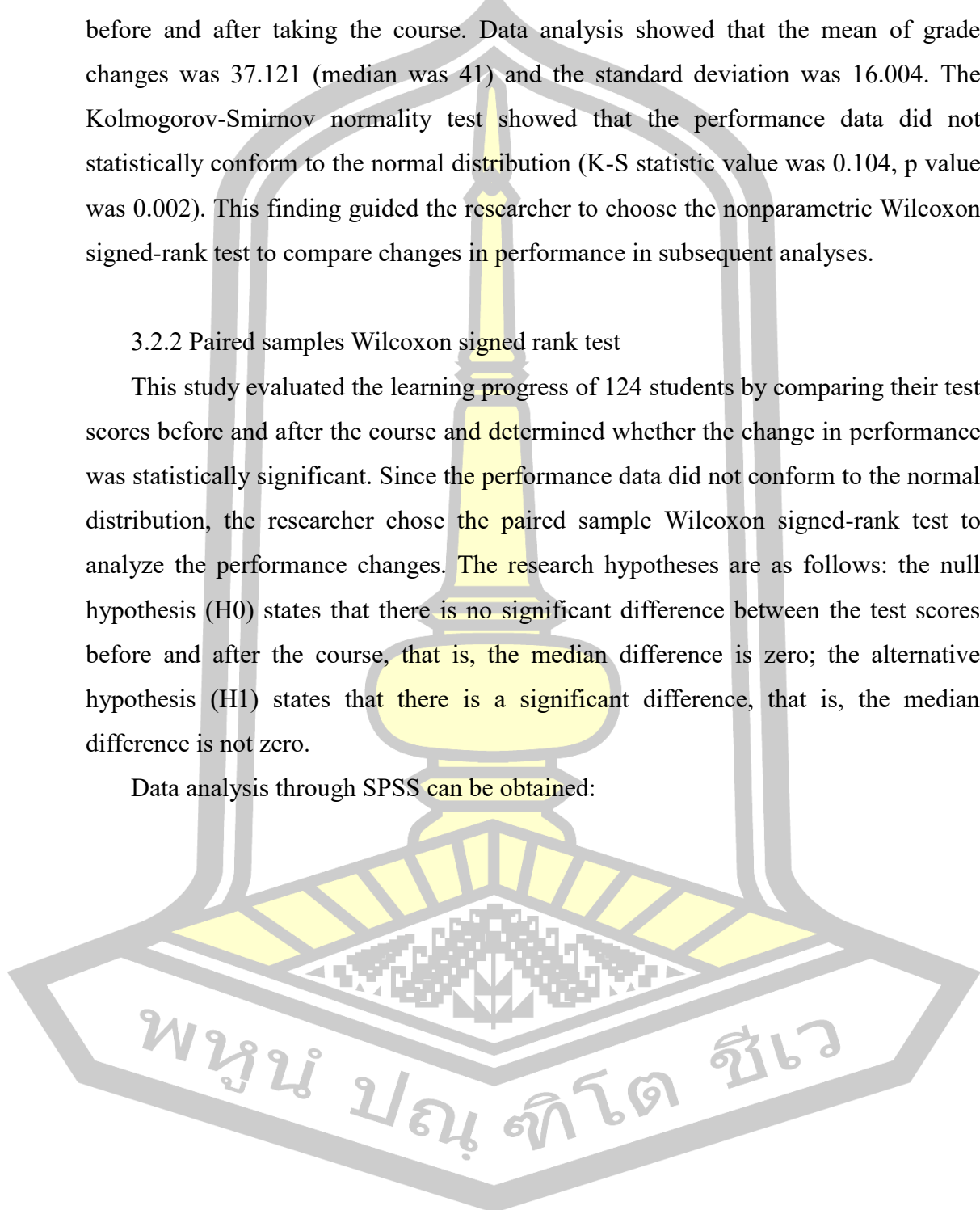


Table 16 Descriptive Statistics result

<b>Descriptive Statistics</b>	<b>Pre-Test Scores</b>	<b>Final Scores</b>
Mean	48.27	85.40
Std. Deviation	9.941	9.372
Minimum	30	70
Maximum	69	99
Median	48.00	86.50

Table 17 Wilcoxon Signed-Ranks Test Results

<b>Test Statistics</b>	<b>Z-Value</b>	<b>p-Value</b>
Final - Pre-Test Scores	-9.664	<0.05

This study compared the performance of 124 students before and after the course to evaluate the learning effectiveness. The data shows that the average pre-test score of the course is 48.27, with a standard deviation of 9.941; the average final score is 85.40, with a standard deviation of 9.372. The Wilcoxon signed-rank test showed that the improvement in performance was statistically significant ( $Z = -9.664$ ,  $p < 0.05$ ). This shows that the course has a significant positive impact on improving students' accounting professional abilities.

In a conclusion, courses that improve students' accounting professional abilities and digital literacy have a significant positive impact on the academic performance of experimental class students. Students' scores improved significantly after taking the course, and this improvement reached a statistically significant difference. Correlation analysis showed that there was a significant negative correlation between Pre-test scores and post-test scores, which further supported the study's conclusions. Therefore, the results of this study emphasize the effectiveness of courses that improve students' accounting professional abilities and digital literacy in terms of academic performance, providing strong support and guidance for educational practice.

### 3.3 Compare the post-test scores of the experimental class and the control class

#### 3.3.1 Normal distribution test

This study aims to compare the normality of the performance data of the new curriculum experimental class A and the traditional teaching control class B through the Kolmogorov-Smirnov test. The research subjects were a total of 248 students in two classes. The null hypothesis (H<sub>0</sub>) states that the performance data conforms to a normal distribution, while the alternative hypothesis (H<sub>1</sub>) states the opposite. The purpose of the normality test is to determine whether the data are suitable for subsequent statistical analysis.

Data analysis was performed through SPSS software:

Table 18 One-sample Kolmogorov-Smirnov normality test

Statistical Indicator	Value
Sample Size (N)	248
Mean	81.83
Standard Deviation	9.664
K-S Maximum Difference	0.084
Asymptotic Significance (2-tailed)	0.000

This study uses the one-sample Kolmogorov-Smirnov test to evaluate the normal distribution of 248 sample data. The test results show that the sample mean is 81.83 and the standard deviation is 9.664. The most extreme difference for the K-S test is 0.084, with asymptotic significance (two-tailed) of 0.000. This indicates that the sample data differ significantly from a normal distribution and therefore rejects the null hypothesis that the data does not follow a normal distribution.

### 3.3.2 Mann-Whitney U test

This study compared the scores of the experimental class and the control class through the Mann-Whitney U test to determine whether there was a significant difference in the scores of the two classes. This non-parametric test method was used because the grade data did not exactly fit the normal distribution. The study included achievement data from 124 students in each of the two classes. The null hypothesis (H<sub>0</sub>) of the Mann-Whitney U test is that there is no difference between the two groups

of samples, and the alternative hypothesis (H1) is that there is a significant difference between the two groups of samples.

Data analysis via SPSS:

Table 19 Hypothesis testing summary

<b>Hypothesis Test Summary</b>				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of grades is the same across categories of Class.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.
Asymptotic significances are displayed. The significance level is .050.				

Table 20 Mann-Whitney U Test result

<b>Indicator</b>	<b>Value</b>
Mann-Whitney U	4265.000
Wilcoxon W	12015.000
Z-Value	-6.067
Two-Tailed Significance	0.000

As can be seen from Figure 19, the results of the Mann-Whitney U test show that there is a significant difference between the scores of the experimental class and the control class. The sample size is 124, the Mann-Whitney U value is 4265, and the standardized test statistic (i.e., Z value) is -6.067. The negative number of the Z value indicates that the performance ranking of the experimental class is generally higher than that of the control class. At the 5% significance level, this result shows that the new teaching method is more effective than the traditional teaching method. The large absolute value of the Z value indicates that this difference is statistically significant, reinforcing the conclusion that the new teaching method has a significant effect.

To summary, the researchers can confidently conclude that students in the experimental class have significantly improved their overall performance levels by accepting the new curriculum, which highlights the educational value of the new curriculum and its positive role in promoting students' academic performance. This

finding has important educational decision-making significance and will provide a useful reference for future teaching methods and curriculum design.

3.4 Pre-test and post-test comparison of digital literacy scores in experimental classes

#### 3.4.1 Normal distribution test

In this study, the researcher focused on comparing the digital literacy test results before and after the course for a class of 124 students in the experimental class B. Aims to assess changes in students' digital literacy over the course of the course and determine whether there are statistically significant differences. This study first conducted a normal distribution test to ensure that the data met the prerequisites for statistical analysis.

The null hypothesis (H0) of this study assumes that the achievement data conforms to a normal distribution, while the alternative hypothesis (H1) states that the achievement data does not conform to a normal distribution. The researcher's study aims to evaluate whether the null hypothesis needs to be rejected through a normality test to determine the actual distribution of the data.

Enter the data into spss to get:

Table 21 Normality test results

<b>Tests of Normality</b>						
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Change1	.096	124	.007	.979	124	.052
Change2	.093	124	.010	.971	124	.008
Change3	.088	124	.021	.985	124	.200
Change4	.108	124	.001	.979	124	.046
Change5	.087	124	.022	.974	124	.016

a. Lilliefors Significance Correction

It can be seen from the Table that the statistic values of the Kolmogorov-Smirnov

test are 0.096, etc., the sample size (degrees of freedom df) is 124, and the significance levels (Sig.) are 0.007, 0.01, 0.021, 0.001, and 0.022 respectively. These results indicate that the distribution of the studied achievement change variables does not follow a normal distribution at the 0.05 significance level. Therefore, we reject the null hypothesis of normal distribution. In short, the results of the Kolmogorov-Smirnov test indicate that these performance change data do not meet the assumption of normal distribution.

### 3.4.2 paired-sample Wilcoxon signed-rank test

Now that it is known that the digital literacy score data in the pre- and post-course tests do not meet the normal distribution, the researcher will use the paired-sample Wilcoxon signed-rank test to evaluate whether there is a significant difference. The following hypotheses were proposed for conducting the Wilcoxon signed-rank test: Null hypothesis (H0): There is no significant difference between the pre-test and post-test scores of the course. Alternative hypothesis (H1): There is a significant difference between the pre-test and post-test scores of the course.

Enter the data into spss to get:

Table 22 Descriptive statistical analysis

Descriptive Statistics								
	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
Pre-test 1	124	2.0472	.58484	1.00	3.29	1.5714	2.0000	2.4286
Pre-test 2	124	2.0184	.57921	1.00	3.57	1.5714	2.0000	2.2857
Pre-test 3	124	2.0449	.58728	1.00	3.71	1.7143	2.0000	2.4286
Pre-test 4	124	1.9620	.54835	1.00	3.29	1.5714	2.0000	2.2857

Descriptive Statistics								
Pre-test 5	124	2.1083	.57875	1.00	3.57	1.7143	2.1429	2.4286
Post-test 1	124	4.2350	.40578	2.86	5.00	4.0000	4.2857	4.4286
Post-test 2	124	4.3272	.34600	3.29	5.00	4.2857	4.2857	4.5357
Post-test 3	124	4.2131	.35393	3.14	4.86	4.0000	4.2857	4.4286
Post-test 4	124	4.2512	.42385	3.29	5.00	4.0000	4.2857	4.5714
Post-test 5	124	4.3548	.30125	3.71	5.00	4.1429	4.2857	4.5714

Table 23 Wilcoxon signed rank test statistical results

Test Statistics <sup>a</sup>					
	Post-test 1 - Pre-test 1	Post-test 2 - Pre-test 2	Post-test 3 - Pre-test 3	Post-test 4 - Pre-test 4	Post-test 5 - Pre-test 5
Z	-9.668 <sup>b</sup>	-9.629 <sup>b</sup>	-9.631 <sup>b</sup>	-9.669 <sup>b</sup>	-9.671 <sup>b</sup>
Asymp. Sig. (2-tailed)	.000	.000	.000	.000	.000
a. Wilcoxon Signed Ranks Test					
b. Based on negative ranks.					

Table 23 is the result of the paired sample Wilcoxon signed rank test. All test pairs show statistically significant differences. Specifically: the values of statistic Z are -9.668, -9.629, -9.631, -9.669 and -9.671 respectively. The absolute size of these Z-scores is large, indicating significant differences between Pre-test and post-test.

The significance of the two-tailed test (Asymp. Sig. (2-tailed)) is 0.000 for all test pairs. This extremely low p-value indicates that we can reject the null hypothesis (that

is, the hypothesis that there is no difference) with a high degree of confidence that there is a statistically significant difference between the scores on the Pre-test and post-test. Taken together, these results strongly suggest that performance on the post-test was significantly better than on the Pre-test regardless of the pair of tests, and this difference was statistically significant.

In summary, the new curriculum teaching has a significant impact on students' digital literacy scores. Through descriptive statistical analysis, the researcher observed that the mean of the post-test scores was significantly higher than the pre-test scores, indicating that students had made significant progress in the new course learning process. The results of the Wilcoxon signed-rank test further support this observation, pointing out that there is a significant difference in the medians of the two sets of data, that is, students' scores after learning the new course are different from their pre-test scores. The majority of students achieved better results, indicating that the new curriculum has a positive effect on improving students' digital literacy levels. Therefore, it can be concluded that the new curriculum teaching has a significant positive impact on the improvement of students' performance and provides effective educational support for improving students' digital literacy levels.

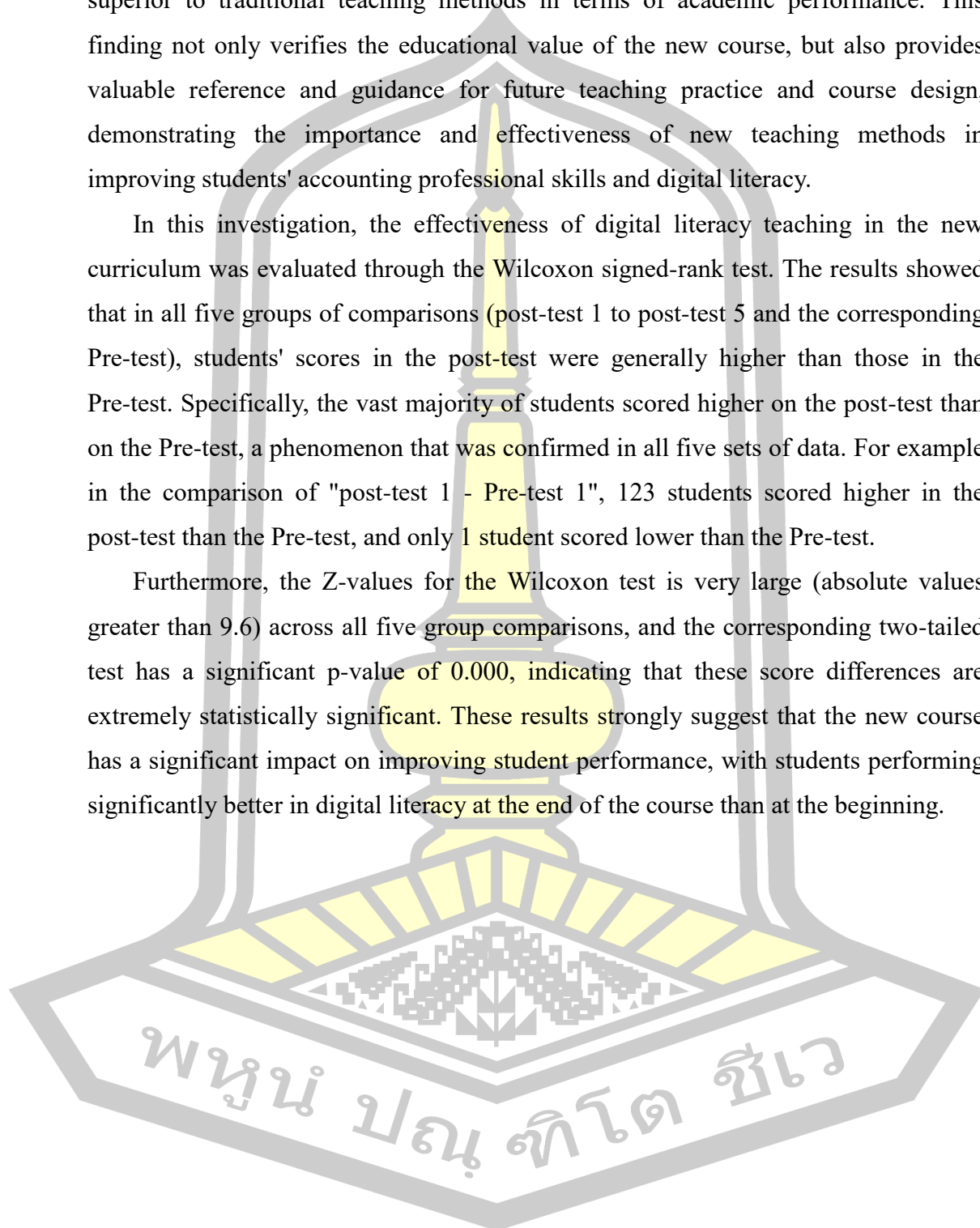
To summarize all the data: In the teaching experiment of accounting major in Ningxia Vocational College of Finance and Economics, the pre-test scores of experimental class A and control class B were compared. The two classes were found to have similar levels of accounting knowledge at the beginning of the experiment, thus providing an equal starting point for subsequent teaching experiments. Subsequent experimental results showed that after the experimental class received the new accounting professional competency and digital literacy courses, its final scores showed significant improvement compared with the pre-test scores. The results of the Wilcoxon signed-rank test further confirmed this significant difference, and its low p-value strengthened the conclusion that the course has a positive impact on students' academic performance.

Correlation analysis revealed a significant negative correlation between Pre-test scores and post-test scores, which further supports the effectiveness of the new teaching method. It can be seen that the new course has achieved remarkable results

in improving students' accounting professional abilities and digital literacy and is superior to traditional teaching methods in terms of academic performance. This finding not only verifies the educational value of the new course, but also provides valuable reference and guidance for future teaching practice and course design, demonstrating the importance and effectiveness of new teaching methods in improving students' accounting professional skills and digital literacy.

In this investigation, the effectiveness of digital literacy teaching in the new curriculum was evaluated through the Wilcoxon signed-rank test. The results showed that in all five groups of comparisons (post-test 1 to post-test 5 and the corresponding Pre-test), students' scores in the post-test were generally higher than those in the Pre-test. Specifically, the vast majority of students scored higher on the post-test than on the Pre-test, a phenomenon that was confirmed in all five sets of data. For example, in the comparison of "post-test 1 - Pre-test 1", 123 students scored higher in the post-test than the Pre-test, and only 1 student scored lower than the Pre-test.

Furthermore, the Z-values for the Wilcoxon test is very large (absolute values greater than 9.6) across all five group comparisons, and the corresponding two-tailed test has a significant p-value of 0.000, indicating that these score differences are extremely statistically significant. These results strongly suggest that the new course has a significant impact on improving student performance, with students performing significantly better in digital literacy at the end of the course than at the beginning.



### **The fourth part**

At this stage, the new accounting course will be subject to curriculum evaluation and analysis, which will be carried out from two main aspects:

1. School curriculum evaluation: Analyze the evaluation of the curriculum at the school level, covering aspects such as curriculum content, teaching quality and effectiveness.

2. Student course evaluation: Through random sampling surveys and interviews with 30 students, their feedback and evaluation of the course were collected.

#### **4.1 School course evaluation feedback**

Curriculum is a basic teaching unit set up based on the classification of subject majors and the in-depth knowledge of system theory. The teaching effect of the curriculum directly affects the quality and level of student education. In order to understand the actual situation of course teaching, promote the quality of student course teaching, and promote course construction and reform, Ningxia Vocational College of Finance and Economics launched a teaching evaluation activity for the new accounting course in December 2023.

During the evaluation process of the new curriculum design, a total of 124 questionnaires were distributed, achieving a 100% response rate, which showed that students were highly motivated to participate in the evaluation and were willing to share their views and experiences on the new curriculum. The collection of these 124 questionnaires provides us with a comprehensive and objective understanding, which will strongly support the further improvement of students' feelings and opinions on the new course design.

The evaluation form sets 10 evaluation indicators from five aspects: teaching content, teaching methods, teaching attitude, and teaching effect, and each indicator is set with 5 levels (scores). According to statistics, the lowest rating students gave the course was 3, and the highest rating was 5. Converted into a hundred-point system, the average score is 80.13. [The method of converting the overall score of each questionnaire into a hundred-point system is as follows: Total score (of 5 indicators)/50\*100%. If any individual indicator is not evaluated, the score for that indicator will be 0 points. Unless otherwise specified, the analysis below is mainly based on percentage scores.

Table 24 Evaluation indicator scoring value statistics table

<b>Evaluation indicators</b>	<b>Individual average score</b>	<b>Score</b>	<b>Ranking</b>
1. The necessity, contemporary nature and forward-looking nature of this course setting	4.02	80.48	4
2. Serious attitude towards teaching and rigorous scholarship	4.02	80.48	5
3.The teaching content is substantial and can reflect or connect with new ideas, new methods, and new developments.	3.99	79.75	8
4. This course uses excellent teaching materials at home and abroad or compiled by itself. The selection of teaching materials and reference materials is timely and efficient.	4.00	79.91	7
5. Advanced teaching methods and diverse teaching methods (including classroom discussions, etc.)	4.02	80.48	6
6. The classroom effect of the course teaching (including the infectiousness of the lectures, vivid, concise, and clear language, etc.)	3.98	79.67	9
7. Reasonable use of case teaching and accurate analysis of cases	4.03	80.56	3
8. Integrate theory with practice and focus on cultivating the ability to analyze and solve problems	4.06	81.21	1
9. Teaching training is systematic, comprehensive and in-depth, and teaching is mutually beneficial	3.90	78.06	10
10. Evaluation of learning gains from this course	4.03	80.64	2

The evaluation results show that students generally have a high evaluation of the course, with the average overall score being 80.13. Among them, students rated highly on the ability to integrate course theory with practice and focus on analyzing and solving problems. They were also relatively satisfied with the learning gains from this course. The average scores for the two indicators were 81.20 and 80.64 respectively. This shows that students generally recognize the effectiveness of full application of case teaching in course design, and they have a positive attitude towards the teaching methods and learning effects of the course. In terms of teaching content, students also expressed basic recognition of the course, with an average score of 80.48. It shows that students are highly satisfied with the knowledge system and teaching content covered by the course. They believe that the course content is rich and practical, and it has a positive effect on improving their accounting professional capabilities and digital literacy.

On the other hand, students have low evaluations of teaching methods and methods, and the classroom effects of course lectures. The average scores for these two indicators are 78.06 and 79.67 respectively, which are the last two scores among the various indicators in this evaluation. It shows the deficiencies in the selection of teaching materials and teaching methods and methods for our school's professional degree courses. At the same time, students have a relatively low evaluation of whether the teaching training is systematic and comprehensive, and their learning gains from this course are relatively low. This requires us to pay attention and strive to improve it in future practical work.

Therefore, based on students' evaluation of the course, the overall satisfaction level is high. Students gave positive comments on the full application of case teaching in course design, indicating that they recognized the effective integration of theory and practice in this teaching method. The students' high scores in integrating theory with practice and cultivating their ability to analyze and solve problems also reflect that the teaching objectives of the course have been achieved to a certain extent. At the same time, students have a high degree of recognition of the course content and believe that the knowledge system they learned is rich and practical, and has a positive effect on improving their accounting professional abilities and digital literacy.

However, it is worth noting that students have low evaluations of teaching

methods and methods, as well as the classroom effectiveness of course lectures. This may imply that there are some deficiencies in teaching design and implementation, especially the need to pay more attention to the actual needs of students in the selection of teaching materials and teaching methods. Whether the teaching training is systematic and comprehensive and in-depth and students' evaluation of the learning gains from the course is relatively low also prompts us to make improvements in future work to improve the teaching quality and student learning experience. By integrating improvements in these areas, it will help to further enhance the overall quality of professional degree programs.

#### 4.2 Sample survey and interviews with 30 students

After the new course, in order to gain a deeper understanding of the impact of the course and student feedback, we adopted a qualitative research approach and conducted detailed interviews with 30 randomly sampled students. This process aims to gather in-depth insights from students on course content, teaching methods, course effectiveness and perceptions of improvement in their skills and knowledge. Through semi-structured interviews, we were able to explore students' personal experiences and specific evaluations of various aspects of the course in order to more fully assess the teaching effectiveness of the new course and possible room for improvement. In addition, these interviews provide valuable first-hand data that can contribute to further educational research and curriculum development.

The following are the results of the interview:

1 In this semester's accounting course, students expressed a deeper understanding of the relationship between the balance sheet, income statement, and cash flow statement, describing it as unraveling a financial maze. This not only plays a role in the exam but also helps them better understand the financial operations of the company in practical applications. Key accounting concepts learned include methods for preparing balance sheets and income statements, and the skills to assess a company's financial health through financial ratios and metrics. Students also emphasized the improvement of skills in practical work, such as easily understanding financial statement construction, proficiency in accounting entries, and using spreadsheet software for financial data analysis. The biggest gain is the in-depth

understanding of core concepts. The teacher improves the understanding of difficult points through practical cases and vivid explanations. Students comprehensively believe that these learning experiences have made a significant contribution to the improvement of professional knowledge.

The interview results are as follows:

.....I now understand better the relationship between the balance sheet, income statement and cash flow statement. This to me is like opening up a financial maze, allowing me to look at a company's financial situation more comprehensively, a bit like studying it carefully like a magnifying glass.....

(Interviewer5 )

.....This knowledge not only played a role in the exam, but also helped me better understand the company's financial operations in practice.....

(Interviewer 9)

.....I learned many key accounting concepts, such as how to prepare balance sheets and income statements, and how to handle various accounting documents. What benefited me the most was learning how to analyze financial data and evaluate a company's financial health through financial ratios and indicators.....

(Interviewer 3)

.....really gave me a huge boost in my expertise! For example, I can now easily understand the construction of balance sheets and income statements, and can also play with accounting entries and adjusting entries. The most exciting thing is that I finally learned how to organize and analyze financial data in a spreadsheet software. It's a skill that I have gained a lot.....

(Interviewer 14)

.....I think the biggest gain is a deeper understanding of accounting concepts, especially some core concepts about balance sheets and income statements. The teacher vividly explained through practical cases and examples in class, making it

easier for me to understand these abstract concepts. Moreover, I also learned some practical skills, such as how to prepare financial statements and conduct simple financial analysis.....

(Interviewer 23)

2.Students have significantly improved their digital literacy through the new accounting courses. This gives them a deeper understanding of financial statements, combining number crunching skills with financial analysis. Students feel that digital games and simulated operating financial software have enhanced their sensitivity to numbers and are more comfortable with the numerical needs of future accounting work. The teacher's guidance enables students to use digital information more skillfully, comprehensively improves digital literacy, and lays a solid foundation for career development.

The interview results are as follows:

.....I can often play number games on the app after class and use spreadsheets to create all kinds of cool financial data. This not only skyrocketed my numerical skills, but also gave me a deeper understanding of financial statements. Reading reports now is like reading a novel, it is so relaxing and interesting.....

(Interviewer 15)

.....the importance of data, and we also learned how to use spreadsheet software for financial analysis. This has made me more sensitive to numbers and more comfortable when dealing with financial data. Digital literacy is really critical to our future career development.....

(Interviewer 18)

.....Improvements have allowed me to more quickly identify trends and analyze data rather than simply looking at numbers. This will definitely be very helpful for future accounting work.....

(Interviewer 29)

.....how to organize and analyze financial data using spreadsheet software. I didn't have any feeling for numbers before, but now I can handle a bunch of numbers easily. I really feel like I'm an expert with numbers. This is awesome for working with financial data.....

(Interviewer 11)

.....The teacher also encouraged us to use some financial software to conduct simulation operations, which really made me more proficient in processing various digital information, and my understanding of financial data became deeper.....

(Interviewer 7)

3 Students agreed that the material was used very effectively in the course. They like the teaching materials to be lively and interesting and rich in examples, especially case studies that can apply theoretical knowledge to practical situations. However, some students made several suggestions, including that some chapters might need more detailed explanations and that sometimes concepts could be explained more concisely and clearly. From the teacher's perspective, students' recognition of the teaching materials is positive and they believe that the detailed content and rich cases will help students better understand theoretical knowledge. They liked practical cases and case studies, but also mentioned some suggestions, including simplifying concept explanations and adding practical cases or application scenarios.

The interview results are as follows:

.....I think the material is very effective in its practical application within the course. The content of the textbook is vivid and interesting, and it is rich in examples, which helped me better understand abstract accounting concepts. I particularly enjoyed the case studies in the textbook because they allowed me to apply theoretical knowledge to practical situations. Of course, there are always areas for improvement, such as some chapters that could use a more detailed explanation.....

(Interviewer 16)

.....The teaching materials are detailed in content and rich in cases, which help me better understand theoretical knowledge. I especially like the practical cases and case

studies in the textbook because they help me apply theoretical knowledge to practical situations. However, sometimes I feel that some concepts could be explained more concisely and clearly to make it easier to understand.....

(Interviewer 19)

.....It works well in the classroom. The explanations are very clear, and there are a bunch of practical cases, which allowed me to not only learn the concepts, but also put them into real financial problems. What I like most are the case studies.....

(Interviewer 21)

.....It paired well with the class content and made it easier for me to understand complex concepts. However, sometimes I think we can add some practical cases or application scenarios, which can better help us apply theoretical knowledge into practice.....

(Interviewer 03)

.....The examples in the book are very close to real life, and there are many case studies that allowed me to better understand theoretical knowledge. But sometimes I feel that some concept explanations may be a little obscure, and I hope to have more examples to help understand. Overall, it is quite good.....

(Interviewer 09)

4. Students gave positive comments on the course's use of diverse teaching methods, including lectures, group discussions and practical case analysis. Activities such as simulated corporate financial reporting meetings and team projects gave students a deeper understanding of the preparation process of financial reports, adding lively and interesting elements to the course. Students believe that being able to apply theoretical knowledge to real business situations is instrumental in understanding how accounting actually works.

However, some students mentioned that the course schedule was tight and expected more time for in-depth discussions and practice. It is recommended to increase opportunities for internships or company visits that are in line with actual

industry practices to better help students apply theoretical knowledge to practical work. Overall, students felt the fun of solving real financial problems through actual case analysis and group projects, but they also mentioned room for improvement that could be closer to actual combat and add real industry elements. These suggestions provide useful references for future teaching design.

The interview results are as follows:

.....A variety of teaching methods are used, including lectures, group discussions and practical case analysis. This design allowed me to understand all aspects of accounting more comprehensively. Once the teacher organized a simulated corporate financial report meeting, and we needed to work together to prepare a report and give a speech. This activity left a deep impression on me and gave me a better understanding of the process of preparing financial reports.....

(Interviewer 14)

.....What I remember most is that one time the teacher organized a team project and we needed to collaborate on preparing a financial report. This activity impressed me because it gave me a better understanding of the actual financial reporting process. This makes the course more interesting and easier to understand.....

(Interviewer 20)

.....Being able to apply theoretical knowledge to real business situations has been a huge help in my understanding of how accounting actually works. However, sometimes the course schedule is tight and I hope to have more time for in-depth discussions and practice.....

(Interviewer 13)

.....What impressed me most was the analysis of some practical cases and group projects. These activities helped me better understand complex accounting situations and cultivate the ability to work in a team. But if we can increase some opportunities for internships or company visits that are in line with actual industry practices, it may better help us apply theoretical knowledge to practical work.....

(Interviewer 17)

.....The analysis of actual cases and group projects made me feel like I was not taking a class, but solving real financial problems. One activity was super interesting. We had to thoroughly analyze a company's financial situation. It was like participating in a financial reasoning game. If you want to improve, maybe you can add some things from the actual industry to be closer to actual combat and more informative.....

(Interviewer 19)

Ningxia Vocational College of Finance and Economics conducted a teaching evaluation of the new accounting course in December 2023, aiming to comprehensively understand the actual situation of course teaching and promote the construction and reform of the course. By distributing 248 questionnaires and obtaining a 100% response rate, the college successfully collected comprehensive and objective feedback on the new course. This not only reflects students' active participation in the evaluation work, but also provides valuable data support for subsequent course improvements.

The evaluation results show that students overall have a positive attitude towards the new accounting course, with an average score of 80.13 points (100-point scale). It is particularly worth noting that students rated the course the highest in terms of integrating theory with practice, analyzing problems, and cultivating problem-solving abilities, with scores of 81.21 and 80.64 respectively.

This shows that the course has achieved significant results in combining theoretical knowledge with practical applications and strengthening students' practical abilities. At the same time, students also gave high evaluations to the enrichment and timeliness of the course content. They believed that the course content was both rich and practical and helped to improve their accounting professional capabilities and digital literacy.

However, the evaluation also revealed some areas for improvement. Students' evaluations of teaching methods and methods and classroom teaching effects are relatively low, with average scores of 78.06 and 79.67 respectively, which indicates that there are certain deficiencies in the selection of teaching materials, teaching

methods and classroom interaction. In addition, the systematic and comprehensive nature of teaching training and the evaluation of course learning outcomes are relatively low, suggesting that more attention to details is needed in the teaching process, and guidance and support for students' learning process should be strengthened.

To sum up, the college has achieved certain results in the design and implementation of the new accounting course, especially the combination of theory and practice, which has been highly recognized by students. However, it should also be noted that there is still room for improvement in teaching methods and classroom effects. In the future, the college needs to further optimize teaching content and methods, strengthen teaching interaction and practical training, so as to comprehensively improve course quality and teaching effects and better meet students' learning needs and career development requirements.

As for students' survey result: It can be concluded through after-class interviews with 30 accounting students. A recent semester's accounting course at Ningxia Vocational College of Finance and Economics had a significant impact on students' understanding of the relationship between the three major components of financial reporting - the balance sheet, income statement and cash flow statement.

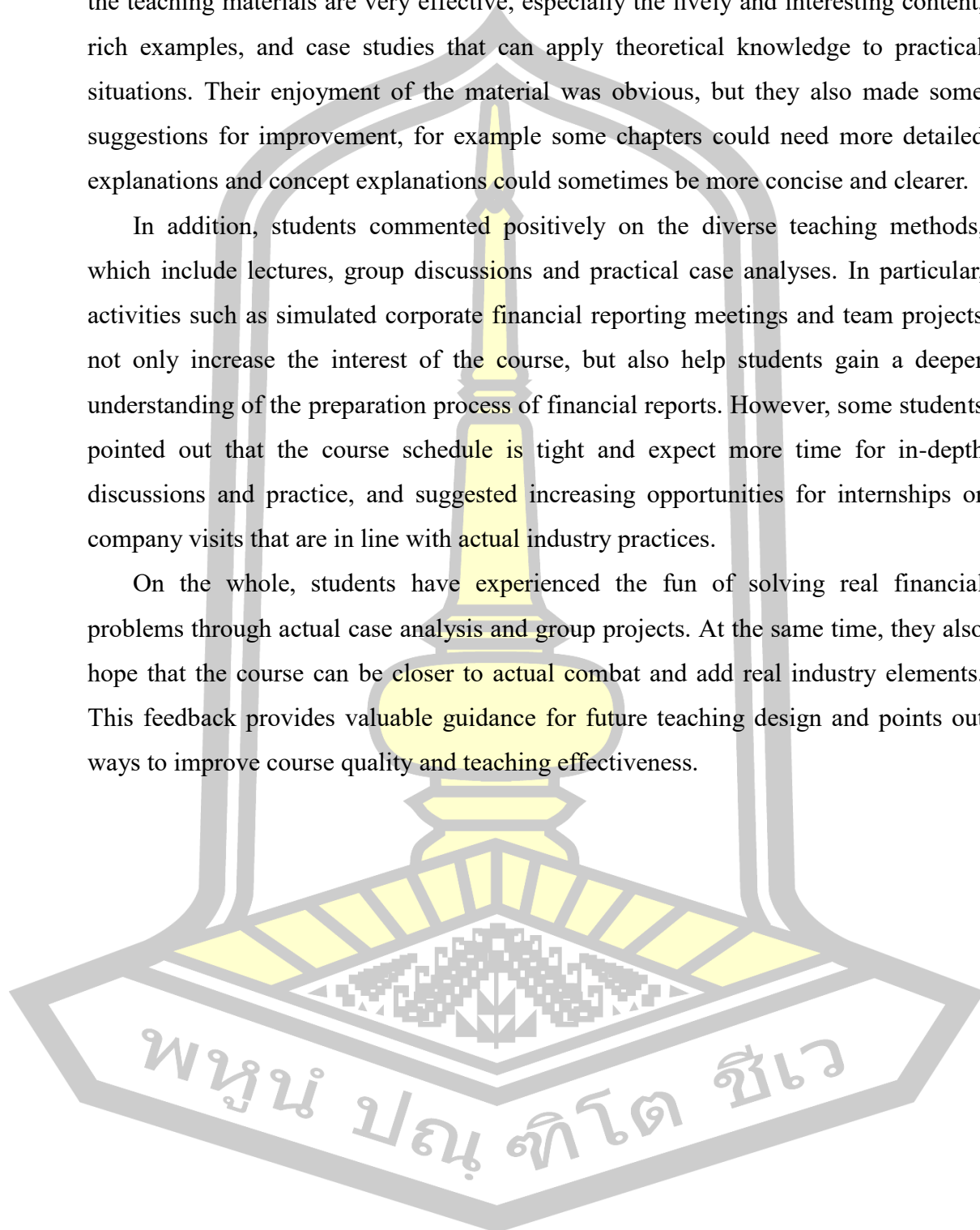
This in-depth understanding is not only reflected in exams, but also helps students gain a better grasp of a company's financial operations during practical applications. Key accounting concepts students learn include methods of preparing balance sheets and income statements and assessing a company's financial health through financial ratios and metrics. In addition, they also mentioned improvements in practical work skills, such as easier understanding of the construction of financial statements, proficiency in accounting entries, and use of spreadsheet software for financial data analysis.

During the interviews, students also expressed their emphasis on improving digital literacy. The new accounting course gives them a deeper understanding of financial statements and combines number-crunching skills with financial analysis. Number games and activities that simulate operating financial software enhance their sensitivity to numbers, making them more comfortable with numerical needs in future accounting work.

In terms of the application of teaching materials, students generally believe that the teaching materials are very effective, especially the lively and interesting content, rich examples, and case studies that can apply theoretical knowledge to practical situations. Their enjoyment of the material was obvious, but they also made some suggestions for improvement, for example some chapters could need more detailed explanations and concept explanations could sometimes be more concise and clearer.

In addition, students commented positively on the diverse teaching methods, which include lectures, group discussions and practical case analyses. In particular, activities such as simulated corporate financial reporting meetings and team projects not only increase the interest of the course, but also help students gain a deeper understanding of the preparation process of financial reports. However, some students pointed out that the course schedule is tight and expect more time for in-depth discussions and practice, and suggested increasing opportunities for internships or company visits that are in line with actual industry practices.

On the whole, students have experienced the fun of solving real financial problems through actual case analysis and group projects. At the same time, they also hope that the course can be closer to actual combat and add real industry elements. This feedback provides valuable guidance for future teaching design and points out ways to improve course quality and teaching effectiveness.



## CHAPTER V

### CONCLUSION, DISCUSSION AND RECOMMENDATIONS

This study is dedicated to exploring the effectiveness of the new accounting curriculum in improving the professional skills and digital literacy of students in higher vocational colleges. The research objectives and methods are as follows:

Current situation investigation and problem analysis:

1. Through questionnaire survey and literature review, gain an in-depth understanding of the current actual situation and existing problems of accounting courses in my country.

2. Construction of digital accounting course system: Based on the survey results, build a digital accounting course system suitable for higher vocational colleges in my country.

3. Course implementation and effect evaluation:

- 3.1 Professional skills improvement: After implementing the new digital accounting course, compare students' improvement in accounting professional skills (DV1) to evaluate the effectiveness of the course.

- 3.2 Improvement in digital literacy: Similarly, compare the improvement in students' digital literacy (DV2) after learning the new course.

4. Overall evaluation of the course: comprehensively analyze the implementation effect of the digital accounting course and evaluate its effectiveness in improving students' professional skills and digital literacy.

After completing this series of studies, the researchers conducted a detailed summary and discussion on the effect of the new curriculum on improving the professional skills and digital literacy of Ningxia Vocational College of Finance and Economics accounting students, with a view to providing theoretical and practical guidance for the future development of accounting education. The details are as follows:

## Conclusion

1. Understand the current actual situation and existing problems of accounting courses in Ningxia Vocational College of Finance and Economics through literature survey and questionnaire survey.

1.1 The current situation at Ningxia Vocational College of Finance and Economics indicates shortcomings in accounting students' professional skills, particularly in accounting principles, financial concepts, and control activity effectiveness. Despite proficiency in certain areas like cost and management accounting, there is a pressing need for improvement across various disciplines. To address these deficiencies, adjustments in teaching methods and curriculum content are essential to enhance students' competency in key accounting areas.

1.2 Through the digital literacy scale, it is found that the accounting students of Ningxia Vocational College of Finance and Economics of Finance are deficient in digital literacy.

Ningxia Vocational College of Finance and Economics faces notable deficiencies in digital literacy among students, impacting adaptability and future career prospects. Urgent measures to improve digital skills and awareness are crucial for academic and professional success in the digital age.

2. Research and develop accounting courses to improve students' professional skills and digital literacy

2.1 Design a questionnaire to study teachers' reflections on accounting courses

Constructing a curriculum tailored to the demands of accounting education necessitates a thorough analysis of 64 accounting teachers in Ningxia. Their strong acknowledgment of technological support underscores the institution's proactive approach toward digital trends. Diverse perspectives on students' knowledge acquisition underscore the necessity for personalized strategies. Their emphasis on digital literacy underscores its pivotal role in students' professional growth. These findings offer valuable guidance to education policymakers in molding competitive accounting professionals in the digital era.

2.2 The results of the researcher's interviews with experts are as follows:

To construct a progressive curriculum for the accounting major at Ningxia Vocational College of Finance and Economics, experts advocate embracing practical,

technology-driven teaching methods. Key strategies include integrating case studies to enhance analytical skills, emphasizing data analysis for digital literacy, and providing ample technical resources. These reforms ensure students are well-equipped to navigate the evolving business landscape.

2.3 The results of the focus group organized by the researcher are as follows:

To construct an innovative curriculum for the accounting major at Ningxia Vocational College of Finance and Economics, experts collaboratively designed a comprehensive course outline. It focuses on integrating theory and practice, emphasizing digital literacy and ethical education. The syllabus includes modules on accounting fundamentals, financial statement analysis, digital technology, ethics, emerging technologies, and innovation. This holistic approach ensures students gain both theoretical knowledge and practical skills, enhancing their competitiveness in today's dynamic business environment.

3. Curriculum implementation and effect evaluation.

3.1 Professional skills improvement after implementing new digital accounting courses

Incorporating Digital Accounting Course Curriculum at Ningxia Vocational College of Finance and Economics, a teaching experiment showcased significant academic improvement in experimental class A. Contrasted with control class B, correlation analysis underscores the efficacy of the new method in enhancing students' accounting abilities and digital literacy.

3.2 Improvement of digital literacy after implementing new digital accounting courses

The investigation utilizing the Wilcoxon signed-rank test revealed significant improvement in students' digital literacy across all post-test comparisons. With overwhelmingly higher scores post-course, statistically significant results emphasize the new curriculum's effectiveness in enhancing student performance.

4. Students evaluate the new accounting course

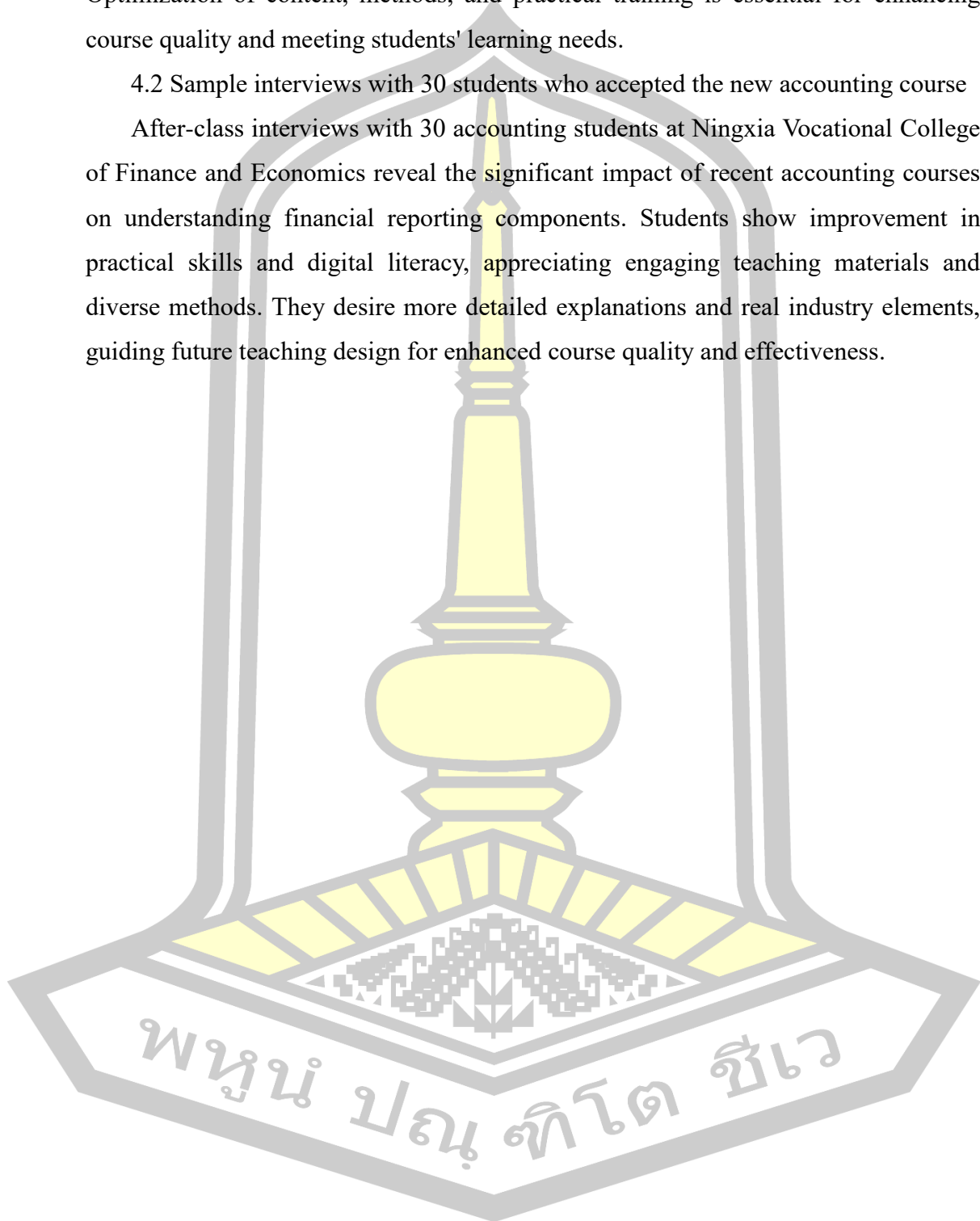
4.1 School course evaluation feedback

The teaching evaluation of the new accounting course at Ningxia Vocational College of Finance and Economics revealed positive student attitudes, particularly regarding theory-practice integration and problem-solving skills. However,

improvements are needed in teaching methods and classroom interaction. Optimization of content, methods, and practical training is essential for enhancing course quality and meeting students' learning needs.

#### 4.2 Sample interviews with 30 students who accepted the new accounting course

After-class interviews with 30 accounting students at Ningxia Vocational College of Finance and Economics reveal the significant impact of recent accounting courses on understanding financial reporting components. Students show improvement in practical skills and digital literacy, appreciating engaging teaching materials and diverse methods. They desire more detailed explanations and real industry elements, guiding future teaching design for enhanced course quality and effectiveness.



## Discussion

1. Discussion of the current actual situation and existing problems of accounting courses in Ningxia Vocational College of Finance and Economics

### 1.1 Discussion based on analysis of questionnaire survey results

Through the analysis of questionnaire survey results among accounting students of Ningxia Vocational College of Finance and Economics. Students were found to have significant knowledge and skill deficiencies in a number of core areas of the accounting profession, particularly in accounting principles, financial concepts, and the effectiveness of control activities.

This requires adjustments in teaching methods and course content to enhance learning and understanding. This is consistent with the research concept of Khemiri (2021). Khemiri (2021) research shows that although accounting education has undergone major reforms in China to adapt to the Western system. However, in the actual education process, students, teachers, and accounting practitioners generally believe that the current accounting education system has not been able to impart the necessary knowledge and skills effectively.

This is also in line with the concept of Woodbine (2007), who believes that China's modern accounting education conditions and observations indicate that China's accounting education programs are highly regulated. Teaching and assessment methods are inadequate and rely on teacher-centered approaches that encourage rote learning and plagiarism. Education reform is underway gradually, but underlying administrative and curriculum management problems reflect a lack of willingness to change in the short term. This poses significant challenges for centralized university business curriculum in China, and when these challenges are combined with unique administrative practices and cultural differences, they are matters of concern for educational researchers and practitioners. The current accounting courses are not able to deliver the talents that society needs, which is similar to the view of Zhang and Zhang (2023). Zhang and Zhang (2023) believe that there is a need for reform of higher vocational accounting practice courses in the context of financial shared service centers.

### 1.2 Analysis based on student digital literacy scale

Through the analysis of the digital literacy scale survey results of accounting

students in Ningxia Vocational College of Finance and Economics, it was found that students' performance in digital literacy is generally below the standard and they lack basic understanding and application capabilities of digital technology. This is consistent with Berikol and Killi (2020). Berikol and Killi (2020) stated that in the assessment of digital literacy, students' overall performance failed to meet the expected standards, reflecting their obvious deficiencies in understanding and applying digital technologies. This lack of basic knowledge and skills about digital tools and resources may affect their ability to adapt in a digital environment. Researchers also found that students lack understanding and operational skills of the digital world, indicating the need to strengthen the cultivation of digital literacy in the education process. This deficiency may limit their ability to adapt to a digital society and advance professionally.

Therefore, it is crucial to strengthen digital literacy education and improve students' digital skills and sense of responsibility. This is consistent with Davison et al. (2024). Davison et al. (2024) believes that in the deep transformation of education, skillfully guiding students to master digital technologies and shaping their sense of digital responsibility has gradually emerged as a delicate and critical task. By quietly enhancing students' understanding and application capabilities of the digital world, we not only equip them with the necessary tools to face future digital challenges, but also subtly cultivate them to become responsible digital citizens. Therefore, integrating digital literacy education and skills improvement into the core of teaching strategies becomes a self-evident and critical step in shaping students' comprehensive development and future success.

Researchers believe that by implementing effective educational strategies and enhancing practical applications, students' digital literacy can be significantly improved and lay the foundation for their success in the digital age. This is consistent with Agostino et al. (2021). Agostino et al. (2021) stated that through carefully conceived and implemented teaching strategies, along with the continuous enhancement of skill application in practical scenarios, students' perception and operational proficiency in the digital field can be gradually promoted. This method not only enriches students' knowledge system at the theoretical level, but also effectively strengthens and consolidates their digital literacy with the help of

application practice in real environments, thus showing significant improvement in practical operations.

2. Research and develop accounting courses to improve students' professional skills and digital literacy

### 2.1 Teachers' research results on accounting courses

According to the survey and analysis of accounting teachers in Ningxia, important viewpoints include:

1. Students' performance in mastering course knowledge varies, and some teachers observe that students have limited mastery of knowledge. This may be due to the diversity of student backgrounds or differences in teaching methods. The research results are consistent with the concepts of Samkin and Francis (2008). Samkin and Francis (2008) believe that students' backgrounds, including their culture, language, family environment, previous educational experiences, etc., have a profound impact on their learning abilities and methods. For example, students who have more academic support at home may perform better academically.

On the other hand, language barriers or cultural differences may make it challenging for some students to understand and apply new knowledge. In addition, previous educational experience may also affect students' ability to receive and process new knowledge. The researchers are also consistent with the concept of Jue and Jianhua (2019), who believe that teaching methods also play a decisive role in students' learning effectiveness. Student-centered teaching methods, such as project-based learning, cooperative learning, and problem-solving methods, may be more effective in stimulating students' active learning and critical thinking skills. In contrast, traditional lecture-based teaching may not be suitable for all types of learners, especially those who require more interaction and practical application to understand complex concepts.

Faced with the diversity of students' backgrounds and learning styles, teachers need to adopt flexible educational strategies. This may include using a variety of teaching methods to meet the needs of different students, providing personalized learning plans, or enhancing the learning experience through technology and collaboration tools. In addition, educators also need to have a deep understanding of their students' backgrounds in order to better support their learning process.

2. Teachers generally believe that digital literacy is critical to students' professional development, underscoring the current emphasis on digital skills and understanding in accounting education. The researcher's findings are consistent with the concept of Van Laar et al. (2017). Van Laar et al. (2017) believes that the accounting industry is undergoing rapid digital transformation, involving a shift from traditional accounting practices to more technology-dependent operations. This shift requires accounting professionals to not only master traditional accounting skills but also be proficient in using various digital tools and platforms. Therefore, digital literacy has become an essential skill for accounting professionals.

At the same time, the researcher's results are also consistent with the concept of Möller et al. (2020). Möller et al. (2020) believe that given the importance of digital literacy, accounting education needs to adapt to this change and strengthen students' digital skills by adjusting educational strategies and course design. This may include incorporating more practical technical training into the curriculum, such as using accounting software and data analysis tools and understanding digital financial reporting.

3. Teachers have a positive attitude towards improving students' accounting skills and digital literacy, and believe that accounting teachers should be responsible for teaching relevant courses, emphasizing the importance of integrating professional skills with digital technology. This is consistent with Sony (2021). Sony (2021) stated that accounting is a field that requires highly specialized knowledge and skills, requiring students to master core concepts such as financial statement analysis, cost calculation, and tax planning. Teachers are tasked with imparting this knowledge and developing students' accounting skills so that they can process financial data, prepare reports and provide financial advice. Only through systematic training can students be competent in various accounting jobs in their future careers.

## 2.2 Researchers discuss the results of interviews with experts

Summarizing what the expert interviews revealed, the following key trends emerge:

1. Accounting education needs to go beyond traditional theoretical teaching and focus more on practical and technology-driven methods to adapt to the rapidly changing digital business environment. This view is consistent with the view of

Kharbat and Muqattash (2020).

Kharbat and Muqattash (2020) believe that the current digital business environment requires accounting education to move away from the traditional theoretical teaching model and pay more attention to practical and technology-driven methods. This transformation aims to cultivate accounting professionals with comprehensive literacy, who not only have a solid theoretical foundation, but also have the ability to operate and apply digital technology. The future of accounting education will emphasize students' practical experience in real business environments and closely follow technology trends. Digital literacy and technical skills can be developed to better adapt to the rapidly changing digital business environment and provide enterprises with more valuable financial and strategic support. This shift is critical to educating future accounting professionals.

2. The importance of business case studies is introduced in the new course, which helps students apply theoretical knowledge in practical situations and improve analysis, critical thinking and teamwork skills. This view is consistent with Humphrey and Beard (2014). Humphrey and Beard (2014) believe that business case studies have profound educational significance. This approach combines theoretical knowledge with real-life business situations, providing students with valuable opportunities to apply the theories they learn in real-world settings and develop analytical, critical thinking, and teamwork skills. Business case studies require students to delve into complex business issues, prompting them to develop problem-solving skills and innovative thinking.

3. In terms of digital literacy, accounting education must include the cultivation of data analysis skills to cope with the development of big data and artificial intelligence technology and improve accountants' data processing and analysis capabilities. This is consistent with the view of Gulin et al. (2019). Gulin et al. (2019) pointed out that accountants not only need to process traditional financial data, but also need to be able to understand and analyze large amounts of unstructured data from various channels, such as social media data, market trend data, etc. This requires accounting professional education to not only cover basic accounting knowledge, but

also include the cultivation of skills such as data mining and data analysis.

Also similar to Kharbat and Muqattash (2020). Kharbat and Muqattash (2020) believe that the application of technologies such as artificial intelligence and machine learning is changing the way the accounting industry works. Accountants can devote more energy to more complex and higher-value analysis work.

Educational institutions are actively responding to these changes by providing students with necessary technical resources, including advanced teaching software, access to real-time industry data, and opportunities to interact with industry experts, to ensure that students are able to meet the challenges of the future business environment.

This view is consistent with Humphrey and Beard (2014). Humphrey and Beard (2014) believe that software can simulate real business environments, allowing students to be exposed to and familiar with accounting and data analysis tools widely used in the market during their studies. Through this practice, students can better understand the application of theoretical knowledge in practical work, while cultivating their ability to use these tools for data analysis and problem solving. The researcher's views are also consistent with those of Sony (2021). Sony (2021) stated that by inviting industry experts to give lectures, seminars or participate in courses as visiting professors, students can gain valuable insights and experience sharing directly from industry leaders. This interaction not only enhances students' understanding of the industry but also helps them build valuable professional networks.

### 2.3 Course outline constructed through focus groups

Experts have developed a new syllabus for accounting courses aimed at improving students' professional skills and digital literacy. This reform is based on core points raised by experts in interviews.

The course outline includes: 1. Basic introduction to the course 2. Objectives of the course 3. Course arrangement 4. Teaching methods 5. Examination measurement 6. Learning suggestions

Among the course objectives, 1) the combination of theory and practice is emphasized, which is consistent with the concept of Munfaredi et al. (2022). Munfaredi et al. (2022) stated that by combining basic theoretical knowledge of accounting and finance with case studies, simulation exercises, and internship

opportunities. Not only does it enable students to apply these theories in real-world situations, it also helps them better understand complex financial concepts and develop the ability to solve real-world problems.

The application of digital technology, this is consistent with Whitelaw et al. (2020). Whitelaw et al. (2020) believe that digital technology has significantly improved operational efficiency, reduced manual tasks and automated processes. This development enables businesses to handle various tasks more quickly and accurately, thereby increasing productivity and reducing costs. Enterprises can use data insights to guide strategic decisions and optimize products and services to meet changing market needs. This data-driven approach helps improve competitiveness and creates more opportunities for businesses.

The importance of ethical and moral education, which is consistent with Mathews (2001) concepts. Mathews (2001) stated that accounting professionals must adhere to strict ethical standards and legal requirements when handling financial data and information...Understand and be able to follow relevant professional codes of ethics. This is not only for their personal professional development, but also to protect the public interest and maintain the integrity of the industry.

The new curriculum includes Accounting skills: 1) Accounting and reporting, a concept consistent with Woodbine (2007). Woodbine (2007) stated that students learn how to accurately record and classify economic activities and understand and analyze key information in financial reports, such as assets, liabilities, and income. Through this study, students will be able to master how to prepare and interpret financial reports, which is essential for evaluating a company's financial position and operating results. Such abilities are fundamental for accounting professionals and key to their continued development and success in their careers.

2) Tax management, this concept is consistent with the concept of Ezzamel et al. (2007). Ezzamel et al. (2007) stated that tax law provisions should be rationally used to adjust financial decisions and business operations to reduce tax expenditures. This is extremely critical in accounting as it directly affects the profitability and financial health of the business. Good tax management not only helps companies avoid taxes legally, but also enhances their competitiveness in the market. It also provides accounting professionals with opportunities to demonstrate professional skills and

create value.

3) Cost and Management Accounting researchers are consistent with Agugom and Ajayi (2020). Agugom and Ajayi (2020) stated that cost accounting pays special attention to the calculation and control of costs in the production and operation process of enterprises, helping enterprises to optimize cost structures and improve profitability. Management accounting focuses more on providing customized financial reporting and analysis required for internal decision-making, such as budgeting, financial forecasting, and performance evaluation.

4) The concept of Internal Control Audit is consistent with the concept of Woodbine (2007). Woodbine (2007) stated that Internal Control Audit is a key link to ensure the accuracy of corporate financial reports and operational efficiency. It involves the evaluation and examination of an enterprise's internal control system, aiming to identify and mitigate risks, protect assets, and ensure the authenticity and compliance of financial information. These four main aspects.

Digital literacy includes 3 aspects, 1) case studies, simulation projects and practical operations. This is consistent with Duan (2021). Duan (2021) said that the practice-oriented teaching method enables students to apply digital technologies in a real-life business environment through case studies, simulation projects, and practical operations. Through this “learning to apply” approach, students can better master the use of digital tools, understand the importance of data analysis in accounting decision-making, and develop the ability to adapt to the rapidly changing digital environment. A simulated accounting project can be designed that requires students to use digital tools to process financial data, prepare reports, and conduct data analysis.

2) Use advanced data analysis software. This is consistent with the concept of Fahrurrozi et al. (2020). Fahrurrozi et al. (2020) believe that training to strengthen data analysis skills includes teaching students how to use various data analysis tools. Such as Excel (including advanced functions such as pivot tables, VLOOKUP, macros, etc.), SQL for database management and query, and data visualization software such as Tableau. Through these tools, students learn how to collect, process, and analyze large amounts of data, which is essential for modern accounting.

This is also consistent with the view of Gulin et al. (2019). Gulin et al. (2019) believe that students need to be taught how to effectively interpret and report analysis

results. This includes learning how to produce clear, persuasive charts and reports, and how to explain technical data to non-technical audiences such as management. This skill is important for accounting professionals, who often need to communicate complex data information to decision-makers.

Provide internship opportunities. This is consistent with Gulin et al. (2019). Gulin et al. (2019) believe that internships and interactions with industry experts provide students with valuable practical experience and industry insights. Through internships in companies, students are not only able to apply the knowledge learned in the classroom to real work, but also learn about the latest technologies and practices currently used in the industry. In addition, inviting experts in the accounting field to give lectures or seminars can enable students to understand the latest developments and challenges in the industry, such as emerging accounting software, digital trends, and industry demand for digital skills. This interaction not only expands students' professional networks but also sparks interest and enthusiasm for their future careers.

The course is divided into four cycles: observation, reaction, planning, and implementation. The research results are consistent with O'Leary's (2004, p. 141) model. O'Leary's (2004) believes that 1) Planning: In this stage, the researcher determines the purpose and objectives of the research and plans the method of action research. 2) Action: Implement specific actions or interventions according to the plan. 3) Observation: During the action, observations and data collection are conducted to evaluate the impact of the action. 4) Reflection: Based on the observation results, reflect and analyze the data to understand the effectiveness of the action and consider any adjustments that need to be made.

This cycle is iterative, meaning that each round of reflection and learning will influence the next round of plans and actions, forming a continuous improvement and learning process. In this way, individuals or teams are encouraged to learn and develop in practice, enabling them to respond more effectively to challenges and achieve goals.

### 3. Curriculum implementation and effect evaluation

#### 3.1 Improvement of students' professional skills after the implementation of new digital accounting courses

After the implementation of the new digital accounting course, students'

professional skills have been significantly improved compared with the 70% threshold. The course uses Taba's Teaching Strategy, ORPA cycle and Hilda Taba Course Development Mode. By comparing the initial test scores of experimental class A and control class B, the researcher confirmed the consistency of the starting points of accounting knowledge between the two classes, laying a fair foundation for the subsequent teaching experiment.

Follow-up research showed that after experiencing new courses focused on accounting professional abilities and digital literacy, students in the experimental class showed significant improvement in the final exam compared to the initial test. This improvement was verified by the Wilcoxon signed-rank test, and the low p-value of the test result further emphasized the positive effect of this kind of course on improving students' academic achievement.

This result is consistent with the research results of Gallagher (2012). He considers a variety of methods and techniques designed to help students develop and deepen their understanding of concepts through exploration, discussion, and collaborative learning. These strategies may involve organizing and classifying information, identifying patterns and relationships, and thinking through problems from multiple perspectives. And it is consistent with the research results of Portillo et al. (2020). The study by Portillo et al. (2020) adopted the Hilda Hilda Taba Course Development Mode, which is essentially a student-centered teaching method. It emphasizes cooperation between teachers and students, as well as the gradual refinement and in-depth consideration of teaching content in the course development process, with a special focus on enhancing students' thinking and understanding abilities. By applying the Taba model to specific practice contexts, the research focuses on how this approach can improve the efficiency and usefulness of courses.

### 3.2 Improvement of students' digital literacy after the implementation of new digital accounting courses

The survey evaluated the teaching effect of the new course through the Wilcoxon signed-rank test, and the results strongly showed that the new course was significantly effective in improving students' digital literacy, with students' performance at the end of the course generally better than at the beginning of the course. The statistical significance of the test results further emphasizes the importance of this improvement,

pointing out that the new curriculum plays a key role in enhancing students' digital literacy.

The improvement of accounting students' digital literacy is achieved through the following methods: 1) Integrating digital technology into the curriculum and incorporating the use of digital technology in accounting courses. Such as accounting software, cloud computing platforms and data analysis tools to familiarize students with the application of these tools in real work. This view is consistent with Berikol and Killi (2020). Berikol and Killi (2020) believe that the application of digital technology should be carefully incorporated into teaching strategies to make it an integral part of accounting course content. The implementation of this strategy aims to enrich students' learning experience by integrating modern digital tools and software and to enhance their understanding of and adaptability to digital accounting practices while cultivating their professional skills.

2) By studying real accounting cases, students can understand the role of digital technology in dealing with complex financial issues and enhance their practical capabilities. This view is consistent with Gulin et al. (2019). Gulin et al. (2019) stated that analyzing real-world accounting cases can provide a deep understanding of the key role of digital technology in solving financial problems. This method not only improves the mastery of theoretical knowledge, but also enhances the ability to solve real financial problems. . Students gain practical experience in understanding complex financial structures and data processing, thereby comprehensively improving their professional skills.

3) Emphasize data analysis skills and teach students how to use digital tools for data analysis, such as using Excel and professional accounting software to analyze financial data and develop their data insights.

4) Use online and distance learning resources to encourage students to take advantage of online courses and resources to learn the latest accounting technology and digital tools to keep their skills up to date. This view is consistent with Kharbat and Muqattash (2020). Kharbat and Muqattash (2020) stated that actively participating in online courses and utilizing various digital learning tools can ensure that their mastery of the latest accounting technologies and digital operations are always at the forefront of the industry, thereby remaining competitive in the

ever-changing professional environment.

#### 4. Students Rate New Accounting Course

##### 4.1 School course evaluation feedback

The evaluation form covers 10 evaluation indicators in five aspects such as teaching content, methods, attitudes, and effects, and each indicator is divided into five levels. Students rated the courses on a scale of 1 to 5, with an average score of 80.13 (out of 100). This assessment method is consistent with Hong and Liping (2022). Hong and Liping (2022) stated that the evaluation model is a comprehensive evaluation method based on grade scoring, which is usually used in education and teaching evaluation. In this model, the evaluation indicators are set as specific teaching content, methods, attitudes, effects, etc., and each indicator has a preset score level. In the field of education, comprehensive evaluation models are used to evaluate course quality, teaching effects, student satisfaction, etc. It helps educators and managers understand the actual effects of courses and guide future teaching and course design.

##### 4.2 Sample interviews with 30 students

In order to gain a deeper understanding of students' perceptions and experiences of a course, we used qualitative research methods and randomly sampled 30 students for face-to-face or virtual interviews. During the interviews, we focused on students' perceptions of course content, teaching methods, classroom interactions, course resources, and overall satisfaction. The interviews were conducted in a semi-structured format, allowing students to freely express their thoughts and feelings while ensuring that key issues of the study were addressed. Interview results will be used to evaluate the effectiveness of the course and provide guidance for future course improvements.

This is consistent with the concept of Tang and Carr - Chellman (2016). Tang and Carr-Chellman (2016) believe that the summary of course evaluation usually comprehensively considers multiple aspects such as teaching content, methods, resources and student feedback. This includes assessing the relevance and depth of course content, whether teaching methods promote active student engagement, the quality and suitability of teaching resources, and overall student engagement and satisfaction.

## Suggestion

The evaluation results show that although the implementation of the new curriculum has promoted a general improvement in student performance, it shows that it is of great significance. However, students' evaluations of teaching methods, classroom effects, and the systematicness and comprehensiveness of teaching training are relatively low. This implies that the course still needs to be improved in aspects such as textbook selection, teaching methods, classroom interaction, and guidance and support for students' learning process. In order to improve teaching methods, classroom effects and the quality of teaching training, the following measures can be taken:

First of all, in terms of teaching methods, classroom effects, and teaching training, it is recommended that more innovative and diversified teaching methods be adopted. By combining online and offline hybrid teaching models, we can better adapt to the learning styles of different students. In addition, the introduction of interactive teaching methods such as group discussions, role plays, and case studies can not only increase student participation, but also enhance the fun and practicality of learning. At the same time, the use of technical tools such as interactive whiteboards and teaching software can effectively enhance the interactivity of the classroom and increase students' learning motivation.

Secondly, in order to improve the classroom effect, it is recommended to update the course content regularly to ensure that it reflects the latest accounting standards, regulatory changes and industry trends. This approach helps keep course content current and relevant, allowing students to stay up to date and adapt to the latest trends in the industry. At the same time, balancing theoretical teaching and the cultivation of practical skills is the key to improving course quality. In addition, by using vivid cases and actual data, classroom lectures can be made more vivid and closer to reality, thereby enhancing students' learning interest and application ability.

Furthermore, for systematic and comprehensive teaching training, a comprehensive teaching plan should be designed, covering all aspects from theoretical learning to practical operations to critical thinking training. The implementation of simulation practice and project-based learning enables students to apply the knowledge they have learned in situations similar to real work environments,

which not only improves their professional skills but also enhances their ability to solve practical problems. Regularly evaluate and adjust teaching content and methods to ensure continuous improvement and efficiency of teaching activities.

Finally, it is crucial to strengthen guidance and support for students' learning process. Providing customized learning support, such as one-on-one tutoring, study groups and rich online resources, can help students better understand course content and solve problems encountered in learning. Establishing an effective feedback mechanism, such as regular homework, tests, and course feedback, can enable students to understand their learning progress and room for improvement in a timely manner. At the same time, encouraging students to learn independently and develop their self-learning ability and critical thinking is the key to cultivating their lifelong learning ability and adapting to future career challenges.

In addition, in order to make the course more practical and add real industry elements, the following improvement measures are recommended:

First of all, integrating real industry cases into the course is an effective way to improve its practicality. By analyzing the financial reports of famous companies and discussing specific accounting events or tax planning cases, students can gain an in-depth understanding of the application of theoretical knowledge in practical work. This approach not only increases the practicality of the course, but also improves students' ability to analyze and solve complex financial problems.

Secondly, regularly inviting professionals from the accounting, auditing or tax fields as guest lecturers can provide students with valuable industry experience and insights. This kind of expert lecture not only provide students with the latest industry trends, but also provides guidance and inspiration for their career development.

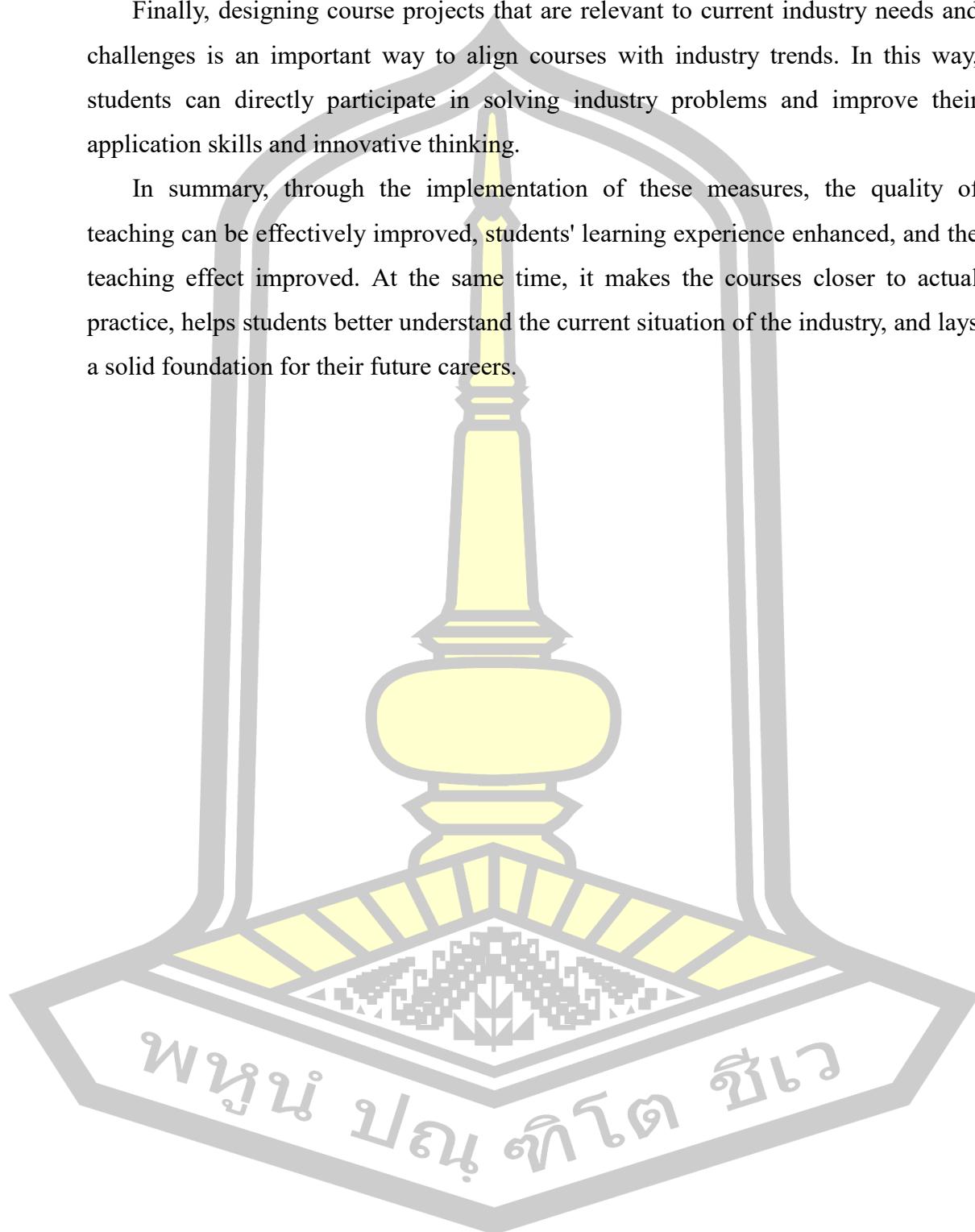
Furthermore, implementing simulated practical activities, such as designing simulated accounting projects, to allow students to apply the knowledge they have learned in a simulated business environment is an important method to improve students' practical ability. Through these activities, students can learn and make mistakes in a safe environment, making them more comfortable in practical work.

In addition, cooperating with enterprises to provide students with internship opportunities is another effective way to improve the practicality of courses. Internship experience can help students combine classroom knowledge with practical

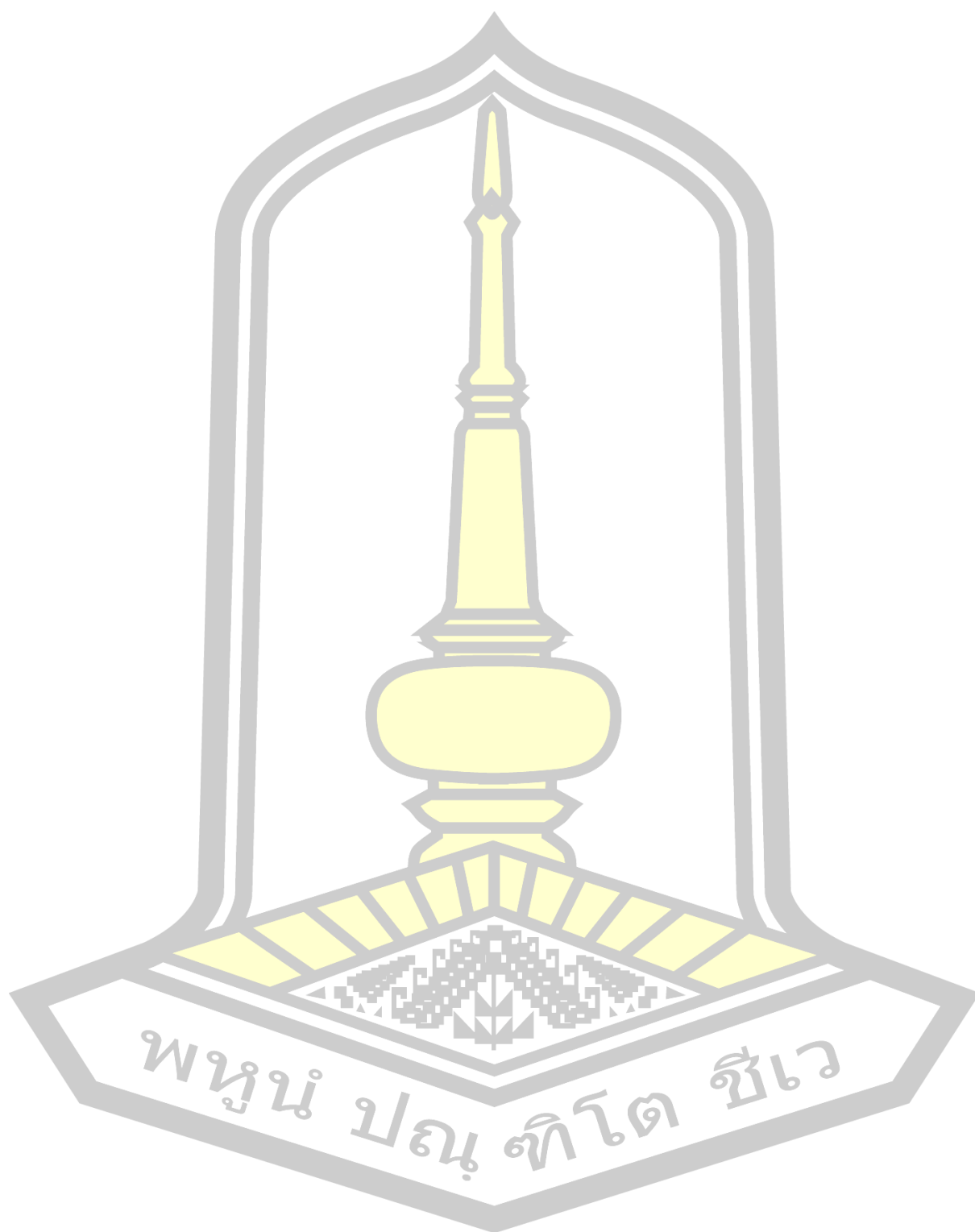
work and enhance their professional skills and practical application capabilities.

Finally, designing course projects that are relevant to current industry needs and challenges is an important way to align courses with industry trends. In this way, students can directly participate in solving industry problems and improve their application skills and innovative thinking.

In summary, through the implementation of these measures, the quality of teaching can be effectively improved, students' learning experience enhanced, and the teaching effect improved. At the same time, it makes the courses closer to actual practice, helps students better understand the current situation of the industry, and lays a solid foundation for their future careers.



Appendix





### Appendix A

List of experts checking the quality of research tools, list of discussion meeting participants

Group (Focus Group Discussion) List of participants in the teacher research presentation activity

List of accounting teachers who participated in the interview survey

### List of experts checking the quality of research tools

- |                            |   |
|----------------------------|---|
| 1. Professor Zhou Jiansong | expert in the field of accounting economics     |
| 2. Professor Zhao Lisheng  | expert in the field of education courses        |
| 3. Professor Dong Jingyuan | expert in the field of accounting and economics |
| 4. Professor Gao Cuilian   | expert in the field of educational curriculum   |
| 5. Professor Pan Shangyong | expert in the field of education courses        |

### List of participants in the Focus Group Discussion meeting

1. Professor Zhou Jiansong, Chairman of the Vocational and Technical Education Branch of the China Higher Education Association, Zhejiang Finance Vocational College, Outstanding Principal of China's Vocational Education.
2. Professor Zhao Lisheng is a master's tutor at Taiyuan University of Technology and Shanxi University of Finance and Economics. He enjoys special allowances from the State Council and was the president of Shanxi Finance and Taxation College.
3. Professor Dong Jingyuan, Director of the Academic Affairs Department of Shanxi College of Finance and Taxation, and Master Tutor of Taiyuan University of Technology.
4. Professor Gao Cuilian is the dean of the Accounting College of Shanxi Finance and Taxation College, a master's tutor at Taiyuan University of Technology, and a famous teacher in the National "Ten Thousand People Plan".
5. Professor Pan Shangyong, director of the Financial Accounting Department and Secretary of the Party Branch of Zhejiang Vocational and Technical College of Economics and Trade, has been in the industry for more than 30 years.
6. Professor Wu Xiaoli, master of management, tax accountant, high-end accounting talent in Ningxia, deputy director of the accounting department.
7. Liang Bingfeng, deputy secretary of the Party Branch of the Accounting Department, associate professor, senior accountant, and high-end accounting talent in Ningxia.
8. Wang Chunfang, deputy director and associate professor of the Department of Economics and Trade, is a high-end accounting talent in Ningxia.
9. Ma Huijun, associate professor in the Department of Accounting, senior accountant, and high-end accounting talent in Ningxia.

10. Wang Baojun, senior accountant, is a high-end accounting talent in Ningxia. He graduated from Dongbei University of Finance and Economics in 1995.

11. Yu Xingbo, associate professor in the Department of Accounting, senior accountant, Ningxia's first batch of high-end accounting talents, and famous teaching teacher in the autonomous region.

12. Wang Chunfang, associate professor, graduated from Nanjing University of Finance and Economics and is a visiting scholar at Western Sydney University in Australia.

#### List of interview experts

1) Professor Zhou Jiansong, Chairman of the Vocational and Technical Education Branch of the China Higher Education Society, Zhejiang Finance Vocational College, Outstanding Principal of China's Vocational Education.

2) Professor Zhao Lisheng, a master's tutor at Taiyuan University of Technology and Shanxi University of Finance and Economics, enjoys special allowances from the State Council, and was the president of Shanxi Provincial Finance and Taxation College.

3) Professor Dong Jingyuan, Director of the Academic Affairs Department of Shanxi Finance and Taxation College, and Master Tutor of Taiyuan University of Technology.

4) Professor Gao Cuilian, dean of the Accounting College of Shanxi Finance and Taxation College, master's tutor at Taiyuan University of Technology, and famous teacher in the National "Ten Thousand Thousand People Plan".

5) Professor Pan Shangyong, Director of the Financial Accounting Department and Secretary of the Party Branch of Zhejiang Vocational and Technical College of Economics and Trade, with more than 30 years of experience.

6) Professor Wu Xiaoli, master of management, tax accountant, high-end accounting talent in Ningxia, deputy director of the accounting department.

7) Liang Bingfeng, deputy secretary of the Party Branch of the Accounting Department, associate professor, senior accountant, and high-end accounting talent in

Ningxia.

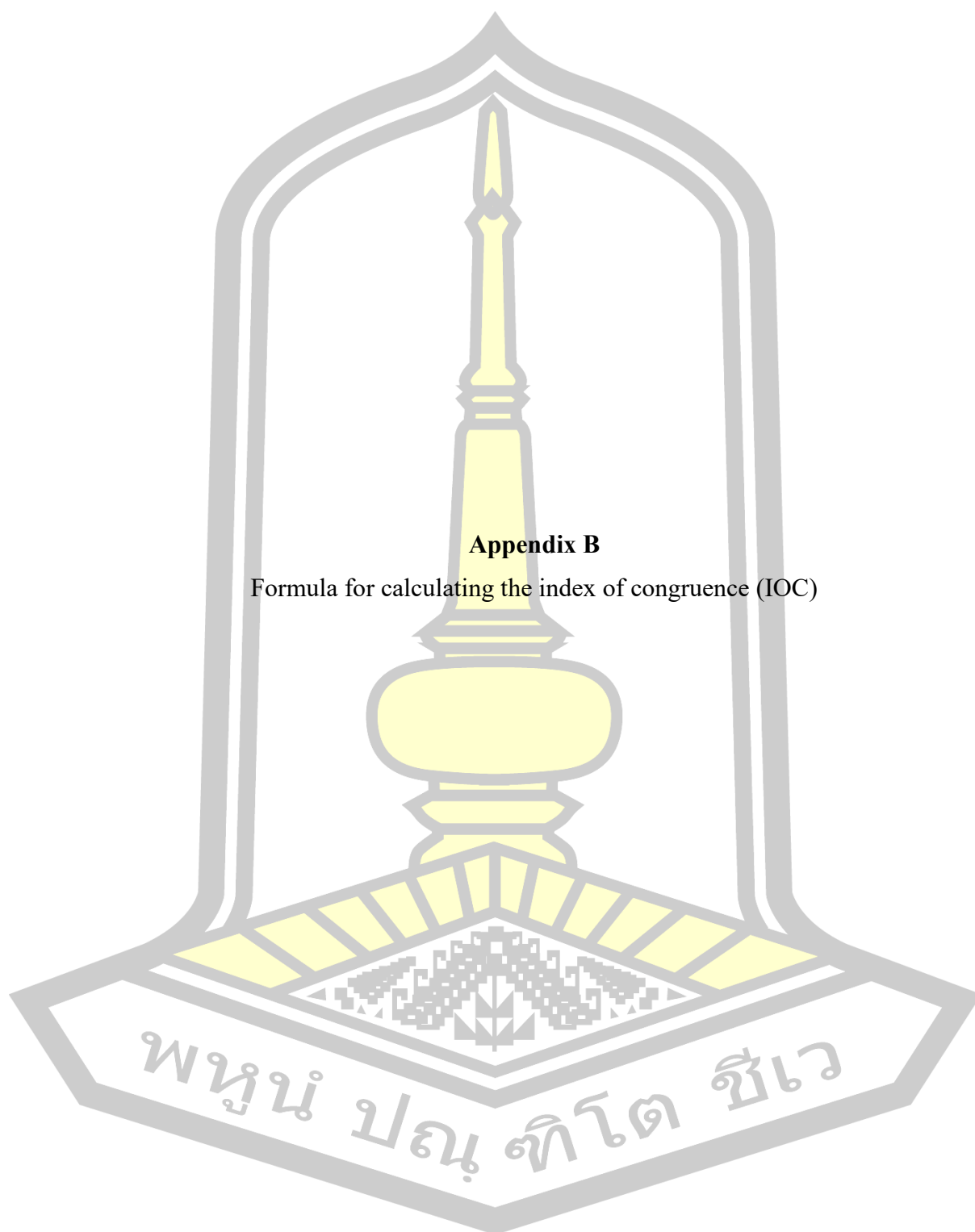
8) Wang Chunfang, deputy director and associate professor of the Department of Economics and Trade, is a high-end accounting talent in Ningxia.

List of accounting teachers who participated in the interview survey  
Questionnaire survey list of accounting teachers in Ningxia:

1. Lu Qingshan Professor Senior Accountant Ningxia University School of Economics and Management
2. Qiu Juandong Associate Professor Master Tutor Ningxia University School of Economics and Management
3. Chen Qinghua Associate Professor Ningxia University School of Economics and Management
4. Cui Liu Professor Ningxia University School of Economics and Management
5. Chen Junmei Associate Professor Ningxia University School of Economics and Management
6. Chen Hongzhi Associate Professor Ningxia University School of Economics and Management
7. Ji Lifang Professor Ningxia University School of Economics and Management
8. Dong Mei Professor Master Tutor Ningxia University School of Economics and Management
9. Daigan Lecturer Ningxia Vocational College of Finance and Economics
10. Duan Ruijuan Professor Ningxia University School of Economics and Management
11. Dong Xiaofang Professor Ningxia University School of Economics and Management
12. Fu Sen Ningxia Vocational College of Finance and Economics
13. Feng Xiao Ningxia Vocational College of Finance and Economics
14. Fang Ziyuan Ningxia Vocational College of Finance and Economics
15. Ge Yunfei Ningxia Vocational College of Finance and Economics
16. Wang Yang Associate Professor Ningxia University School of Economics and Management
17. Lu Xiaoming Professor Ningxia Vocational College of Finance and Economics

18. Zhou Lei Associate Professor Ningxia University School of Economics and Management
19. Zhang Bo Lecturer Ningxia Vocational College of Finance and Economics
20. Li Qiuyu Associate Professor Ningxia University School of Economics and Management
21. Gao Yang Professor Ningxia University School of Economics and Management
22. Zhao Xiaodong Associate Professor Ningxia Vocational College of Finance and Economics
23. He Wei Professor Ningxia Vocational College of Finance and Economics
24. Liu Jie Associate Professor Ningxia University School of Economics and Management
25. Wang Chen Professor Ningxia University School of Economics and Management
26. Ma Jing Professor Ningxia Vocational College of Finance and Economics
27. Sun Yan Associate Professor Ningxia University School of Economics and Management
28. Chen Meng Associate Professor Ningxia University School of Economics and Management
29. Yang Fan Lecturer Ningxia Vocational College of Finance and Economics
30. Wu Lei Lecturer Ningxia Vocational College of Finance and Economics
31. Hu Bin Lecturer Ningxia Vocational College of Finance and Economics
32. Zhou Lin Lecturer Ningxia Vocational College of Finance and Economics
33. Zhu Lina Lecturer Ningxia University School of Economics and Management
34. Liu Lei Associate Professor Ningxia University School of Economics and Management
35. Zhang Wei Professor Ningxia Vocational College of Finance and Economics
36. Zhao Hong Associate Professor Ningxia Vocational College of Finance and Economics
37. Li Qiang Lecturer Ningxia Vocational College of Finance and Economics
38. Wang Xiaodong Associate Professor Ningxia University School of Economics and Management
39. Sun Mei Professor Ningxia University School of Economics and Management
40. Li Yan Lecturer Ningxia Vocational College of Finance and Economics

41. Zhao Bo Associate Professor Ningxia Vocational College of Finance and Economics
42. Han Xue Professor Ningxia Vocational College of Finance and Economics
43. Liu Hong Lecturer Ningxia Vocational College of Finance and Economics
44. Chen Wei Associate Professor Ningxia Vocational College of Finance and Economics
45. Li Hua Lecturer Gansu Vocational College of Finance and Trade
46. Zhang Min Associate Professor Gansu Vocational College of Finance and Trade
47. Wang Lei Professor Gansu Vocational College of Finance and Trade
48. Liu Yang Lecturer Gansu Vocational College of Finance and Trade
49. Zhao Jing Associate Professor Gansu Vocational College of Finance and Trade
50. Chen Li Professor Lanzhou Business School
51. Yang Fan Associate Professor Lanzhou Business School
52. Guo Qiang Lecturer Lanzhou Business School
53. Sun Xiaoming Associate Professor Lanzhou Business School
54. Jia Li Lecturer Lanzhou Business School
55. He Lei Associate Professor Lanzhou Business School
56. Liu Fang Professor Lanzhou Business School
57. Wang Xiaolong Lecturer Inner Mongolia Institute of Finance and Economics
58. Li Yan Associate Professor Inner Mongolia Institute of Finance and Economics
59. Zhang Wei Professor Inner Mongolia Institute of Finance and Economics
60. Zhou Tao Lecturer Ningxia Vocational College of Finance and Economics
61. Yang Jing Associate Professor Ningxia Vocational College of Finance and Economics
62. Professor Chen Lei Ningxia Vocational College of Finance and Economics
63. Wu Ping Lecturer Ningxia Vocational College of Finance and Economics
64. Zhang Hua Associate Professor Ningxia Vocational College of Finance and Economics



**Formula for calculating the index of congruence (IOC)**

$$IOC = \frac{\sum R}{N}$$

—IOC represents correspondence between a target and a test.

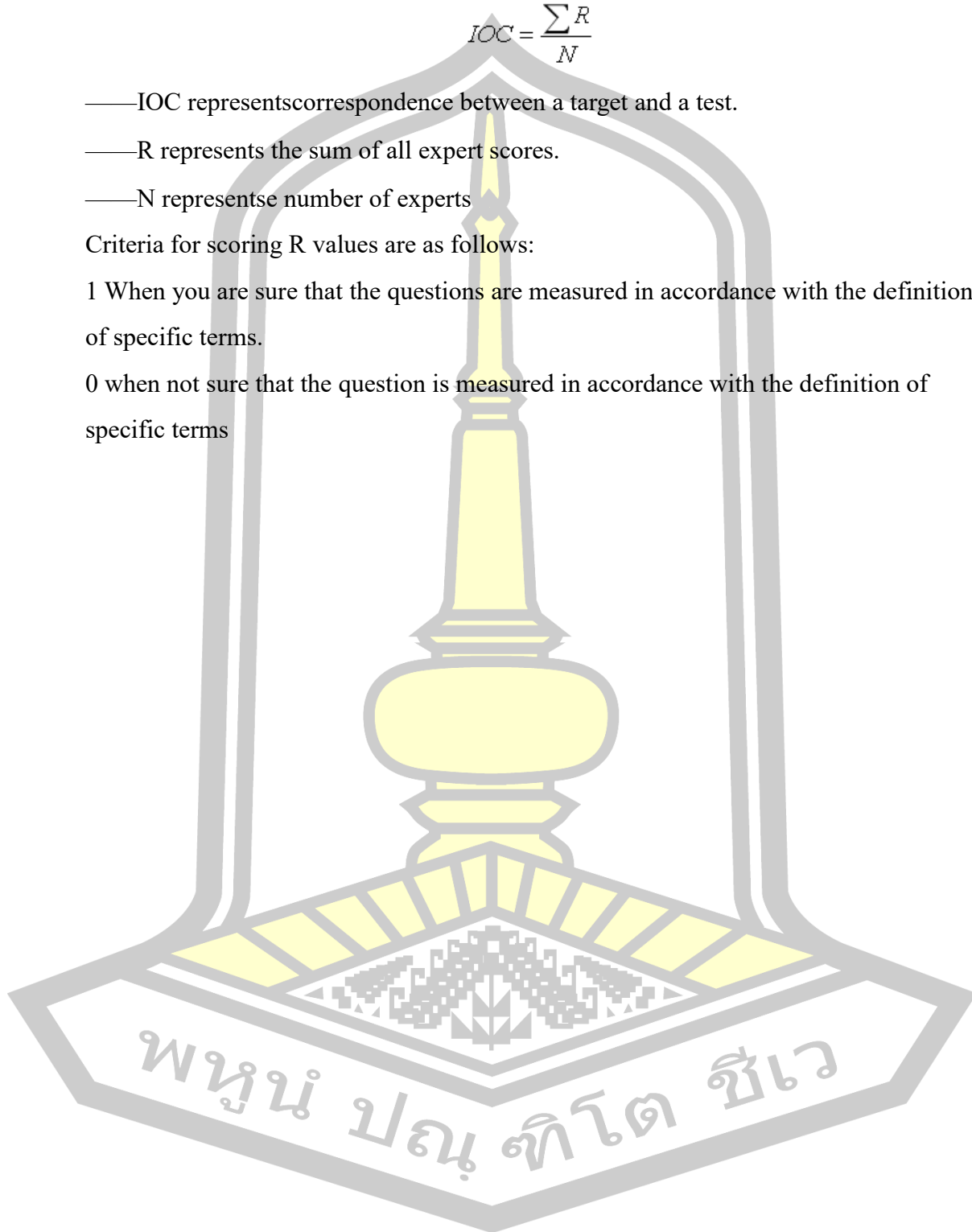
—R represents the sum of all expert scores.

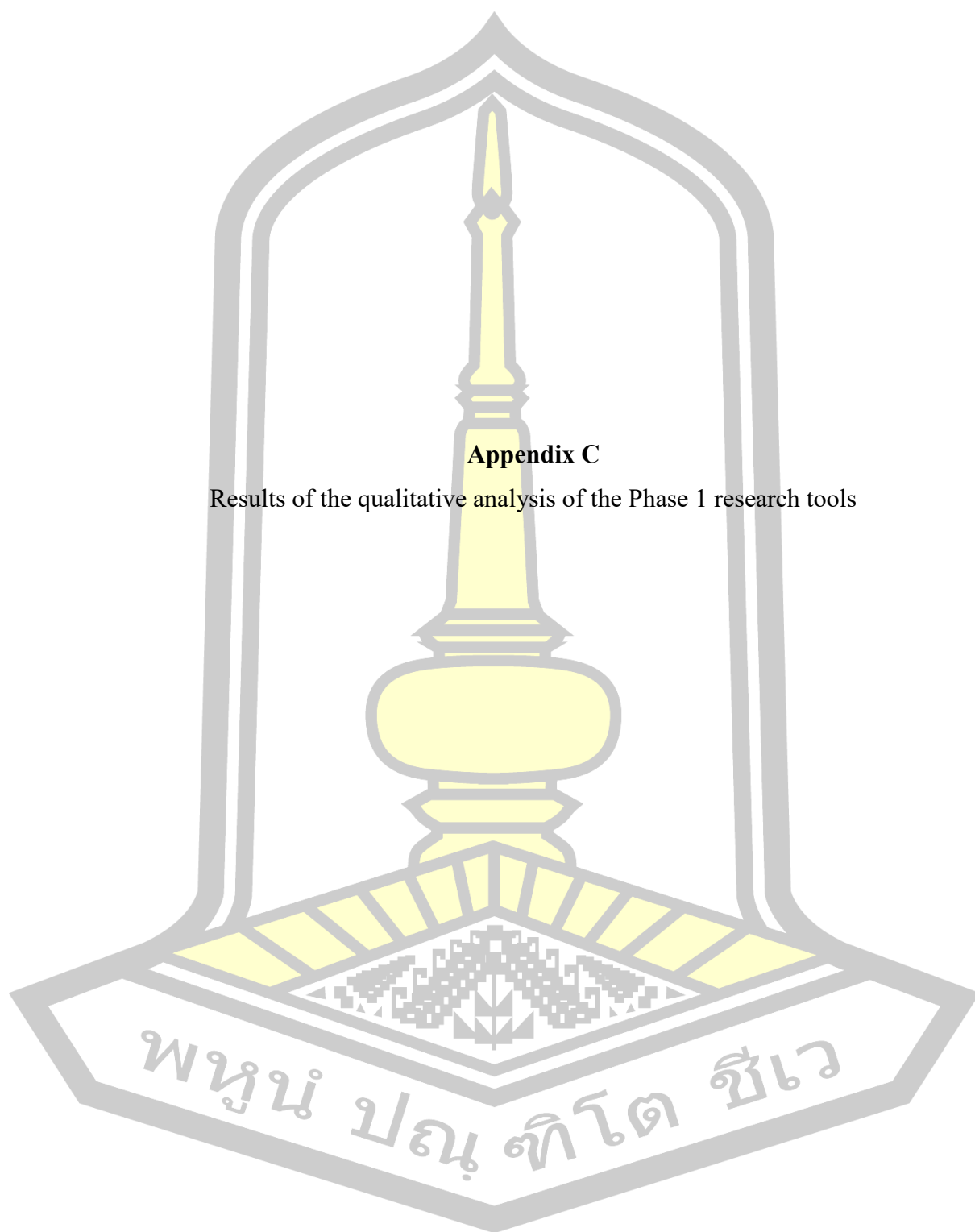
—N represents number of experts

Criteria for scoring R values are as follows:

1 When you are sure that the questions are measured in accordance with the definition of specific terms.

0 when not sure that the question is measured in accordance with the definition of specific terms





**Appendix C**

Results of the qualitative analysis of the Phase 1 research tools

Table 25 Study the results of content validity analysis of the accounting test  
Accounting and reporting

Question number	Expert rating					Total Score	Ave rage	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
Accounting and reporting								
1	1	1	0	1	1	4	0.8	choose
2	1	0	1	1	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	1	5	1	choose
6	1	1	0	1	1	4	0.8	choose
7	1	0	0	0	1	2	0.4	Cull
8	1	1	1	1	0	4	0.8	choose
9	0	0	0	1	1	2	0.4	Cull
10	0	1	1	1	1	4	0.8	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	0	1	4	0.8	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose

Note available  $0.5 \leq IOC \leq 1.00$



Table 26 Study the results of content validity analysis of the accounting test Tax management

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
Tax management								
1	1	1	0	1	1	4	0.8	choose
2	1	1	0	1	1	4	0.8	choose
3	1	1	1	0	1	4	0.8	choose
4	1	0	0	0	1	2	0.4	Cull
5	1	1	1	1	1	5	1	choose
6	1	1	1	1	1	5	1	choose
7	1	1	1	1	1	5	1	choose
8	1	1	0	1	1	4	0.8	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	1	1	1	1	1	5	1	choose
12	1	1	1	1	1	5	1	choose
13	0	1	1	1	1	4	0.8	choose

Note available  $0.5 \leq IOC \leq 1.00$



Table 27 Study the results of content validity analysis of the accounting test Cost and Management Accounting

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
Cost and Management Accounting								
1	1	1	1	1	1	5	1	choose
2	1	1	0	0	0	2	0.4	Cull
3	1	1	1	1	1	5	1	choose
4	1	1	1	1	1	5	1	choose
5	0	1	1	1	1	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	0	1	1	1	4	0.8	choose
9	0	1	1	1	1	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	0	1	0	0	0	1	0.2	Cull
13	1	1	1	0	1	4	0.8	choose
14	1	1	1	0	1	4	0.8	choose

Note available  $0.5 \leq IOC \leq 1.00$



Table 28 Study the results of content validity analysis of the accounting test Internal Control Audit

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
Internal Control Audit								
1	1	1	1	1	0	4	0.8	choose
2	1	1	1	1	1	5	1	choose
3	1	0	1	1	1	4	0.8	choose
4	1	0	0	0	1	2	0.4	Cull
5	1	1	1	1	0	4	0.8	choose
6	0	0	0	1	1	2	0.4	Cull
7	1	0	1	1	1	4	0.8	choose
8	1	1	0	1	1	4	0.8	choose
9	1	1	1	0	1	4	0.8	choose
10	1	0	1	1	1	4	0.8	choose
11	1	1	1	1	1	5	1	choose
12	1	1	1	1	1	5	1	choose
13	1	1	1	0	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose

Note available  $0.5 \leq IOC \leq 1.00$



Table 29 Expert Assessment of the Digital Literacy Student Scale

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
28	1	0	1	0	1	3	0.6	Cull

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
29	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
30	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
31	0	1	1	1	1	4	0.8	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
32	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
33	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
34	1	0	1	1	0	3	0.6	Cull

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
35	1	1	1	1	0	4	0.8	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
36	0	0	0	1	0	1	0.2	Cull

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
37	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
38	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
39	1	0	0	1	0	2	0.4	Cull

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
40	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
41	0	0	1	1	0	2	0.4	Cull

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
42	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
43	1	1	0	1	1	4	0.8	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
44	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
45	1	1	0	1	1	4	0.8	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
46	1	1	1	1	1	5	1	choose

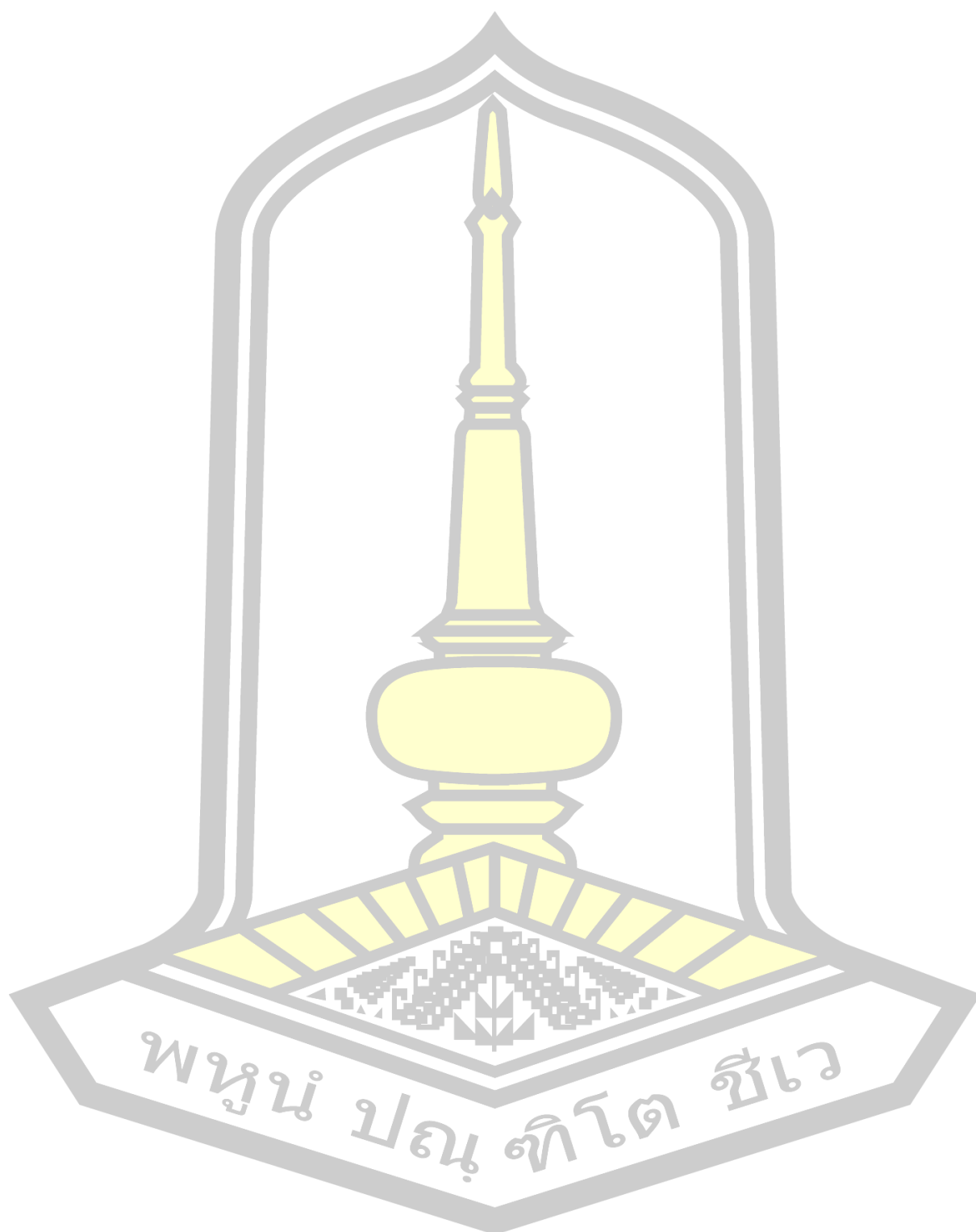
Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
47	1	0	1	0	1	3	0.6	Cull

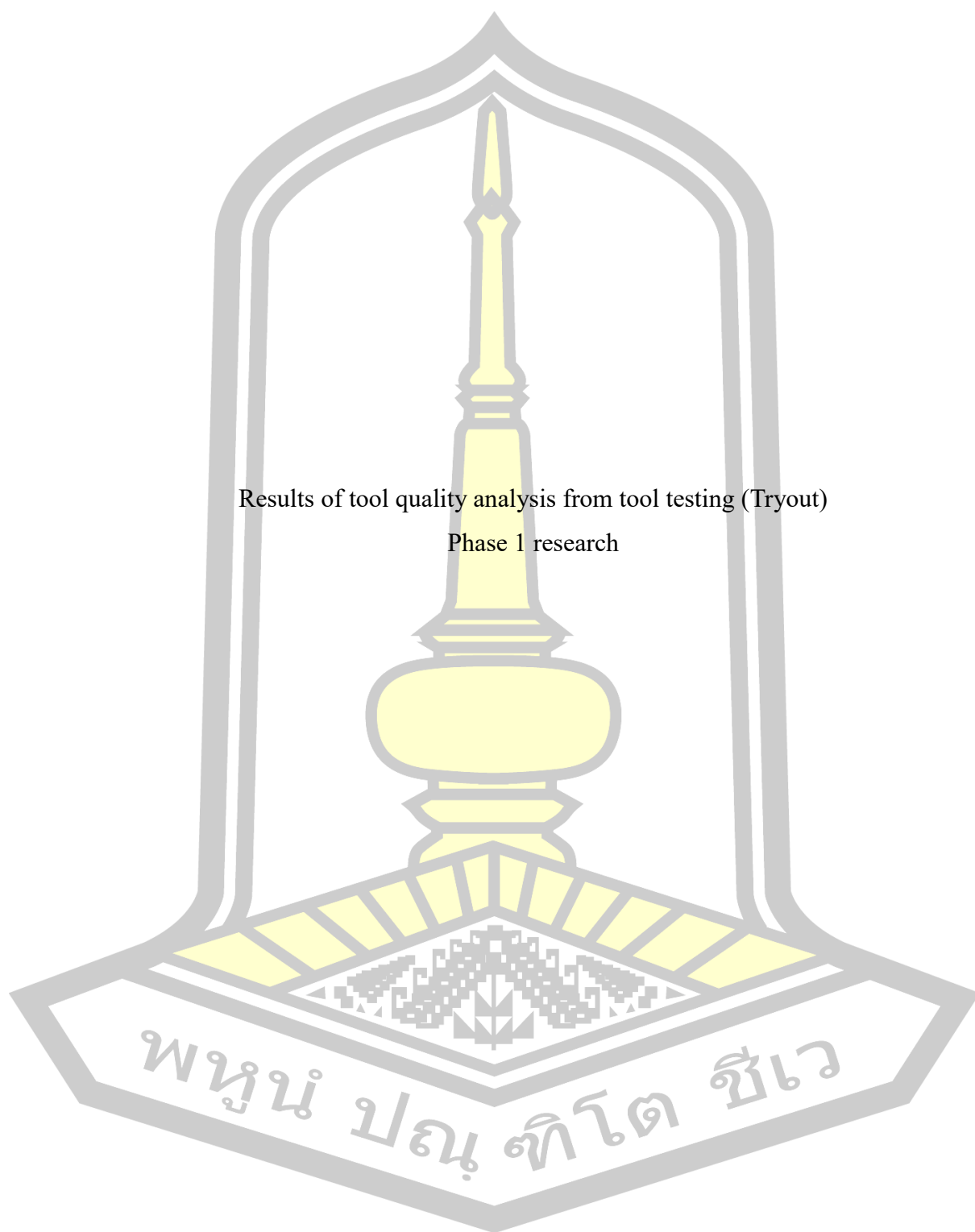
Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
48	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
49	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	0	1	4	0.8	choose
4	1	1	1	1	0	4	0.8	choose
5	1	1	1	1	1	5	1	choose
6	0	1	0	1	0	2	0.4	Cull
7	1	1	1	1	0	4	0.8	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	0	4	0.8	choose
11	1	0	1	1	0	3	0.6	Cull
12	1	1	0	1	0	3	0.6	Cull
13	1	1	1	1	0	4	0.8	choose
14	0	1	0	1	1	3	0.6	Cull
15	1	1	1	1	1	5	1	choose
16	1	1	1	1	1	5	1	choose
17	1	0	1	1	0	3	0.6	Cull
18	1	1	0	1	0	3	0.6	Cull
19	0	0	0	1	0	1	0.2	Cull
20	1	1	1	1	1	5	1	choose
21	1	1	1	1	1	5	1	choose
22	1	0	0	1	0	2	0.4	Cull
23	1	1	1	1	1	5	1	choose
24	0	0	1	1	0	2	0.4	Cull
25	1	1	1	1	1	5	1	choose
26	1	1	0	1	1	4	0.8	choose
27	1	1	1	1	1	5	1	choose
50	1	1	0	1	1	4	0.8	choose

Note available  $0.5 \leq \text{IOC} \leq 1.00$





Results of tool quality analysis from tool testing (Tryout)  
Phase 1 research

Table 30 Summary of the analysis results of the difficulty p and discrimination r of the accounting test

	H	L	F	p	r	it's usable or not
1	11	4	15	0.68	0.318181818	Can use
2	9	4	13	0.59	0.227272727	Can use
3	9	2	11	0.50	0.318181818	Can use
4	10	6	16	0.73	0.181818182	Can not use
5	11	4	15	0.68	0.318181818	Can use
6	9	0	9	0.41	0.409090909	Can use
7	7	2	9	0.41	0.227272727	Can use
8	9	3	12	0.55	0.272727273	Can use
9	10	5	15	0.68	0.227272727	Can use
10	10	5	15	0.68	0.227272727	Can use
11	9	2	11	0.50	0.318181818	Can use
12	9	2	11	0.50	0.318181818	Can use
13	10	5	15	0.68	0.227272727	Can use
14	8	3	11	0.50	0.227272727	Can use
15	8	2	10	0.45	0.272727273	Can use
16	8	2	10	0.45	0.272727273	Can use
17	8	1	9	0.41	0.318181818	Can use
18	7	2	9	0.41	0.227272727	Can use
19	10	3	13	0.59	0.318181818	Can use
20	9	3	12	0.55	0.272727273	Can use
21	10	5	15	0.68	0.227272727	Can use
22	10	3	13	0.59	0.318181818	Can use
23	10	2	12	0.55	0.363636364	Can use
24	9	2	11	0.50	0.318181818	Can use
25	9	3	12	0.55	0.272727273	Can use
26	8	2	10	0.45	0.272727273	Can use
27	8	3	11	0.50	0.227272727	Can use

	H	L	F	p	r	it's usable or not
1	11	4	15	0.68	0.318181818	Can use
2	9	4	13	0.59	0.227272727	Can use
3	9	2	11	0.50	0.318181818	Can use
4	10	6	16	0.73	0.181818182	Can not use
5	11	4	15	0.68	0.318181818	Can use
6	9	0	9	0.41	0.409090909	Can use
7	7	2	9	0.41	0.227272727	Can use
8	9	3	12	0.55	0.272727273	Can use
9	10	5	15	0.68	0.227272727	Can use
10	10	5	15	0.68	0.227272727	Can use
11	9	2	11	0.50	0.318181818	Can use
12	9	2	11	0.50	0.318181818	Can use
13	10	5	15	0.68	0.227272727	Can use
14	8	3	11	0.50	0.227272727	Can use
15	8	2	10	0.45	0.272727273	Can use
16	8	2	10	0.45	0.272727273	Can use
17	8	1	9	0.41	0.318181818	Can use
18	7	2	9	0.41	0.227272727	Can use
19	10	3	13	0.59	0.318181818	Can use
20	9	3	12	0.55	0.272727273	Can use
21	10	5	15	0.68	0.227272727	Can use
22	10	3	13	0.59	0.318181818	Can use
23	10	2	12	0.55	0.363636364	Can use
24	9	2	11	0.50	0.318181818	Can use
25	9	3	12	0.55	0.272727273	Can use
26	8	2	10	0.45	0.272727273	Can use
27	8	3	11	0.50	0.227272727	Can use
28	7	2	9	0.41	0.227272727	Can use
29	8	3	11	0.50	0.227272727	Can use

	H	L	F	p	r	it's usable or not
1	11	4	15	0.68	0.318181818	Can use
2	9	4	13	0.59	0.227272727	Can use
3	9	2	11	0.50	0.318181818	Can use
4	10	6	16	0.73	0.181818182	Can not use
5	11	4	15	0.68	0.318181818	Can use
6	9	0	9	0.41	0.409090909	Can use
7	7	2	9	0.41	0.227272727	Can use
8	9	3	12	0.55	0.272727273	Can use
9	10	5	15	0.68	0.227272727	Can use
10	10	5	15	0.68	0.227272727	Can use
11	9	2	11	0.50	0.318181818	Can use
12	9	2	11	0.50	0.318181818	Can use
13	10	5	15	0.68	0.227272727	Can use
14	8	3	11	0.50	0.227272727	Can use
15	8	2	10	0.45	0.272727273	Can use
16	8	2	10	0.45	0.272727273	Can use
17	8	1	9	0.41	0.318181818	Can use
18	7	2	9	0.41	0.227272727	Can use
19	10	3	13	0.59	0.318181818	Can use
20	9	3	12	0.55	0.272727273	Can use
21	10	5	15	0.68	0.227272727	Can use
22	10	3	13	0.59	0.318181818	Can use
23	10	2	12	0.55	0.363636364	Can use
24	9	2	11	0.50	0.318181818	Can use
25	9	3	12	0.55	0.272727273	Can use
26	8	2	10	0.45	0.272727273	Can use
27	8	3	11	0.50	0.227272727	Can use
30	7	2	9	0.41	0.227272727	Can use
31	10	5	15	0.68	0.227272727	Can use

	H	L	F	p	r	it's usable or not
1	11	4	15	0.68	0.318181818	Can use
2	9	4	13	0.59	0.227272727	Can use
3	9	2	11	0.50	0.318181818	Can use
4	10	6	16	0.73	0.181818182	Can not use
5	11	4	15	0.68	0.318181818	Can use
6	9	0	9	0.41	0.409090909	Can use
7	7	2	9	0.41	0.227272727	Can use
8	9	3	12	0.55	0.272727273	Can use
9	10	5	15	0.68	0.227272727	Can use
10	10	5	15	0.68	0.227272727	Can use
11	9	2	11	0.50	0.318181818	Can use
12	9	2	11	0.50	0.318181818	Can use
13	10	5	15	0.68	0.227272727	Can use
14	8	3	11	0.50	0.227272727	Can use
15	8	2	10	0.45	0.272727273	Can use
16	8	2	10	0.45	0.272727273	Can use
17	8	1	9	0.41	0.318181818	Can use
18	7	2	9	0.41	0.227272727	Can use
19	10	3	13	0.59	0.318181818	Can use
20	9	3	12	0.55	0.272727273	Can use
21	10	5	15	0.68	0.227272727	Can use
22	10	3	13	0.59	0.318181818	Can use
23	10	2	12	0.55	0.363636364	Can use
24	9	2	11	0.50	0.318181818	Can use
25	9	3	12	0.55	0.272727273	Can use
26	8	2	10	0.45	0.272727273	Can use
27	8	3	11	0.50	0.227272727	Can use
32	7	0	7	0.32	0.318181818	Can use
33	7	0	7	0.32	0.318181818	Can use

	H	L	F	p	r	it's usable or not
1	11	4	15	0.68	0.318181818	Can use
2	9	4	13	0.59	0.227272727	Can use
3	9	2	11	0.50	0.318181818	Can use
4	10	6	16	0.73	0.181818182	Can not use
5	11	4	15	0.68	0.318181818	Can use
6	9	0	9	0.41	0.409090909	Can use
7	7	2	9	0.41	0.227272727	Can use
8	9	3	12	0.55	0.272727273	Can use
9	10	5	15	0.68	0.227272727	Can use
10	10	5	15	0.68	0.227272727	Can use
11	9	2	11	0.50	0.318181818	Can use
12	9	2	11	0.50	0.318181818	Can use
13	10	5	15	0.68	0.227272727	Can use
14	8	3	11	0.50	0.227272727	Can use
15	8	2	10	0.45	0.272727273	Can use
16	8	2	10	0.45	0.272727273	Can use
17	8	1	9	0.41	0.318181818	Can use
18	7	2	9	0.41	0.227272727	Can use
19	10	3	13	0.59	0.318181818	Can use
20	9	3	12	0.55	0.272727273	Can use
21	10	5	15	0.68	0.227272727	Can use
22	10	3	13	0.59	0.318181818	Can use
23	10	2	12	0.55	0.363636364	Can use
24	9	2	11	0.50	0.318181818	Can use
25	9	3	12	0.55	0.272727273	Can use
26	8	2	10	0.45	0.272727273	Can use
27	8	3	11	0.50	0.227272727	Can use
34	9	3	12	0.55	0.272727273	Can use
35	6	1	7	0.32	0.227272727	Can use

	H	L	F	p	r	it's usable or not
1	11	4	15	0.68	0.318181818	Can use
2	9	4	13	0.59	0.227272727	Can use
3	9	2	11	0.50	0.318181818	Can use
4	10	6	16	0.73	0.181818182	Can not use
5	11	4	15	0.68	0.318181818	Can use
6	9	0	9	0.41	0.409090909	Can use
7	7	2	9	0.41	0.227272727	Can use
8	9	3	12	0.55	0.272727273	Can use
9	10	5	15	0.68	0.227272727	Can use
10	10	5	15	0.68	0.227272727	Can use
11	9	2	11	0.50	0.318181818	Can use
12	9	2	11	0.50	0.318181818	Can use
13	10	5	15	0.68	0.227272727	Can use
14	8	3	11	0.50	0.227272727	Can use
15	8	2	10	0.45	0.272727273	Can use
16	8	2	10	0.45	0.272727273	Can use
17	8	1	9	0.41	0.318181818	Can use
18	7	2	9	0.41	0.227272727	Can use
19	10	3	13	0.59	0.318181818	Can use
20	9	3	12	0.55	0.272727273	Can use
21	10	5	15	0.68	0.227272727	Can use
22	10	3	13	0.59	0.318181818	Can use
23	10	2	12	0.55	0.363636364	Can use
24	9	2	11	0.50	0.318181818	Can use
25	9	3	12	0.55	0.272727273	Can use
26	8	2	10	0.45	0.272727273	Can use
27	8	3	11	0.50	0.227272727	Can use
36	8	2	10	0.45	0.272727273	Can use
37	7	2	9	0.41	0.227272727	Can use

	H	L	F	p	r	it's usable or not
1	11	4	15	0.68	0.318181818	Can use
2	9	4	13	0.59	0.227272727	Can use
3	9	2	11	0.50	0.318181818	Can use
4	10	6	16	0.73	0.181818182	Can not use
5	11	4	15	0.68	0.318181818	Can use
6	9	0	9	0.41	0.409090909	Can use
7	7	2	9	0.41	0.227272727	Can use
8	9	3	12	0.55	0.272727273	Can use
9	10	5	15	0.68	0.227272727	Can use
10	10	5	15	0.68	0.227272727	Can use
11	9	2	11	0.50	0.318181818	Can use
12	9	2	11	0.50	0.318181818	Can use
13	10	5	15	0.68	0.227272727	Can use
14	8	3	11	0.50	0.227272727	Can use
15	8	2	10	0.45	0.272727273	Can use
16	8	2	10	0.45	0.272727273	Can use
17	8	1	9	0.41	0.318181818	Can use
18	7	2	9	0.41	0.227272727	Can use
19	10	3	13	0.59	0.318181818	Can use
20	9	3	12	0.55	0.272727273	Can use
21	10	5	15	0.68	0.227272727	Can use
22	10	3	13	0.59	0.318181818	Can use
23	10	2	12	0.55	0.363636364	Can use
24	9	2	11	0.50	0.318181818	Can use
25	9	3	12	0.55	0.272727273	Can use
26	8	2	10	0.45	0.272727273	Can use
27	8	3	11	0.50	0.227272727	Can use
	H	L	F	p	r	it's usable or not

	H	L	F	p	r	it's usable or not
1	11	4	15	0.68	0.318181818	Can use
2	9	4	13	0.59	0.227272727	Can use
3	9	2	11	0.50	0.318181818	Can use
4	10	6	16	0.73	0.181818182	Can not use
5	11	4	15	0.68	0.318181818	Can use
6	9	0	9	0.41	0.409090909	Can use
7	7	2	9	0.41	0.227272727	Can use
8	9	3	12	0.55	0.272727273	Can use
9	10	5	15	0.68	0.227272727	Can use
10	10	5	15	0.68	0.227272727	Can use
11	9	2	11	0.50	0.318181818	Can use
12	9	2	11	0.50	0.318181818	Can use
13	10	5	15	0.68	0.227272727	Can use
14	8	3	11	0.50	0.227272727	Can use
15	8	2	10	0.45	0.272727273	Can use
16	8	2	10	0.45	0.272727273	Can use
17	8	1	9	0.41	0.318181818	Can use
18	7	2	9	0.41	0.227272727	Can use
19	10	3	13	0.59	0.318181818	Can use
20	9	3	12	0.55	0.272727273	Can use
21	10	5	15	0.68	0.227272727	Can use
22	10	3	13	0.59	0.318181818	Can use
23	10	2	12	0.55	0.363636364	Can use
24	9	2	11	0.50	0.318181818	Can use
25	9	3	12	0.55	0.272727273	Can use
26	8	2	10	0.45	0.272727273	Can use
27	8	3	11	0.50	0.227272727	Can use
38	8	2	10	0.45	0.272727273	Can use
39	10	1	11	0.50	0.409090909	Can use

	H	L	F	p	r	it's usable or not
1	11	4	15	0.68	0.318181818	Can use
2	9	4	13	0.59	0.227272727	Can use
3	9	2	11	0.50	0.318181818	Can use
4	10	6	16	0.73	0.181818182	Can not use
5	11	4	15	0.68	0.318181818	Can use
6	9	0	9	0.41	0.409090909	Can use
7	7	2	9	0.41	0.227272727	Can use
8	9	3	12	0.55	0.272727273	Can use
9	10	5	15	0.68	0.227272727	Can use
10	10	5	15	0.68	0.227272727	Can use
11	9	2	11	0.50	0.318181818	Can use
12	9	2	11	0.50	0.318181818	Can use
13	10	5	15	0.68	0.227272727	Can use
14	8	3	11	0.50	0.227272727	Can use
15	8	2	10	0.45	0.272727273	Can use
16	8	2	10	0.45	0.272727273	Can use
17	8	1	9	0.41	0.318181818	Can use
18	7	2	9	0.41	0.227272727	Can use
19	10	3	13	0.59	0.318181818	Can use
20	9	3	12	0.55	0.272727273	Can use
21	10	5	15	0.68	0.227272727	Can use
22	10	3	13	0.59	0.318181818	Can use
23	10	2	12	0.55	0.363636364	Can use
24	9	2	11	0.50	0.318181818	Can use
25	9	3	12	0.55	0.272727273	Can use
26	8	2	10	0.45	0.272727273	Can use
27	8	3	11	0.50	0.227272727	Can use
40	8	2	10	0.45	0.272727273	Can use
41	8	1	9	0.41	0.318181818	Can use

	H	L	F	p	r	it's usable or not
1	11	4	15	0.68	0.318181818	Can use
2	9	4	13	0.59	0.227272727	Can use
3	9	2	11	0.50	0.318181818	Can use
4	10	6	16	0.73	0.181818182	Can not use
5	11	4	15	0.68	0.318181818	Can use
6	9	0	9	0.41	0.409090909	Can use
7	7	2	9	0.41	0.227272727	Can use
8	9	3	12	0.55	0.272727273	Can use
9	10	5	15	0.68	0.227272727	Can use
10	10	5	15	0.68	0.227272727	Can use
11	9	2	11	0.50	0.318181818	Can use
12	9	2	11	0.50	0.318181818	Can use
13	10	5	15	0.68	0.227272727	Can use
14	8	3	11	0.50	0.227272727	Can use
15	8	2	10	0.45	0.272727273	Can use
16	8	2	10	0.45	0.272727273	Can use
17	8	1	9	0.41	0.318181818	Can use
18	7	2	9	0.41	0.227272727	Can use
19	10	3	13	0.59	0.318181818	Can use
20	9	3	12	0.55	0.272727273	Can use
21	10	5	15	0.68	0.227272727	Can use
22	10	3	13	0.59	0.318181818	Can use
23	10	2	12	0.55	0.363636364	Can use
24	9	2	11	0.50	0.318181818	Can use
25	9	3	12	0.55	0.272727273	Can use
26	8	2	10	0.45	0.272727273	Can use
27	8	3	11	0.50	0.227272727	Can use
42	11	4	15	0.68	0.318181818	Can use
43	7	4	11	0.50	0.136363636	Can bot use

	H	L	F	p	r	it's usable or not
1	11	4	15	0.68	0.318181818	Can use
2	9	4	13	0.59	0.227272727	Can use
3	9	2	11	0.50	0.318181818	Can use
4	10	6	16	0.73	0.181818182	Can not use
5	11	4	15	0.68	0.318181818	Can use
6	9	0	9	0.41	0.409090909	Can use
7	7	2	9	0.41	0.227272727	Can use
8	9	3	12	0.55	0.272727273	Can use
9	10	5	15	0.68	0.227272727	Can use
10	10	5	15	0.68	0.227272727	Can use
11	9	2	11	0.50	0.318181818	Can use
12	9	2	11	0.50	0.318181818	Can use
13	10	5	15	0.68	0.227272727	Can use
14	8	3	11	0.50	0.227272727	Can use
15	8	2	10	0.45	0.272727273	Can use
16	8	2	10	0.45	0.272727273	Can use
17	8	1	9	0.41	0.318181818	Can use
18	7	2	9	0.41	0.227272727	Can use
19	10	3	13	0.59	0.318181818	Can use
20	9	3	12	0.55	0.272727273	Can use
21	10	5	15	0.68	0.227272727	Can use
22	10	3	13	0.59	0.318181818	Can use
23	10	2	12	0.55	0.363636364	Can use
24	9	2	11	0.50	0.318181818	Can use
25	9	3	12	0.55	0.272727273	Can use
26	8	2	10	0.45	0.272727273	Can use
27	8	3	11	0.50	0.227272727	Can use
44	6	1	7	0.32	0.227272727	Can use
45	7	1	8	0.36	0.272727273	Can use

	H	L	F	p	r	it's usable or not
1	11	4	15	0.68	0.318181818	Can use
2	9	4	13	0.59	0.227272727	Can use
3	9	2	11	0.50	0.318181818	Can use
4	10	6	16	0.73	0.181818182	Can not use
5	11	4	15	0.68	0.318181818	Can use
6	9	0	9	0.41	0.409090909	Can use
7	7	2	9	0.41	0.227272727	Can use
8	9	3	12	0.55	0.272727273	Can use
9	10	5	15	0.68	0.227272727	Can use
10	10	5	15	0.68	0.227272727	Can use
11	9	2	11	0.50	0.318181818	Can use
12	9	2	11	0.50	0.318181818	Can use
13	10	5	15	0.68	0.227272727	Can use
14	8	3	11	0.50	0.227272727	Can use
15	8	2	10	0.45	0.272727273	Can use
16	8	2	10	0.45	0.272727273	Can use
17	8	1	9	0.41	0.318181818	Can use
18	7	2	9	0.41	0.227272727	Can use
19	10	3	13	0.59	0.318181818	Can use
20	9	3	12	0.55	0.272727273	Can use
21	10	5	15	0.68	0.227272727	Can use
22	10	3	13	0.59	0.318181818	Can use
23	10	2	12	0.55	0.363636364	Can use
24	9	2	11	0.50	0.318181818	Can use
25	9	3	12	0.55	0.272727273	Can use
26	8	2	10	0.45	0.272727273	Can use
27	8	3	11	0.50	0.227272727	Can use
46	10	4	14	0.64	0.272727273	Can use
47	9	2	11	0.50	0.318181818	Can use

	H	L	F	p	r	it's usable or not
1	11	4	15	0.68	0.318181818	Can use
2	9	4	13	0.59	0.227272727	Can use
3	9	2	11	0.50	0.318181818	Can use
4	10	6	16	0.73	0.181818182	Can not use
5	11	4	15	0.68	0.318181818	Can use
6	9	0	9	0.41	0.409090909	Can use
7	7	2	9	0.41	0.227272727	Can use
8	9	3	12	0.55	0.272727273	Can use
9	10	5	15	0.68	0.227272727	Can use
10	10	5	15	0.68	0.227272727	Can use
11	9	2	11	0.50	0.318181818	Can use
12	9	2	11	0.50	0.318181818	Can use
13	10	5	15	0.68	0.227272727	Can use
14	8	3	11	0.50	0.227272727	Can use
15	8	2	10	0.45	0.272727273	Can use
16	8	2	10	0.45	0.272727273	Can use
17	8	1	9	0.41	0.318181818	Can use
18	7	2	9	0.41	0.227272727	Can use
19	10	3	13	0.59	0.318181818	Can use
20	9	3	12	0.55	0.272727273	Can use
21	10	5	15	0.68	0.227272727	Can use
22	10	3	13	0.59	0.318181818	Can use
23	10	2	12	0.55	0.363636364	Can use
24	9	2	11	0.50	0.318181818	Can use
25	9	3	12	0.55	0.272727273	Can use
26	8	2	10	0.45	0.272727273	Can use
27	8	3	11	0.50	0.227272727	Can use
48	9	2	11	0.50	0.318181818	Can use
49	9	2	11	0.50	0.318181818	Can use

	H	L	F	p	r	it's usable or not
1	11	4	15	0.68	0.318181818	Can use
2	9	4	13	0.59	0.227272727	Can use
3	9	2	11	0.50	0.318181818	Can use
4	10	6	16	0.73	0.181818182	Can not use
5	11	4	15	0.68	0.318181818	Can use
6	9	0	9	0.41	0.409090909	Can use
7	7	2	9	0.41	0.227272727	Can use
8	9	3	12	0.55	0.272727273	Can use
9	10	5	15	0.68	0.227272727	Can use
10	10	5	15	0.68	0.227272727	Can use
11	9	2	11	0.50	0.318181818	Can use
12	9	2	11	0.50	0.318181818	Can use
13	10	5	15	0.68	0.227272727	Can use
14	8	3	11	0.50	0.227272727	Can use
15	8	2	10	0.45	0.272727273	Can use
16	8	2	10	0.45	0.272727273	Can use
17	8	1	9	0.41	0.318181818	Can use
18	7	2	9	0.41	0.227272727	Can use
19	10	3	13	0.59	0.318181818	Can use
20	9	3	12	0.55	0.272727273	Can use
21	10	5	15	0.68	0.227272727	Can use
22	10	3	13	0.59	0.318181818	Can use
23	10	2	12	0.55	0.363636364	Can use
24	9	2	11	0.50	0.318181818	Can use
25	9	3	12	0.55	0.272727273	Can use
26	8	2	10	0.45	0.272727273	Can use
27	8	3	11	0.50	0.227272727	Can use
50	7	2	9	0.41	0.227272727	Can use
51	9	2	11	0.50	0.318181818	Can use

	H	L	F	p	r	it's usable or not
1	11	4	15	0.68	0.318181818	Can use
2	9	4	13	0.59	0.227272727	Can use
3	9	2	11	0.50	0.318181818	Can use
4	10	6	16	0.73	0.181818182	Can not use
5	11	4	15	0.68	0.318181818	Can use
6	9	0	9	0.41	0.409090909	Can use
7	7	2	9	0.41	0.227272727	Can use
8	9	3	12	0.55	0.272727273	Can use
9	10	5	15	0.68	0.227272727	Can use
10	10	5	15	0.68	0.227272727	Can use
11	9	2	11	0.50	0.318181818	Can use
12	9	2	11	0.50	0.318181818	Can use
13	10	5	15	0.68	0.227272727	Can use
14	8	3	11	0.50	0.227272727	Can use
15	8	2	10	0.45	0.272727273	Can use
16	8	2	10	0.45	0.272727273	Can use
17	8	1	9	0.41	0.318181818	Can use
18	7	2	9	0.41	0.227272727	Can use
19	10	3	13	0.59	0.318181818	Can use
20	9	3	12	0.55	0.272727273	Can use
21	10	5	15	0.68	0.227272727	Can use
22	10	3	13	0.59	0.318181818	Can use
23	10	2	12	0.55	0.363636364	Can use
24	9	2	11	0.50	0.318181818	Can use
25	9	3	12	0.55	0.272727273	Can use
26	8	2	10	0.45	0.272727273	Can use
27	8	3	11	0.50	0.227272727	Can use
52	8	3	11	0.50	0.227272727	Can use

Note: The researcher selected the difficulty value (p) of the test items with values

ranging from 0.20-0.80.

The researcher selected the discriminatory power ( $r$ ) of the test items with values ranging from 0.20-1.00.

Examination							
	A1	A2	A3	A4	A5	A6	A7
1	1	1	1	1	1	0	0
2	1	0	0	0	1	0	0
3	1	0	0	0	0	0	0
4	1	1	1	1	1	1	0
5	1	1	0	1	1	1	0
6	0	0	0	1	0	0	0
7	1	1	0	1	1	1	0
8	0	0	0	1	0	0	0
9	1	1	1	1	1	1	1
10	1	1	0	1	1	0	1
11	1	0	1	1	1	1	1
12	1	1	1	1	1	1	1
13	1	1	1	1	1	0	0
14	0	1	0	1	0	0	0
15	1	1	1	1	1	1	1
16	0	1	0	1	0	0	0
17	0	0	1	0	1	0	0
18	0	0	0	0	0	0	1
19	1	0	1	0	1	1	1
20	1	1	1	1	1	0	1
21	1	1	1	1	1	1	1
22	0	0	0	0	0	0	0
p	0.68181 8182	0.59090 9091	0.5	0.72727 2727	0.68181 8182	0.40909 0909	0.40909 0909
q	0.31818 1818	0.40909 0909	0.5	0.27272 7273	0.31818 1818	0.59090 9091	0.59090 9091

pq	0.21694 2149	0.24173 5537	0.25	0.19834 7107	0.21694 2149	0.24173 5537	0.24173 5537
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Examination

	A8	A9	A10	A11	A12	A13	A14
1	1	1	1	0	1	1	0
2	0	1	0	0	0	0	0
3	0	1	0	0	0	0	0
4	0	0	1	1	1	0	1
5	1	1	1	1	1	1	0
6	0	1	1	0	0	1	0
7	0	1	1	1	1	1	1
8	1	0	1	1	0	0	0
9	1	1	1	1	0	1	1
10	0	0	1	1	0	0	0
11	1	1	1	1	0	1	1
12	1	1	1	1	1	1	1
13	1	1	1	1	1	1	1
14	0	0	0	0	0	1	1
15	1	1	0	1	1	1	0
16	0	1	1	0	0	1	0
17	0	0	0	0	0	0	0
18	1	0	0	0	0	1	1
19	1	1	1	0	1	1	1
20	1	1	1	0	1	1	1
21	1	1	1	1	1	1	0
22	0	0	0	0	1	0	1
p	0.54545 4545	0.68181 8182	0.68181 8182	0.5	0.5	0.68181 8182	0.5
q	0.45454	0.31818	0.31818	0.5	0.5	0.31818	0.5

	5455	1818	1818			1818	
pq	0.24793 3884	0.21694 2149	0.21694 2149	0.25	0.25	0.21694 2149	0.25

Examination

	A15	A16	A17	A18	A19	A20	A21
1	0	0	0	0	1	0	1
2	0	1	0	0	0	1	0
3	0	0	0	0	0	0	1
4	1	1	1	1	0	1	1
5	0	1	1	0	1	1	1
6	1	0	0	0	1	0	1
7	1	1	0	1	1	1	1
8	0	1	0	0	0	0	0
9	1	0	1	1	1	0	1
10	0	0	0	1	0	0	0
11	1	1	1	1	1	1	1
12	1	0	0	1	1	1	0
13	1	1	1	0	1	1	1
14	0	0	0	0	0	0	0
15	0	1	1	1	1	1	1
16	1	0	1	1	1	0	1
17	0	0	0	0	0	1	0
18	0	0	0	0	0	1	0
19	1	0	1	1	1	1	1
20	1	1	0	0	1	0	1
21	0	1	1	0	1	1	1
22	0	0	0	0	0	0	1
p	0.45454 5455	0.454545 455	0.409090 909	0.409090 909	0.590909 091	0.545454 545	0.681818 182

q	0.54545 4545	0.545454 545	0.590909 091	0.590909 091	0.409090 909	0.454545 455	0.318181 818
pq	0.24793 3884	0.247933 884	0.241735 537	0.241735 537	0.241735 537	0.247933 884	0.216942 149

Examination

	A22	A23	A24	A25	A26	A27	A28
1	1	1	1	1	0	1	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	1	1	0	1	1	1
5	1	1	1	1	1	1	1
6	1	0	1	1	0	0	0
7	1	1	0	1	0	1	0
8	0	0	0	0	0	0	1
9	1	1	1	0	1	1	0
10	0	0	0	0	1	0	0
11	1	1	1	1	1	0	1
12	1	1	1	1	1	1	0
13	1	1	1	1	0	1	1
14	0	0	0	0	0	0	1
15	1	0	1	1	0	0	1
16	0	1	0	0	1	0	0
17	0	0	0	0	0	0	0
18	1	0	0	0	0	1	0
19	1	1	1	1	1	0	1
20	1	1	0	1	1	1	0
21	1	1	1	1	1	1	1
22	0	0	0	1	0	1	0

p	0.59090 9091	0.54545 4545	0.5	0.54545 4545	0.45454 5455	0.5	0.40909 0909
q	0.40909 0909	0.45454 5455	0.5	0.45454 5455	0.54545 4545	0.5	0.59090 9091
pq	0.24173 5537	0.24793 3884	0.25	0.24793 3884	0.24793 3884	0.25	0.24173 5537

Examination

	A29	A30	A31	A32	A33	A34	A35
1	1	1	1	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	1	0
4	1	1	1	0	1	1	0
5	1	0	1	1	0	1	1
6	1	1	0	0	0	0	0
7	1	0	0	1	1	1	1
8	1	0	1	0	0	0	0
9	0	0	1	1	0	1	1
10	0	0	1	0	0	1	0
11	1	0	1	0	1	1	0
12	0	1	1	0	0	1	1
13	1	1	1	0	1	1	0
14	0	0	1	0	0	0	0
15	1	1	1	1	1	0	1
16	0	0	0	0	0	1	0
17	0	0	1	0	0	0	1
18	0	0	0	0	0	0	0
19	1	1	1	1	1	1	0
20	0	1	1	1	0	1	1
21	1	1	1	1	1	0	0

22	0	0	0	0	0	0	0
p	0.5	0.40909 0909	0.68181 8182	0.31818 1818	0.31818 1818	0.54545 4545	0.31818 1818
q	0.5	0.59090 9091	0.31818 1818	0.68181 8182	0.68181 8182	0.45454 5455	0.68181 8182
pq	0.25	0.24173 5537	0.21694 2149	0.21694 2149	0.21694 2149	0.24793 3884	0.21694 2149

## Examination

	A36	A37	A38	A39	A40	A41	A42
1	0	1	1	0	0	0	0
2	0	0	0	0	0	0	1
3	0	0	0	0	1	0	0
4	1	1	1	1	0	1	1
5	1	1	0	1	1	0	1
6	0	0	0	0	0	1	1
7	1	0	0	0	1	0	1
8	1	0	1	0	0	0	0
9	1	0	1	1	1	1	1
10	0	0	0	1	0	0	0
11	0	1	1	1	1	1	1
12	1	1	1	1	1	1	1
13	0	0	1	1	1	1	1
14	0	1	0	0	0	0	0
15	1	1	1	1	0	1	1
16	1	0	0	0	1	0	1
17	0	0	0	0	0	0	1
18	0	0	0	0	0	0	0
19	1	0	1	1	1	1	1
20	1	1	0	1	1	1	1



18	0	0	0	0	0	0	1	0	0	0	1
19	1	0	0	0	0	1	1	1	1	1	6
20	1	1	0	1	1	1	0	1	1	0	7
21	0	0	1	1	1	1	1	0	0	1	6
22	0	0	0	0	0	0	0	0	1	0	1
p	0.5	0.31 8181 818	0.36 3636 364	0.63 6363 636	0.5	0.5	0.5	0.40 9090 909	0.5	0.5	
q	0.5	0.68 1818 182	0.63 6363 636	0.36 3636 364	0.5	0.5	0.5	0.59 0909 091	0.5	0.5	
pq	0.25	0.21 6942 149	0.23 1404 959	0.23 1404 959	0.25	0.25	0.25	0.24 1735 537	0.25	0.25	2.42 1487 603



Table 31 Discriminate power ( $r_{xy}$ ) analysis results of teachers' accounting status questionnaire

No.	Discrimination	No.	Discrimination
1	0.75	26	0.78
2	0.68	27	0.83
3	0.61	28	0.85
4	0.5	29	0.82
5	0.7	30	0.91
6	0.83	31	0.65
7	0.88	32	0.5
8	0.5	33	0.68
9	0.88	34	0.57
10	0.78	35	0.68
11	0.69	36	0.58
12	0.86	37	0.82
13	0.86	38	0.75
14	0.95	39	0.4
15	0.89	40	0.59
16	0.81	41	0.79
17	0.86	42	0.84
18	0.9	43	0.81
19	0.89	44	0.84
20	0.86	45	0.72
21	0.95	46	0.77
22	0.9	47	0.7
23	0.82	48	0.63
24	0.83	49	0.68
25	0.96	50	0.89

Reliability Statistics

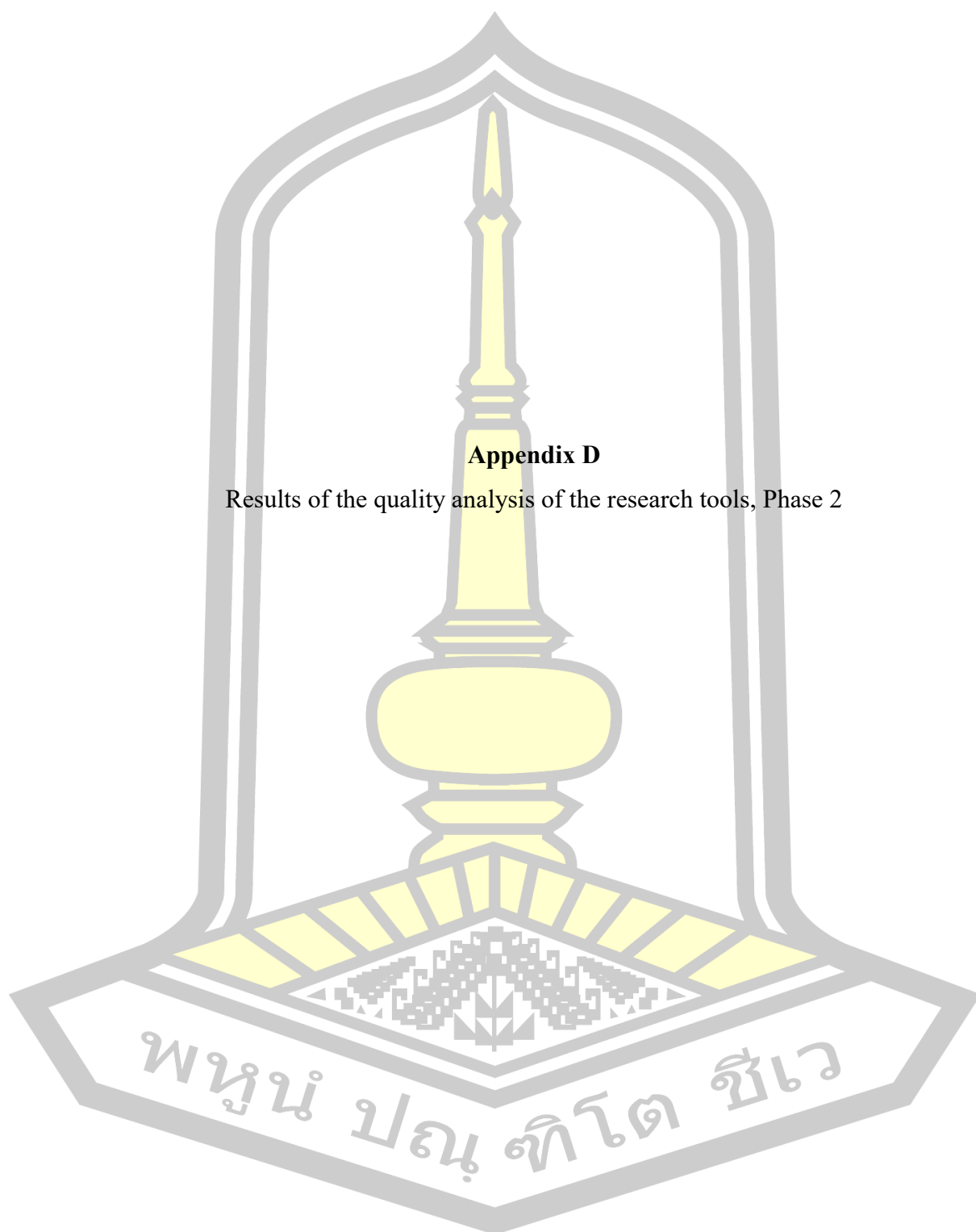
Cronbach's Alpha	N of Items
0.97>0.80	50

Table 32 Discriminative power ( $r_{xy}$ ) analysis results of digital literacy

No.	Discrimination	No.	Discrimination
1	0.78	26	0.86
2	0.69	27	0.9
3	0.86	28	0.78
4	0.86	29	0.69
5	0.95	30	0.86
6	0.89	31	0.86
7	0.81	32	0.95
8	0.86	33	0.89
9	0.9	34	0.78
10	0.78	35	0.69
11	0.69	36	0.86
12	0.86	37	0.86
13	0.86	38	0.95
14	0.95	39	0.89
15	0.89	40	0.81
16	0.85	41	0.86
17	0.82	42	0.9
18	0.91	43	0.81
19	0.65	44	0.84
20	0.5	45	0.72
21	0.68	46	0.77
22	0.57	47	0.7
23	0.68	48	0.63
24	0.83	49	0.68
25	0.96	50	0.89

## Reliability Statistics

Cronbach's Alpha	N of Items
0.85>0.80	50



**Appendix D**

Results of the quality analysis of the research tools, Phase 2

Table 33 Interview Outline Assessment Results for Accounting Teacher Survey

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
27	1	1	1	1	0	4	0.8	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
28	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
29	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
30	1	1	1	1	0	4	0.8	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
31	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
32	1	1	0	1	1	4	0.8	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
33	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
34	1	0	1	1	1	4	0.8	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
35	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
36	1	1	1	1	1	5	1	choose

\* Note: 1 is appropriate, 2 is inappropriate.

#### Reliability Statistics

Cronbach's Alpha	N of Items
0.83>0.80	36

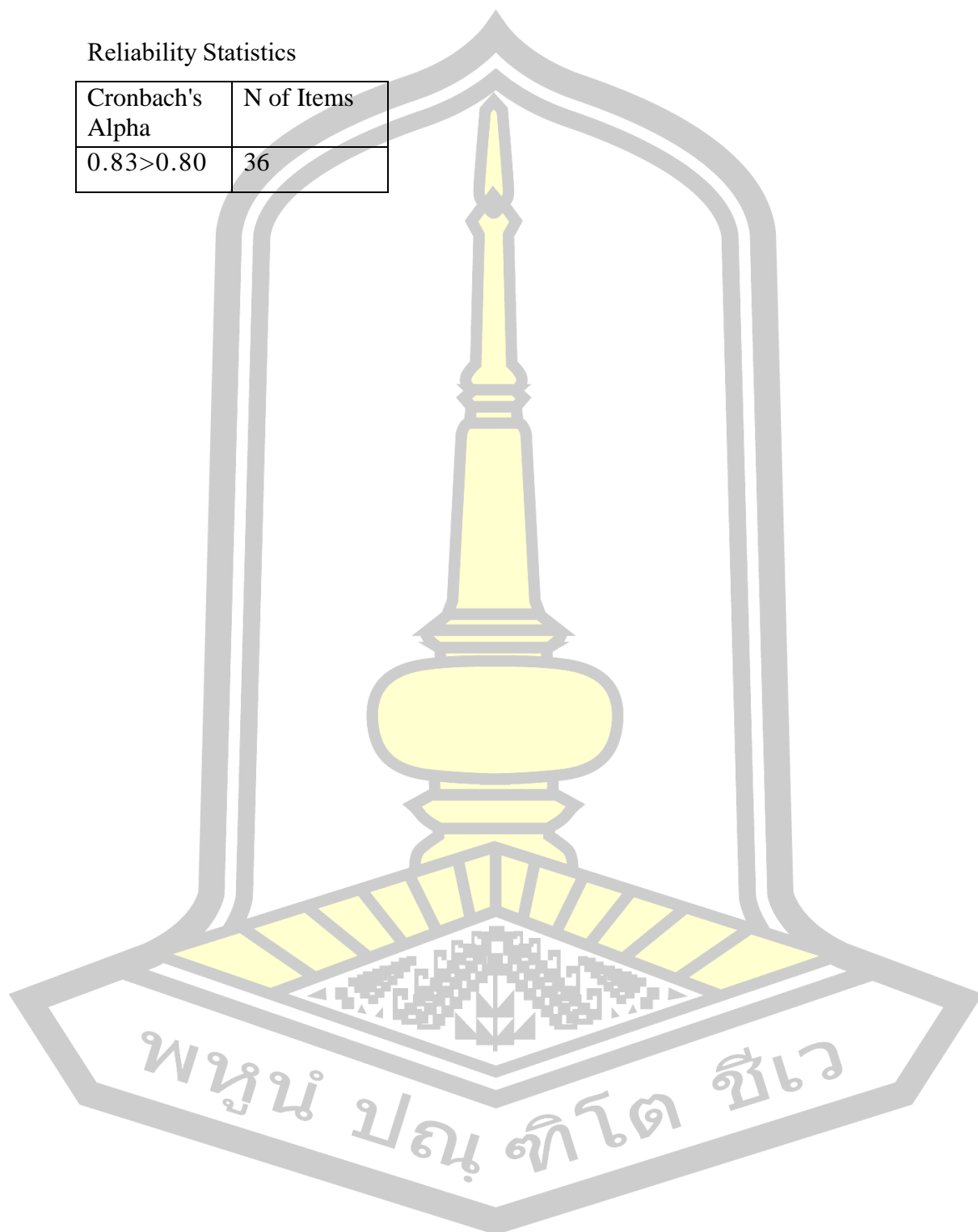


Table 34 Evaluation results of expert interview outlines

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
27	1	1	1	1	0	4	0.8	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
28	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
29	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
30	1	1	1	1	0	4	0.8	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
31	1	1	1	1	1	5	1	choose

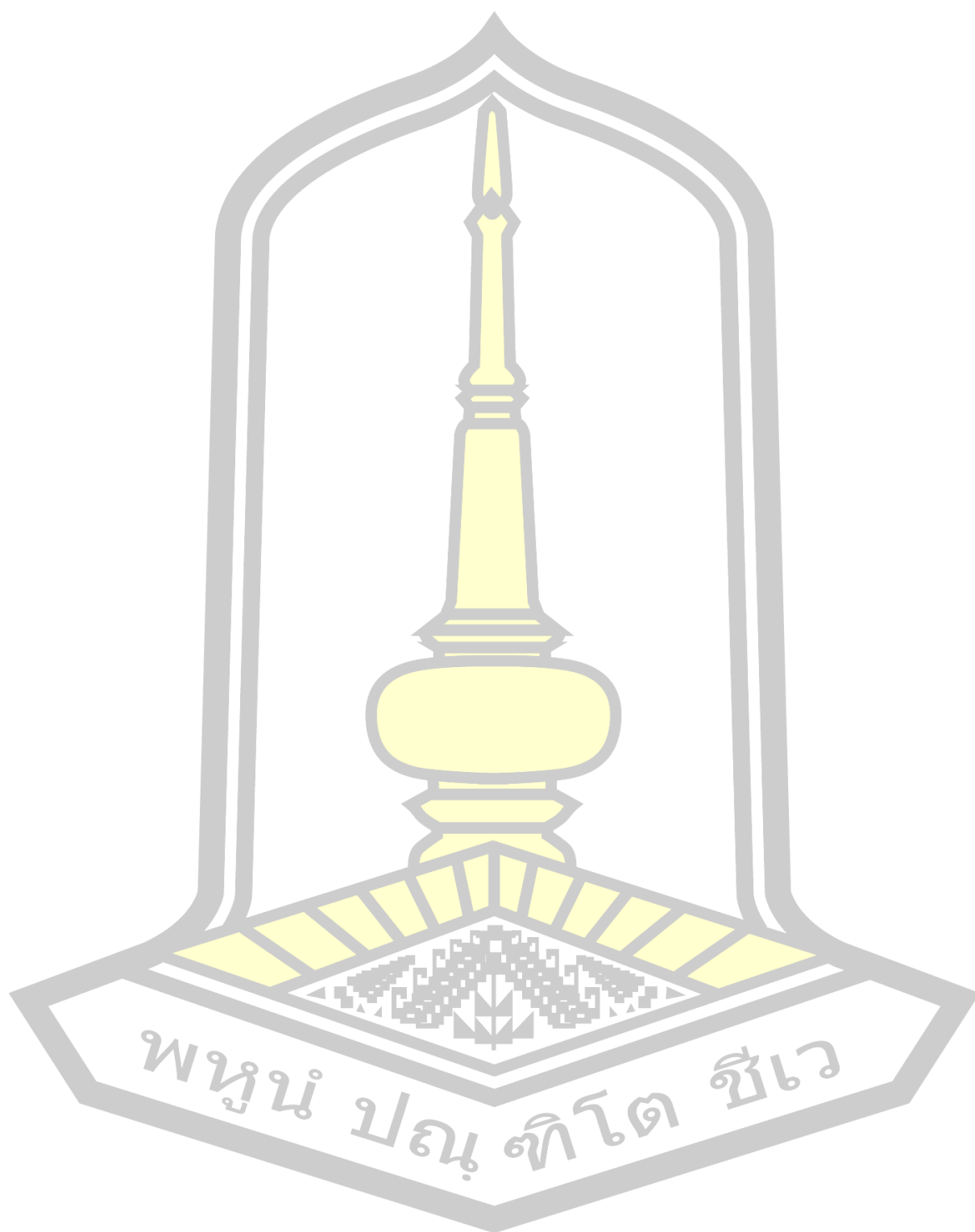
Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
32	1	1	0	1	1	4	0.8	choose

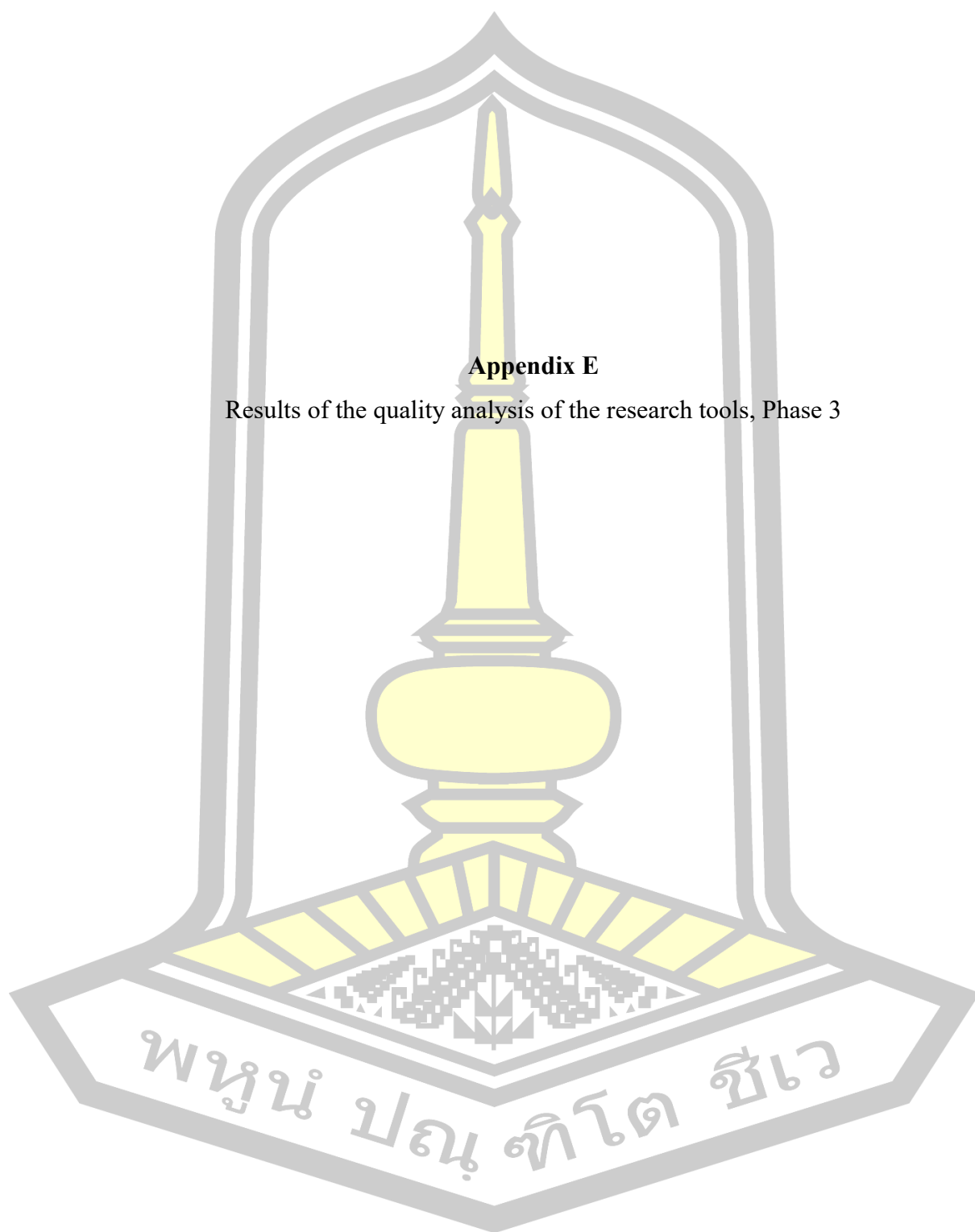
Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
33	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
34	1	0	1	1	1	4	0.8	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
35	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	0	1	4	0.8	choose
3	1	1	1	1	0	4	0.8	choose
4	1	1	1	1	1	5	1	choose
5	1	1	1	1	0	4	0.8	choose
6	1	1	1	1	0	4	0.8	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	0	4	0.8	choose
10	1	1	1	1	1	5	1	choose
11	1	1	0	1	1	4	0.8	choose
12	1	1	1	1	1	5	1	choose
13	1	0	1	1	1	4	0.8	choose
14	1	1	1	1	1	5	1	choose
15	1	1	1	1	1	5	1	choose
16	0	1	1	1	1	4	0.8	choose
17	1	1	1	1	1	5	1	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	0	4	0.8	choose
20	1	1	1	1	0	4	0.8	choose
21	1	1	1	1	0	4	0.8	choose
22	1	1	1	1	0	4	0.8	choose
23	1	1	1	1	1	5	1	choose
24	1	1	1	1	1	5	1	choose
25	1	1	1	1	0	4	0.8	choose
26	1	1	1	1	0	4	0.8	choose
36	1	1	1	1	1	5	1	choose





**Appendix E**

Results of the quality analysis of the research tools, Phase 3

## Four stages of accounting professional skills test

Table 35 Expert assessment of First cycle test

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	1	1	1	1	1	5	1	choose
2	1	1	1	1	1	5	1	choose
3	1	1	1	1	1	5	1	choose
4	1	1	1	1	1	5	1	choose
5	1	1	0	0	0	2	0.4	Cull
6	1	1	1	1	1	5	1	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	1	0	0	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	1	3	0.6	choose
18	1	1	0	1	1	4	0.8	choose
19	1	0	0	1	1	3	0.6	choose
20	1	1	1	1	1	5	1	choose

Note available  $0.5 \leq IOC \leq 1.00$

Table 36 Discriminative power ( $r_{xy}$ ) analysis results of First cycle

No.	Discrimination	No.	Discrimination
1	0.89	10	0.9
2	0.81	11	0.81
3	0.86	12	0.84
4	0.9	13	0.72
5	0.78	14	0.89
6	0.69	15	0.85
7	0.69	16	0.82
8	0.86	17	0.91
9	0.86	18	0.65

## Reliability Statistics

Cronbach's Alpha	N of Items
0.87>0.80	18

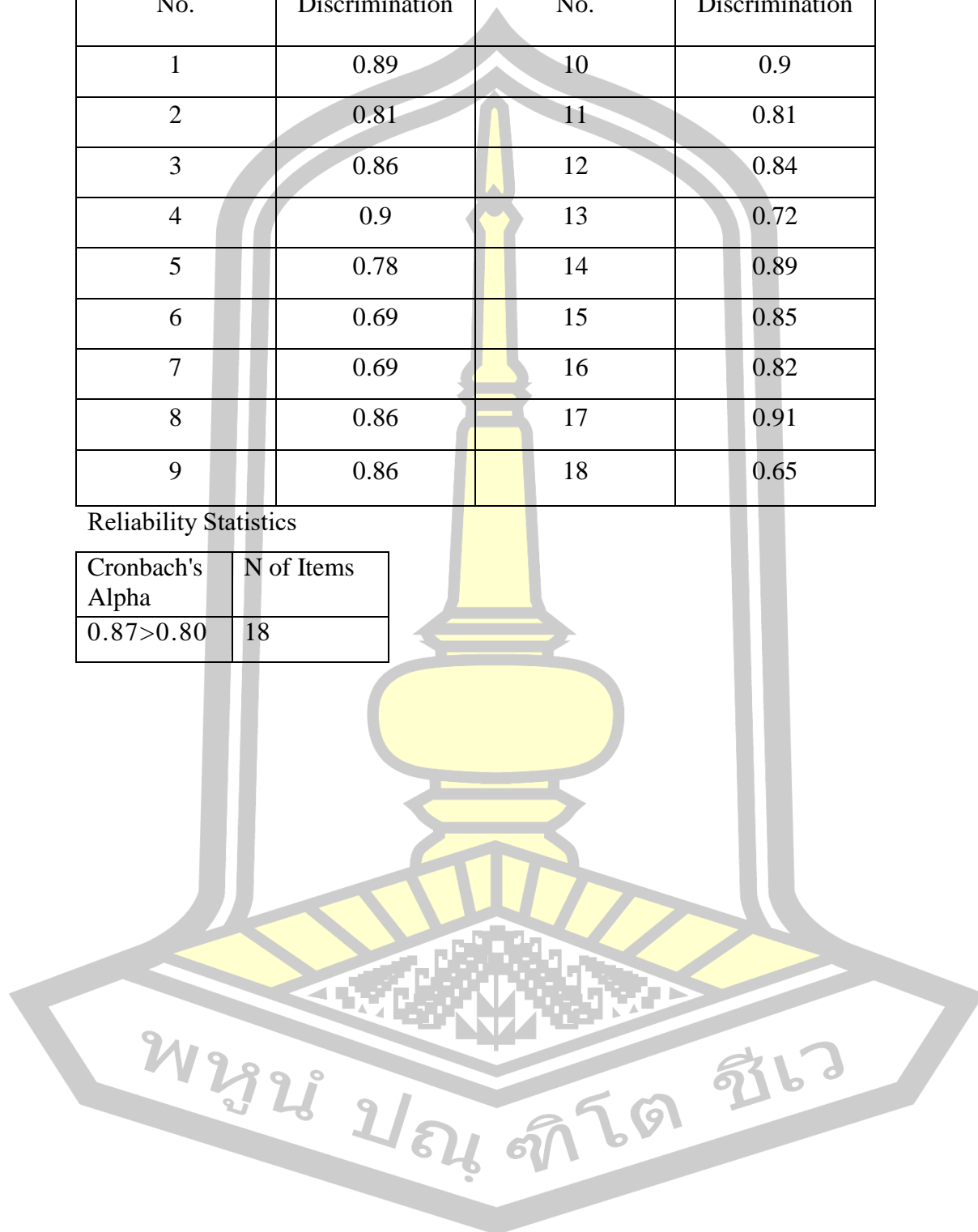


Table 37 Test of the Second cycle

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	0	1	0	2	0.4	Cull
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	0	1	1	2	0.4	Cull
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	1	3	0.6	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	0	1	0	2	0.4	Cull
22	1	1	1	1	1	5	1	choose

Note available  $0.5 \leq IOC \leq 1.00$

Table 38 Discriminative power ( $r_{xy}$ ) analysis results of Second cycle

No.	Discrimination	No.	Discrimination
1	0.89	10	0.9
2	0.85	11	0.86
3	0.82	12	0.9
4	0.91	13	0.81
5	0.65	14	0.84
6	0.5	15	0.72
7	0.68	16	0.77
8	0.86	17	0.7
9	0.86	18	0.65

## Reliability Statistics

Cronbach's Alpha	N of Items
0.83>0.80	18

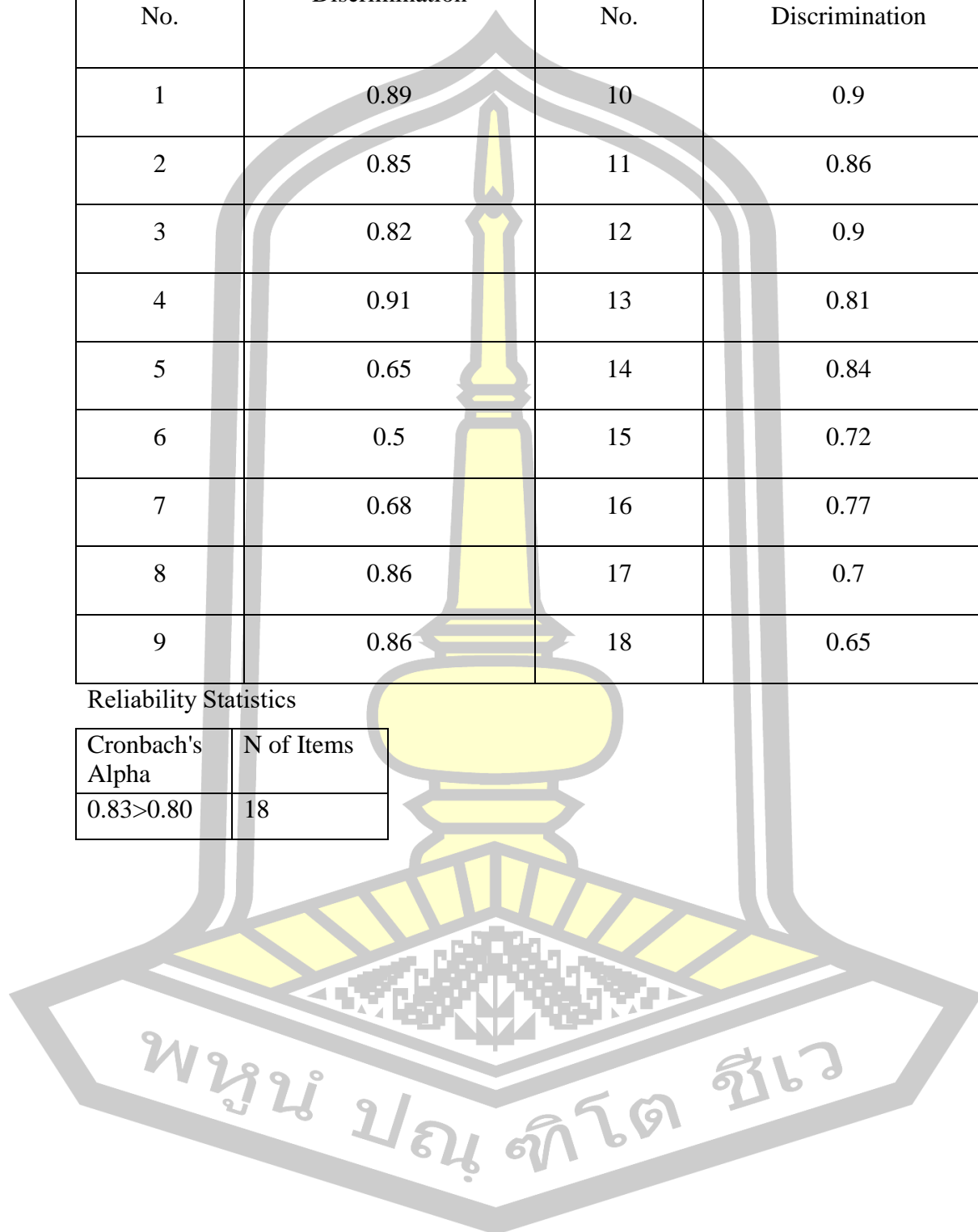


Table 39 Test of the third cycle

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	1	1	1	1	1	5	1	choose
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	0	1	1	2	0.4	Cull
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	1	3	0.6	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	1	1	1	1	1	5	1	choose

Note available  $0.5 \leq IOC \leq 1.00$

Table 40 Discriminative power ( $r_{xy}$ ) analysis results of Third cycle

No.	Discrimination	No.	Discrimination
1	0.63	11	0.91
2	0.68	12	0.96
3	0.89	13	0.5
4	0.91	14	0.92
5	0.96	15	0.86
6	0.5	16	0.72
7	0.92	17	0.64
8	0.86	18	0.7
9	0.78	19	0.68
10	0.69	20	0.57

## Reliability Statistics

Cronbach's Alpha	N of Items
0.82>0.80	20

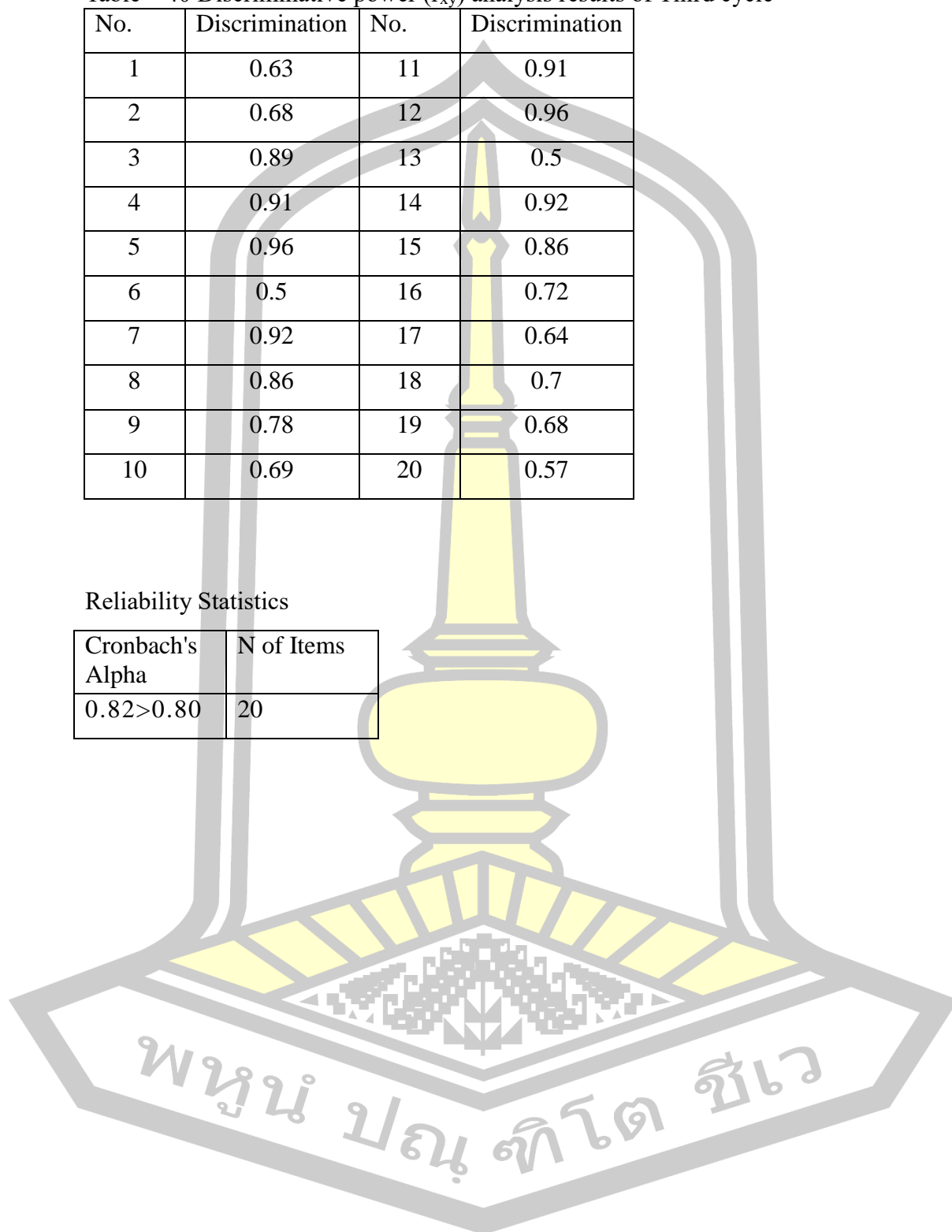


Table 41 Fourth cycle test expert scoring

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	0	1	1	2	0.4	Cull
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	1	3	0.6	choose
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose

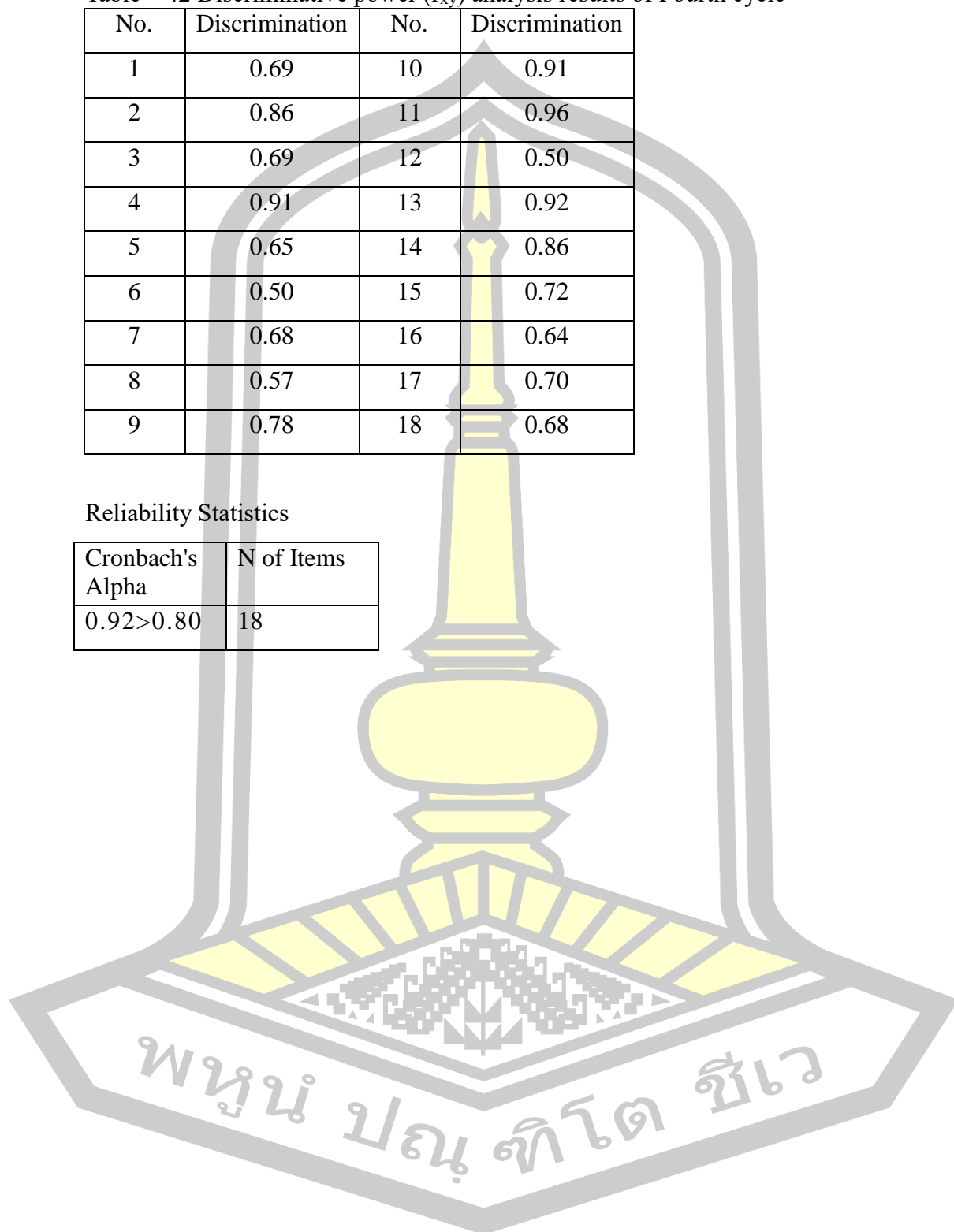
Note available  $0.5 \leq IOC \leq 1.00$

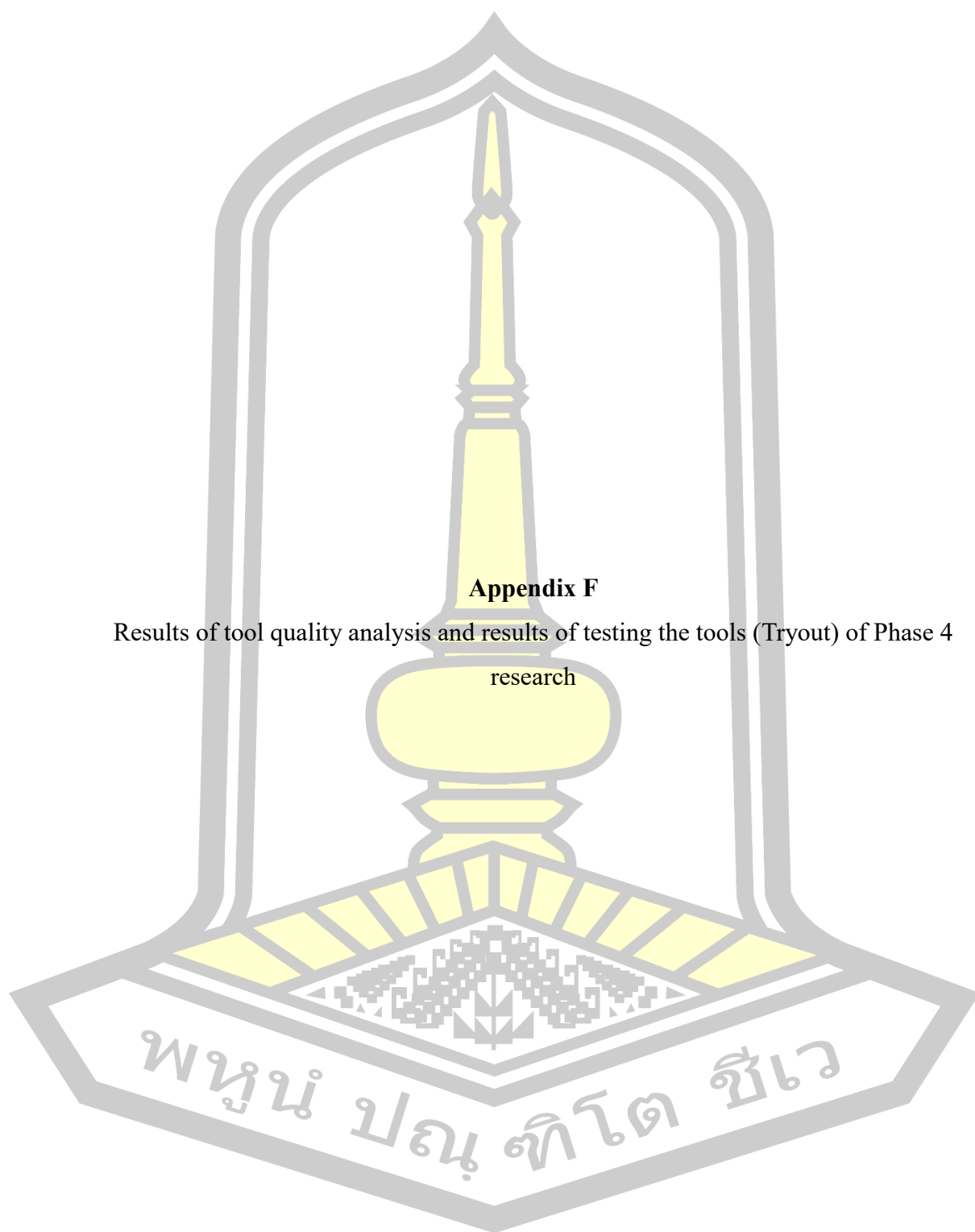
Table 42 Discriminative power ( $r_{xy}$ ) analysis results of Fourth cycle

No.	Discrimination	No.	Discrimination
1	0.69	10	0.91
2	0.86	11	0.96
3	0.69	12	0.50
4	0.91	13	0.92
5	0.65	14	0.86
6	0.50	15	0.72
7	0.68	16	0.64
8	0.57	17	0.70
9	0.78	18	0.68

## Reliability Statistics

Cronbach's Alpha	N of Items
0.92>0.80	18





**Appendix F**

Results of tool quality analysis and results of testing the tools (Tryout) of Phase 4  
research

Table 43 School student course evaluation form scoring

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
28	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
29	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
30	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
31	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
32	0	0	1	1	1	3	0.6	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
33	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
34	1	1	0	0	1	3	0.6	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
35	1	1	0	1	1	4	0.8	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
36	0	1	1	1	1	4	0.8	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
37	1	1	0	0	1	3	0.6	choose

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
38	0	1	0	1	1	3	0.6	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
39	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
Question	Expert rating					Total	avera	Whether to

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
number	First	Second	Third	Fourth	Fifth	Score	ge	choose

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
	Expert	Expert	Expert	Expert	Expert			

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
40	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
41	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
42	1	0	0	1	0	2	0.4	Cull

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
43	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
44	1	0	0	1	1	3	0.6	choose

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
45	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
46	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
47	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
48	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
49	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
50	0	0	0	1	1	2	0.4	Cull

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
51	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
52	1	1	0	0	1	3	0.6	choose

Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
53	0	1	0	1	1	3	0.6	choose

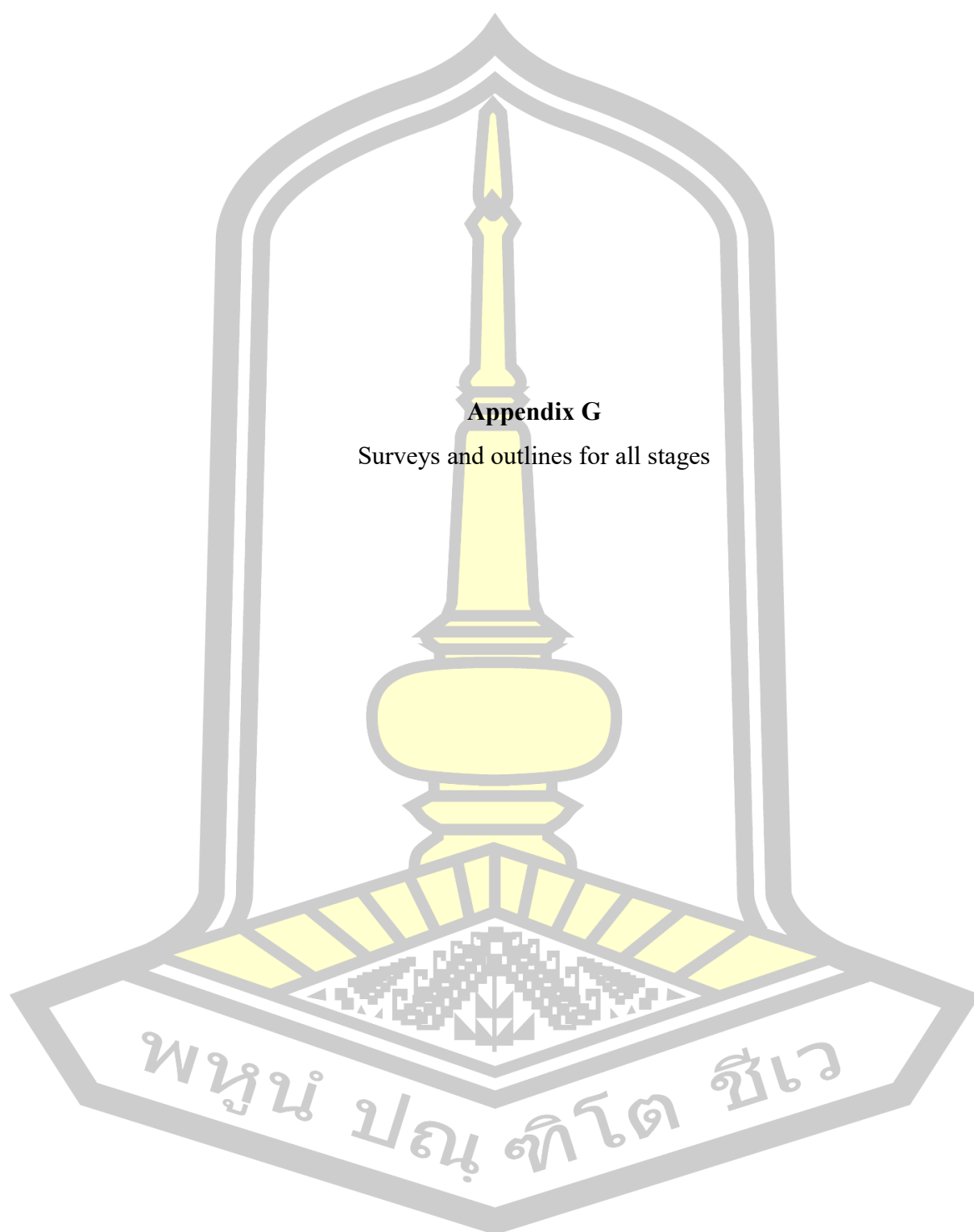
Question number	Expert rating					Total Score	aver age	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
54	1	1	1	1	1	5	1	choose

Question number	Expert rating					Total Score	average	Whether to choose
	First Expert	Second Expert	Third Expert	Fourth Expert	Fifth Expert			
1	0	1	1	1	1	4	0.8	choose
2	1	1	0	0	1	3	0.6	choose
3	0	1	1	1	0	3	0.6	choose
4	1	1	0	1	1	4	0.8	choose
5	1	0	0	1	1	3	0.6	choose
6	1	1	1	1	1	5	1	choose
7	0	0	1	1	0	2	0.4	Cull
8	1	1	1	1	1	5	1	choose
9	1	1	1	1	1	5	1	choose
10	1	1	1	1	1	5	1	choose
11	0	0	1	1	1	3	0.6	choose
12	1	1	1	1	1	5	1	choose
13	1	1	0	0	0	2	0.4	Cull
14	1	1	0	1	1	4	0.8	choose
15	0	1	1	1	1	4	0.8	choose
16	1	1	0	0	1	3	0.6	choose
17	0	1	0	1	0	2	0.4	Cull
18	1	1	1	1	1	5	1	choose
19	1	1	1	1	1	5	1	choose
20	1	1	1	1	1	5	1	choose
21	1	0	1	1	0	3	0.6	choose
22	0	1	1	1	1	4	0.8	choose
23	1	1	0	0	1	3	0.6	choose
24	0	1	0	1	1	3	0.6	choose
25	1	1	0	1	1	4	0.8	choose
26	1	0	0	1	1	3	0.6	choose
27	1	1	1	1	1	5	1	choose
55	1	1	1	1	1	5	1	choose

Note available  $0.5 \leq IOC \leq 1.00$

Table 44 School student interview outline scoring

Question	Expert rating										sug gest ion
	First Exper t		Secon d Expert		Third Exper t		Fourth Expert		Fifth Exper t		
	1	2	1	2	1	2	1	2	1	2	
1. How do you think the new accounting course has improved your professional knowledge?	√		√		√		√		√		
2. Please share some key accounting concepts or skills you learned in the course		√	√		√		√		√		
3. In the new curriculum, is the cultivation of digital literacy involved?	√		√		√		√		√		
4. Does it help you better understand and process financial data?	√			√	√		√		√		
5. Do you think the teaching materials used are effective in practical application in the course?	√		√		√		√		√		
6. Is there anything you particularly like or feel needs improvement?	√		√		√		√		√		
7. What is your evaluation of the teaching design of the new course?	√		√		√		√		√		
8. Are there any teaching methods or activities that have left a deep impression on you?	√		√		√		√		√		
9. Are there any suggestions or areas for improvement?	√		√		√		√		√		



All phase test papers, surveys, and questionnaires

[https://drive.google.com/drive/folders/1hRFww\\_om5WdHiR0UiEPd8R0ZGIZqK5jf?  
usp=drive\\_link](https://drive.google.com/drive/folders/1hRFww_om5WdHiR0UiEPd8R0ZGIZqK5jf?usp=drive_link)



## DIGITAL ACCOUNTING COURSE

Department of Economics

Ningxia Vocational and Technical College of Finance and Economics

Fall 2021

### General Information:

Tuesday 7PM – 9PM Eastern Time

•Office hour sessions must be arranged in advance via email

Delivery mode: Lectures: online asynchronous

Tutorials: online synchronous from 9- 10PM on Tuesdays

Course website: <https://nxcy.bysjy.com.cn/>

### Academic Success Program

Please note that during first term, this course is participating in the Academic Success Program. The program runs in parallel to our course and is designed to facilitate connections with your classmates, enhance your academic skills, and communicate tools and campus resources that can assist in your successful transition to us. Each registered student has been placed in a group, and each group has been assigned a Peer Leader, an upper year student who has completed this course in the past. You will be hearing from your Peer Leader the week of September 6th. Your active participation in weekly online programming with your group and Peer Leader is encouraged; please plan to participate for 1- 1.5 hours each week of the first term beginning September 13th, excluding the Fall Reading Week. Please send any questions regarding this program to your Peer Leader..

### Prerequisite Note:

There are no prerequisites for this course. The former Economics 1020 is an anti-requisite.

You are responsible for ensuring that you have not taken any anti-requisite courses. If you are found to be ineligible for a course, you may be removed from it at any time and you will receive no adjustment to your fees. This decision cannot be appealed.

If you find that you have taken the anti-requisite course, it is in your best interest to drop the course well before the end of the add/drop period. Your prompt attention to this matter will not only help protect your academic record, but will ensure that spaces become available for students who require the course in question for graduation.

### **Course Objectives:**

The goal of this course is to improve students' digital literacy are designed to achieve multiple goals, including developing core accounting skills, applying digital literacy to solve real-world problems, strengthening ethical and regulatory awareness, and stimulating innovation and creative thinking. Achievement of these goals will provide students with comprehensive preparation, enabling them to be competent in complex accounting environments and make valuable contributions to organizations.

### **Course Learning Outcomes:**

Upon successful completion of this course, students will be able to understand, explain, and analyze:

- ★ the economic way of thinking using the concepts of scarcity, choosing at the margin, tradeoffs, and incentives.
- ★ how prices and quantities are determined under perfect competition, imperfect competition and monopoly.
- ★ how consumers and producers react to changes in prices.
- ★ how consumers choose what to buy given budget limitations.
- ★ a producer's costs and its profit maximization decision under perfect competition, imperfect competition, and monopoly.
- ★ the impact of government intervention in markets.

### **Textbook and Course Materials:**

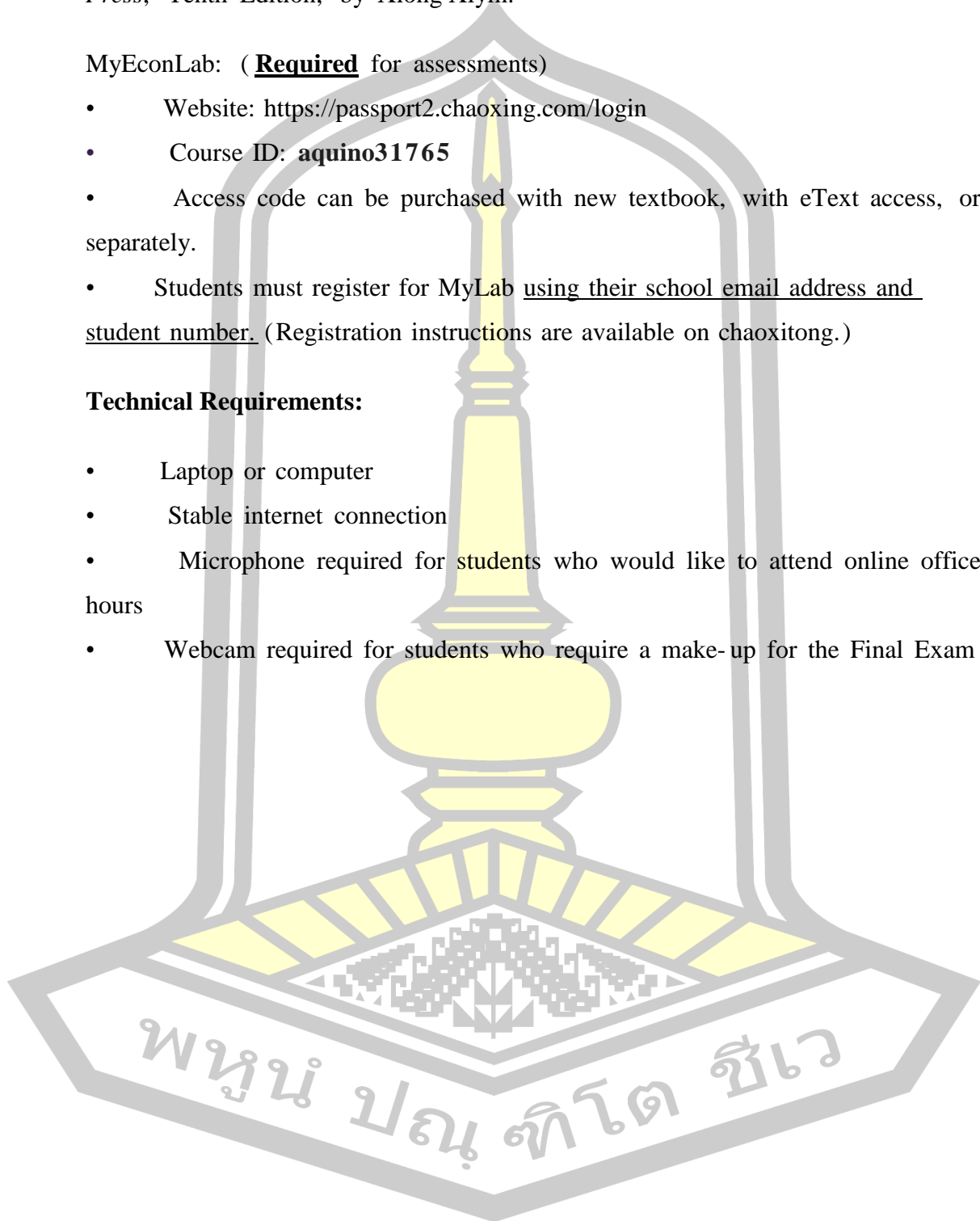
Textbook (also available as an eText): *Accounting Principles, Tsinghua University Press*, Tenth Edition, by Xiong Xiyin.

MyEconLab: (**Required** for assessments)

- Website: <https://passport2.chaoxing.com/login>
- Course ID: **aquino31765**
- Access code can be purchased with new textbook, with eText access, or separately.
- Students must register for MyLab using their school email address and student number. (Registration instructions are available on chaoxitong.)

**Technical Requirements:**

- Laptop or computer
- Stable internet connection
- Microphone required for students who would like to attend online office hours
- Webcam required for students who require a make-up for the Final Exam



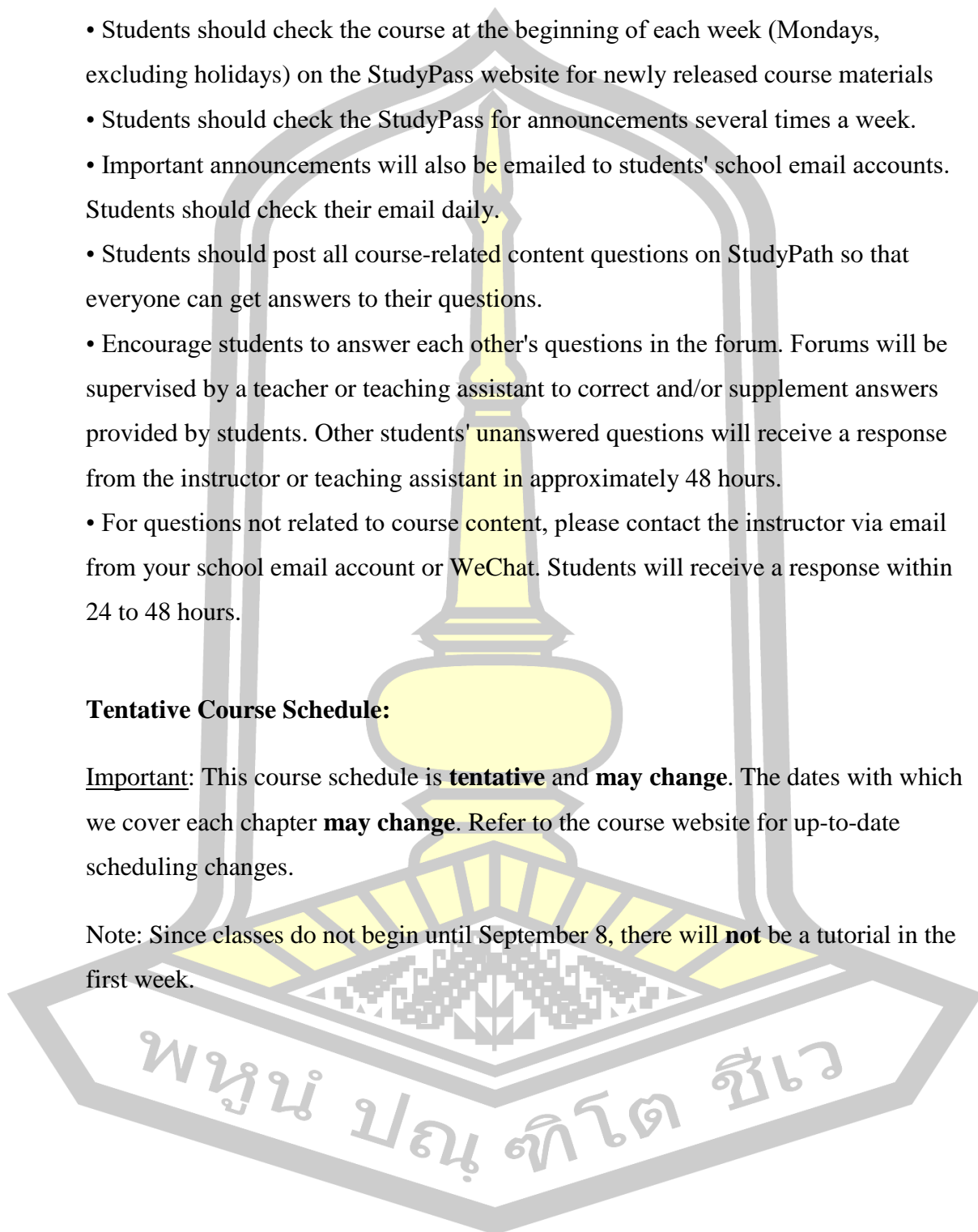
**Communication:**

- Students should check the course at the beginning of each week (Mondays, excluding holidays) on the StudyPass website for newly released course materials
- Students should check the StudyPass for announcements several times a week.
- Important announcements will also be emailed to students' school email accounts. Students should check their email daily.
- Students should post all course-related content questions on StudyPath so that everyone can get answers to their questions.
- Encourage students to answer each other's questions in the forum. Forums will be supervised by a teacher or teaching assistant to correct and/or supplement answers provided by students. Other students' unanswered questions will receive a response from the instructor or teaching assistant in approximately 48 hours.
- For questions not related to course content, please contact the instructor via email from your school email account or WeChat. Students will receive a response within 24 to 48 hours.

**Tentative Course Schedule:**

Important: This course schedule is **tentative** and **may change**. The dates with which we cover each chapter **may change**. Refer to the course website for up-to-date scheduling changes.

Note: Since classes do not begin until September 8, there will **not** be a tutorial in the first week.



Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
5	Accounts	Understanding of	After-school	Online	1

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	and Double	accounting subjects and	l exercises	And	

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	Entry	account structure, principle		computer	

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		of double-entry		room	

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		bookkeeping			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		Focus: setting of			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		accounting subjects			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		Difficulties: Accounting			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		Rules for Debit and Credit			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		Accounting			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
6	Financial	Understanding of	Students	Offline and	2

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	Assets	accounting Financial	are required	computer	

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		Assets	to complete	room	

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
			the		

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
			exercises in		

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
			the		

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
			"Practices		

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
			of		

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
			Investment		

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
			Decision		

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
			Making"		

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
			chapter		

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
7	Inventories	Understand that inventory	No	Offline and	2

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		is the accounting of items,		computer	

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		parts and raw materials		room	

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		that a company uses in			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		production or sales			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
8	Plant Assets	Understand that a plant	After-school	Offline and	3

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		asset is an asset that has a	l exercises	computer	

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		useful life of more than		room	

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		one year and is used to			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		generate revenue in			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		business operations. Plant			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		assets are also known as			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		fixed assets. Plant assets			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		are carried at cost and			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		depreciation expense is			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		carried over their useful			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		lives.			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
9	midterm				1

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	exam				

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
10-14	Accounting	Business Accounting of	After-school	Offline and	13

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	of the main	Manufacturing Enterprises	1 exercises	computer	

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	economic	at Various Stages		room	

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	business of	Focus: Common economic			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	manufacturi	business content			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	ng	accounting scores			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	enterprises	compilation of records			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		Difficulties: the production			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		process and profit			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		distribution process			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		Accounting for economic			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		business			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
15	Asset	Valuation of various	After-school	Offline and	3

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	valuation,	assets, cost calculation in	l exercises	computer	

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	cost	the process of business		room	

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	accounting	operation			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		Accounting for key			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		product procurement,			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		production and sales costs			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements. Difficulty: understanding	After-school exercises	computer room	3
		Difficulty: understanding			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		of common valuation			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		methods for inventories,			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		fixed assets and			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		receivables			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
16	Accounting	Various accounting	After-school	Offline and	3

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	organization	organizational procedures,	1 exercises	computer	

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	procedures,	inventory systems,		room	

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	property	property inspection results			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
	inventory	Accounting treatment			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		Emphasis: Basic			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		procedures for accounting			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		processing; monetary			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		funds, inventory, fixed			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		Inventory and accounting			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		treatment of assets, claims			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		and other assets			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		Difficulty: Accounting			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		Processing of Inventory			

Week	Teaching themes	Teaching content	Homework	Teaching methods	Teaching hours
1	Introduction	The meaning, object, function and role of accounting Focus: Definition of Accounting Difficulties: Objects and Functions of Accounting Course ideological and political integration points: introduction to basic accounting laws and regulations, accounting profession Ethics and accounting standards, through the study of party history, cultivate students' spirit of honesty and trustworthiness.	Students are required to read at least two articles pertaining to accounting ethics	Offline and computer room	3
2	Accounting elements and accounting equations	Understanding of accounting elements and accounting equations Focus: Elements of Accounting Difficulty: Accounting Equations	After-school exercises	computer room	3
3	Accounting Fundamentals	Understanding of accounting assumptions, cash basis and accrual basis Focus: Accounting Assumptions Difficulties: cash-based, accrual-based courses	Correctly divide inter-period income and expenses by accrual basis and cash basis	Offline and computer room	3
4	Accounting Cycle II	The accounting cycle is a collective process of identifying, analyzing, and recording the accounting events of a company. It is a standard 8-step process that begins when a transaction occurs and ends with its inclusion in the financial statements.	After-school exercises	computer room	3
		Results			

### Assessments and Grading:

All regularly scheduled assessments in this course will be held online on MyEconLab. Instructions on how to access MyEconLab are found on the course website under Resources. The tentative date, coverage and weight of the assessments in the calculation of your course mark are as follows:

Assessment	Date	Chapters	Weight
Quiz 1	September 28	Ch. 1-3	20%
Quiz 2	October 19	Ch. 4-6	20%
Quiz 3	November 16	Ch. 9- 11	20%
Final Exam	TBD	Ch. 1-6, 9- 14,17	40%

During assessments, students are forbidden to communicate with any person other than an examination proctor or the instructor. Students are permitted to use their textbooks. Students are not permitted to use their notes, study guides, diagrams, communication equipment such as a cell phone, computer programs or software, online resources or websites, or other aids unless specifically authorized by the instructor.

Tentative Quiz Details: Quizzes will be mixed format. Quizzes will be 45 minutes in duration and will be available 8:30- 10:00PM Eastern Time on the date indicated in the table above. Quiz timing will be confirmed and additional format details will be provided one week prior to each quiz date.

Students should keep this schedule and workload in mind given their other courses and commitments. Students should plan ahead to ensure that they have the capacity to complete the tests on these dates. Students should notify the instructor of conflicts with any of these test dates no later than September 26.

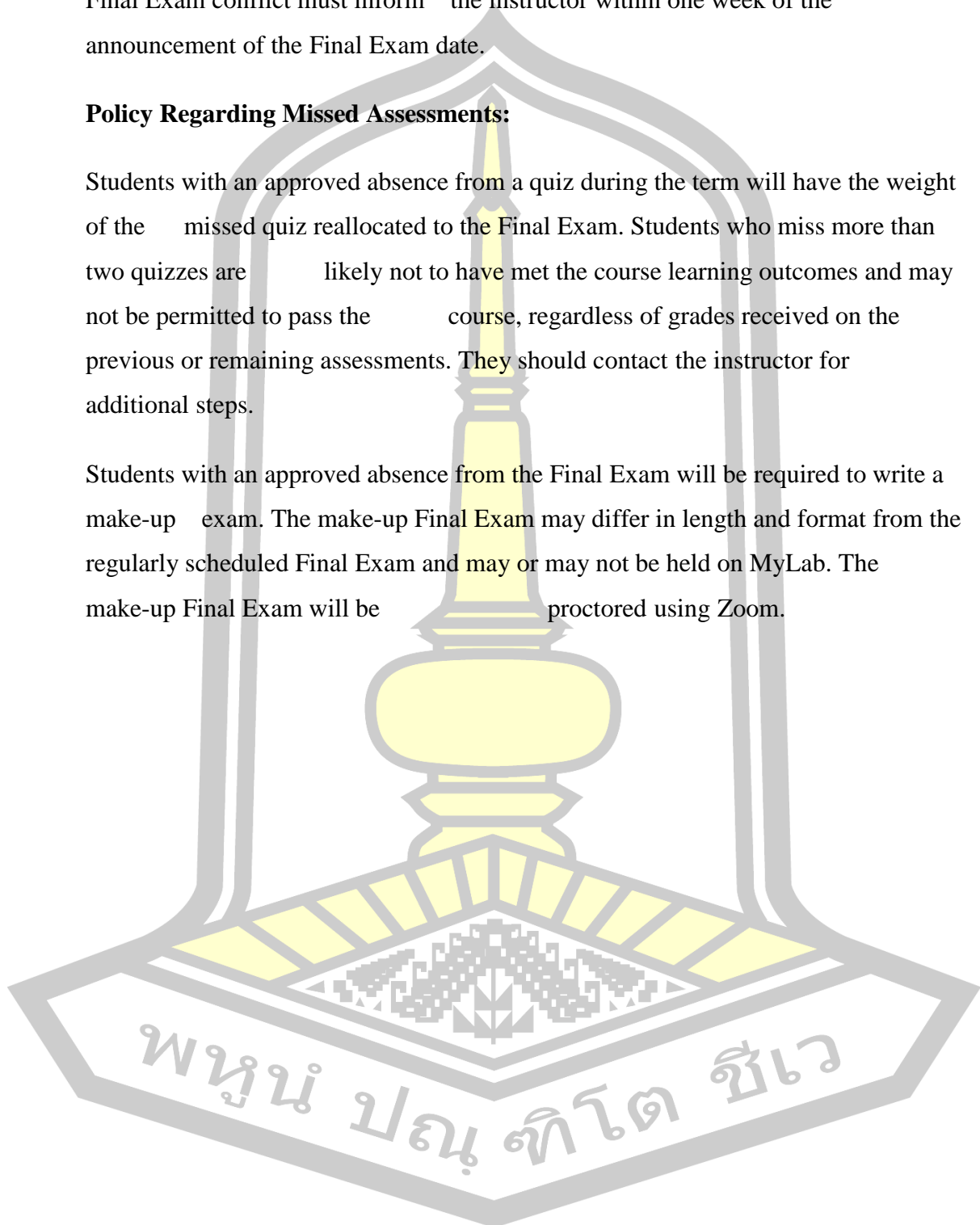
Tentative Final Exam Details: The Final Exam will be cumulative and will be mixed format. The Final Exam will be scheduled by the Registrar. Once the date and time

of the Final Exam is available, it will be announced on XueXiTong. Students with a Final Exam conflict must inform the instructor within one week of the announcement of the Final Exam date.

**Policy Regarding Missed Assessments:**

Students with an approved absence from a quiz during the term will have the weight of the missed quiz reallocated to the Final Exam. Students who miss more than two quizzes are likely not to have met the course learning outcomes and may not be permitted to pass the course, regardless of grades received on the previous or remaining assessments. They should contact the instructor for additional steps.

Students with an approved absence from the Final Exam will be required to write a make-up exam. The make-up Final Exam may differ in length and format from the regularly scheduled Final Exam and may or may not be held on MyLab. The make-up Final Exam will be proctored using Zoom.



### How to do well in this course:

1. Start each week by reading the assigned textbook chapter(s). Then read the course notes provided for you. The course notes are a synopsis of the chapter. They do not contain all of the material that you need to know! You must read the textbook.
2. Work as many problems as you need to do to feel comfortable with the material. There are problems on MyLab, at the end of the chapter in the textbook, and on the course website. There is no lack of problems to work on! Economics requires active learning. Passively reading the textbook rarely results in a passing grade.
3. Do not be afraid to ask questions. If you have questions or are struggling with a topic, post them on the Forum. Your classmates will be happy to discuss your question with you, and the teaching assistant and I will check the Forum to make sure that no one will lead you astray.
4. Make it a daily habit to log onto XueXiTong to ensure you have seen everything posted to help you succeed in this class.
5. Connect with others. Try forming an online study group and meet on a weekly basis for study and peer support.

### Further reading

*Godfrey J, Hodgson A, Tarca A, et al. Accounting[M]. John Wiley & Sons, Inc, 2010.*

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Table 45 An example about: Teaching design plan for the course unit "Financial Accounting Practice"

<b>Teaching time</b>	2 February 28, 2023 - March 3, 2023		
<b>Classes taught</b>	22Audit _	<b>class locations</b>	Teach 1- 203
<b>Teaching unit name</b>	1. Understanding of financial accounting Section 1 Objectives of Financial Accounting Section 2 Accounting Information Quality Requirements	<b>class</b>	1
<b>teaching objectives</b>	1. Understand the goals of financial accounting 2. Master accounting information quality requirements <b>Course ideological and political goals:</b> <b>Socialist core values - honesty and trustworthiness</b> <b>Accounting Professional Ethics</b>		
<b>Teaching focus</b>	Objectives of Financial Accounting Accounting information quality requirements Accounting		
<b>Teaching difficulties</b>	Accounting information quality requirements		
<b>Target groups</b>	Vocational students majoring in accounting		
<b>Teaching environment</b>	Multimedia classroom or integrated classroom		
<b>teaching method</b>	case teaching; teaching; inspiration and guidance		

education resources	①Chinese University MOOC [Video 1] Financial accounting objectives; [Video 2] Financial accounting information quality requirements [PPT] Financial accounting objectives; [PPT] Financial accounting information quality requirements [Electronic textbook] Financial accounting objectives; [Electronic textbook] Financial accounting information quality requirements After class exercises
<b>Schedule</b>	<b>Teaching process design</b>
<b>Organize teaching</b> (2 minutes)	Check attendance, fill in teaching logs, adjust the classroom atmosphere, mobilize students to actively participate in class, create a harmonious and lively classroom, and be prepared to accept new knowledge.
<b>Import new lesson</b> (2 minutes)  <b>introductory course</b> (4 minutes)	What did you learn in "Basics of Accounting"? What do you study in "Financial Accounting"? "Financial Accounting" is an important part of modern accounting. Modern accounting has two major branches, namely financial accounting and management accounting. Financial accounting is also called "external reporting accounting" Management accounting is also known as "internal reporting accounting" <b>Import this course:</b> <b>Course nature and positioning: the core course of the accounting major. 1+X Vocational Skills Level Certificate, Accounting Junior Qualification Examination Course.</b> <b>Textbooks: "Main Textbook", "Supporting Exercises and Practical Training", "Synchronous Simulation Training"</b> <b>Chinese university MOOC online open courses</b> <b>Course content introduction: Chapter 13</b> <b>Learning requirements and methods:</b>

<p><b>Accounting and the Chinese Economy</b></p>	<p align="center"><b>Chapter 1 Financial Accounting Cognition</b></p> <p><b>Integrity is the basis, ethics is the most important, follow the standards, and do not make false accounts” - Basic professional ethics and code of conduct for accountants</b></p>
<p><b>guide students to think</b></p>	<p>As a corporate financial accountant in the new era, how should we practice "integrity-based, ethics-based, adhere to standards, and not make false accounts"?</p> <p align="center"><b>Section 1 Financial Accounting Objectives</b></p> <p><b>1. The concept of financial accounting</b></p>
<p><b>Lecture Analysis</b> (20 minutes)</p>	<p>Accounting is a management activity that uses currency as the main unit of measurement to reflect and supervise the economic activities of an enterprise. Financial accounting is a major branch of modern accounting, also known as "external reporting accounting". It is a management activity that provides accounting information to users of accounting information through the recognition, measurement and reporting of accounting elements.</p> <p>What are the differences and connections between financial accounting and management accounting?</p>
<p><b>Every job has a goal. What is the goal of financial accounting work?</b></p>	<p><b>2. Objectives of financial accounting</b></p> <p>National Goal—Chinese Dream</p> <p>Everyone’s goal?</p> <p>The goal of financial accounting, also known as the goal of financial reporting, is to provide financial report users with accounting information related to the company's financial status, operating results and cash flows, reflect the performance of corporate management's fiduciary responsibilities, and contribute to financial reporting. Users make economic decisions.</p>
<p><b>Personal Dream and Chinese Dream</b></p>	<p>my country's financial reporting objectives mainly include the</p>

<p><b>Analysis and explanation</b></p>	<p>following two aspects:</p> <p>(1) Provide users of financial reports with information useful for decision-making</p> <p>(2) Reflect the performance of corporate management's fiduciary responsibilities</p> <p>1. Provide users of financial reports with information useful for decision-making</p> <p>The main purpose of enterprises preparing financial reports is to meet the information needs of users of financial reports and to help users of financial reports make economic decisions.</p> <p>2. Reflect the performance of corporate management's fiduciary responsibilities</p> <p>Under the modern corporate system, enterprise ownership and management rights are separated. The enterprise management is entrusted by the trustee to operate and manage the enterprise and its various assets, and has fiduciary responsibilities. That is, the various assets of the enterprise managed by the enterprise management are basically The above are all capital invested by investors (or retained earnings as reinvestment) or funds borrowed from creditors. The management of the enterprise has the responsibility to properly safeguard and use these assets reasonably and effectively. Therefore, financial reports should reflect the performance of corporate management's fiduciary responsibilities to help evaluate the company's operational management responsibilities and the effectiveness of resource use.</p> <p>Who are the users of accounting information?</p> <p>Case: On September 1, Huaqi Co., Ltd. was registered and established by three sponsors, A, B, and C, with a registered capital of 5 million yuan, of which A invested 500,000 yuan in monetary</p>
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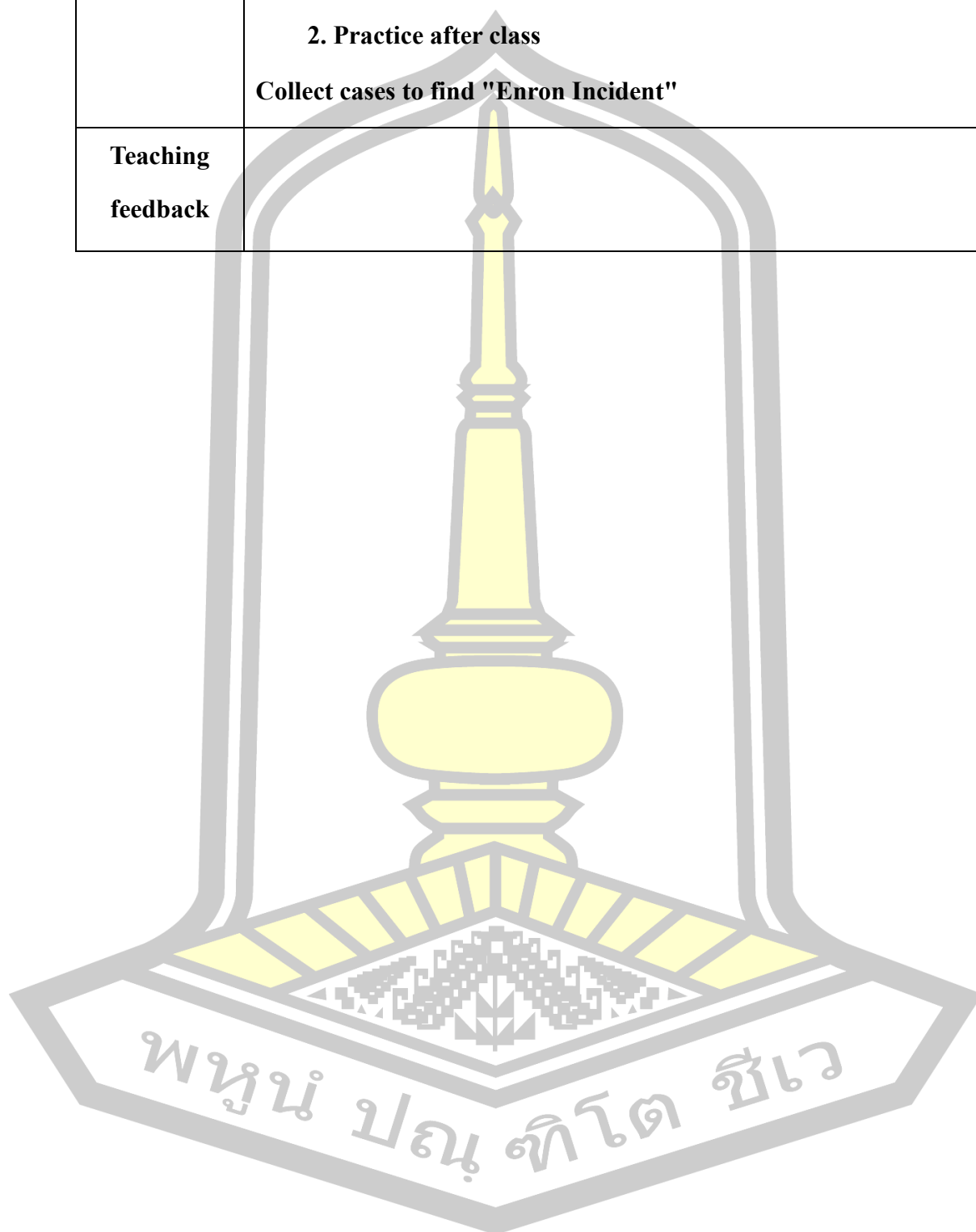
<p><b>Comparative explanation with management accounting</b></p>	<p>capital, accounting for 10% of the shares, and B C invested 3.5 million yuan in business buildings and equipment, accounting for 70% of the shares. C invested 1 million yuan in patent rights, accounting for 20% of the shares. A, B, and C elected 4 Zhang Moumou as the general manager of the company. As the company's operating manager, he is responsible for the company's operation and management. The company borrowed 1 million yuan in working capital from the Industrial and Commercial Bank of China, and the tax bureau determined that the company was a general taxpayer of value-added tax.</p>
<p><b>Course Ideology and Politics</b></p>	<p>Thinking: To whom should Huaqi Co., Ltd. provide accounting information?</p>
<p><b>How to practice it?</b></p>	<p><b>3. Financial accounting characteristics</b></p> <ol style="list-style-type: none"> <li>1. Mainly provides external information users</li> <li>2. Use specialized methods</li> <li>3. General accounting principles: Accounting Law-Basic Standards for Enterprise Accounting-Specific Standards for Enterprise Accounting</li> </ol>
<p><b>Analysis and explanation (40 minutes)</b></p>	<p><b>4. Professional ethics of financial accounting personnel</b></p> <p>8 aspects of professional ethics that accountants should abide by</p>
<p><b>Introducing accounting information quality through product quality</b></p>	<p><b>Section 3 Accounting Information Quality Requirements</b></p> <p>Accounting information quality requirements are the basic requirements for the quality of accounting information provided in corporate financial reports. They are the basic characteristics that should be possessed to make the accounting information provided in financial reports useful for users to make decisions.</p>
<p><b>Case warning</b></p>	<p><b>Our country is taking the road of high-quality development and the road of improving the quality of accounting information.</b></p>

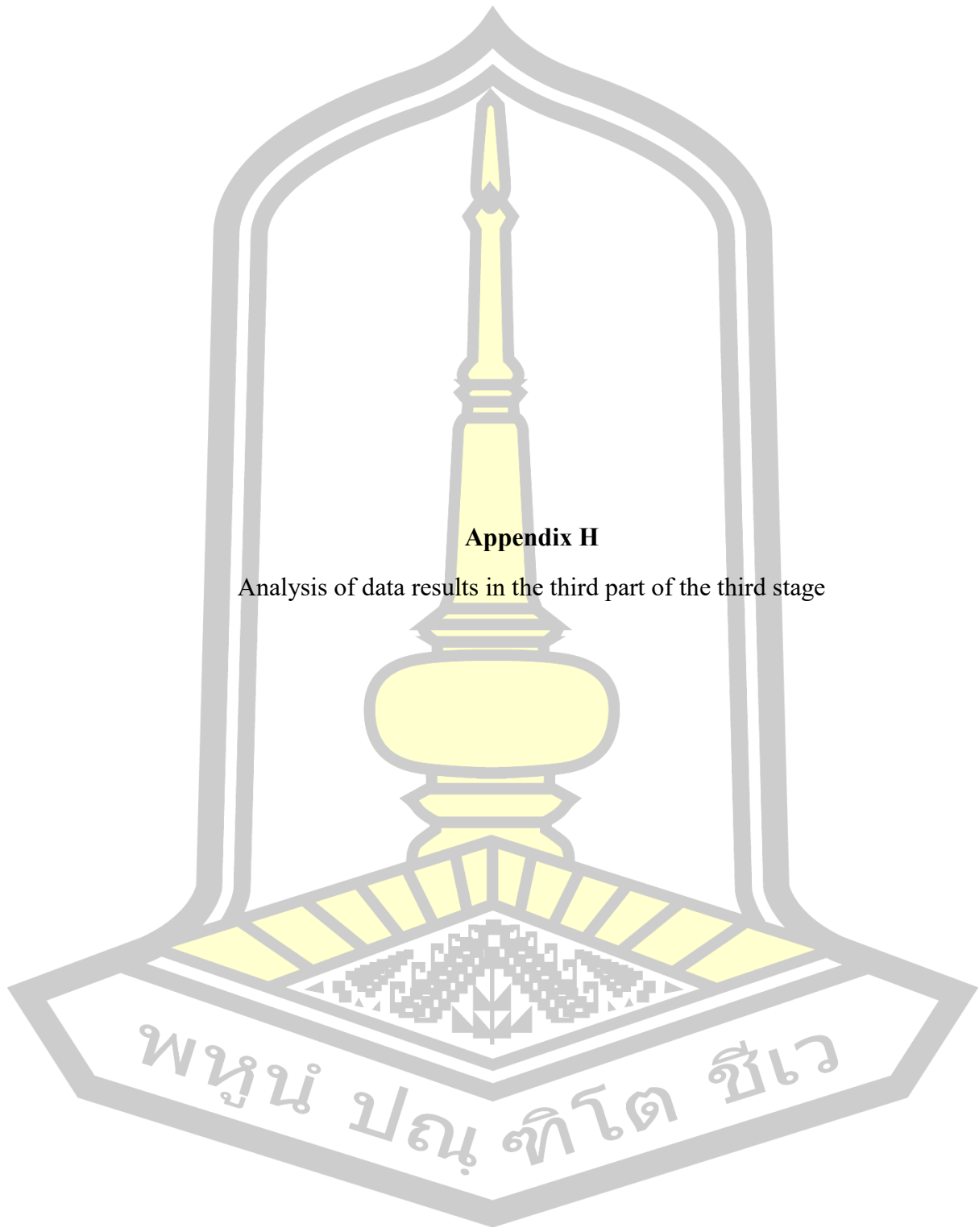
<p><b>Case explanation</b></p>	<p><b>1. Reliability</b> : Enterprises should conduct accounting confirmation, measurement and reporting based on actual transactions or events, truthfully reflect various accounting elements and other relevant information that meet the recognition and measurement requirements, and ensure that accounting information is true, reliable and complete in content.</p> <p>Reliability includes: authenticity, objectivity, verifiability, and information integrity</p> <p>Case analysis: Ruixing Coffee and Zhangzidao Scallops ran away.</p>
<p><b>Example explanation</b></p>	<p><b>2. Relevance</b> : The accounting information provided by the enterprise should be relevant to the economic decision-making needs of users of financial accounting reports, and help users of financial accounting reports evaluate or predict the past, present or future situations of the enterprise.</p>
<p><b>Lecture analysis</b></p>	<p><b>3. Understandability</b> : The accounting information provided by the enterprise should be clear and easy for users of financial accounting reports to understand and use.</p>
<p><b>Look at the essence of the problem</b></p>	<p>The principle of understandability requires that accounting data records and text descriptions must be clear, concise, and easy to understand. Complex economic businesses should be expressed in standardized words to facilitate the understanding and use of relevant departments and personnel.</p>
<p><b>Analytical lectures</b></p>	<p><b>4. Comparability</b> : The accounting information provided by the enterprise should be comparable.</p>
<p><b>Example explanation</b></p>	<p>Comparability requires that identical or similar transactions or events occurring in different periods of the same enterprise should adopt consistent accounting policies and not change them at will. If changes are really needed, they should be stated in the notes.</p> <p>The same or similar transactions or events that occur in different</p>

<p><b>Analysis and explanation</b></p>	<p>enterprises should adopt prescribed accounting policies to ensure that the accounting information is consistent and comparable to each other .</p>
<p><b>Incorporate the principles of modesty and prudence into it</b></p>	<p><b>5. Substance over form</b> : Enterprises should conduct accounting recognition, measurement and reporting based on the economic substance of the transaction or event, and should not rely solely on the legal form of the transaction or event.</p> <p>In practice, the legal form of a transaction or matter does not always fully and truly reflect its substance. Therefore, if accounting information wants to reflect the transactions or events it should reflect, it must be judged based on the substance and economic reality of the transactions or events, not just their legal form.</p> <p>For example, "Long-term borrowings due within one year on the balance sheet date"</p> <p>Form: long-term borrowings, non-current liabilities</p> <p>Substance: Due within one year, it is not a non-current liability</p> <p>Conclusion: Include "non-current liabilities due within one year" separately.</p>
<p><b>Example explanation</b></p>	<p><b>6. Importance</b> : The accounting information provided by the enterprise should reflect all important transactions or matters related to the enterprise's financial status, operating results, cash flow, etc.</p> <p>If the omission or misstatement of corporate accounting information will affect users' economic decisions based on it, the information is important. The application of materiality requires professional judgment. Enterprises should judge the materiality from the nature and amount of the project based on the environment and actual conditions in which it is located.</p>
<p><b>Analysis and explanation</b></p>	<p><b>7. Prudence</b> : Enterprises should exercise due prudence in accounting recognition, measurement and reporting of transactions or events, and</p>
<p><b>Analyze one by one</b></p>	<p></p>

<p><b>practice</b></p> <p><b>5 minutes</b></p> <p><b>Teachers and students jointly analyze (5 minutes)</b></p>	<p>should not overestimate assets or income, or underestimate liabilities or expenses.</p> <p>The application of prudence does not allow companies to set up secret preparations. If a company deliberately underestimates assets or income, or deliberately overestimates liabilities or expenses, it will not meet the reliability and relevance requirements of accounting information, damage the quality of accounting information, and distort the company's actual performance. financial status and operating results, thereby misleading users in their decision-making, which is not allowed by corporate accounting standards.</p> <p><b>8. Timeliness:</b> Enterprises must promptly conduct accounting confirmation, measurement and reporting of transactions or events that have occurred, and shall not advance or delay them.</p> <p>The value of accounting information lies in helping users make economic decisions, so it is timely. Implementing timeliness in the accounting recognition, measurement, and reporting processes requires timely collection of accounting information; timely processing of accounting information; and timely transmission of accounting information.</p> <p>Listed companies in our country need to publicly disclose annual financial reports on time, and they also need to disclose quarterly financial reports on a quarterly basis. This is a concrete manifestation of the timeliness of accounting information.</p> <p><b>Practice (see courseware)</b></p> <p><b>Class summary (see courseware) points out key points</b></p>
<p><b>Operation</b></p>	<p>See "<b>Financial Accounting Exercises and Practical Training</b>"</p> <p><b>Chinese University MOOCC</b></p>

	<p><b>1. Participate in problem discussions and post</b></p> <p><b>2. Practice after class</b></p> <p><b>Collect cases to find "Enron Incident"</b></p>
<p><b>Teaching feedback</b></p>	





**Appendix H**

Analysis of data results in the third part of the third stage

### Statistics

Grades		
N	Valid	248
	Missin g	0
Skewness		.300
Std. Error of Skewness		.165
Kurtosis		-.423
Std. Error of Kurtosis		.308

According to Figure 1, we can know that the researcher conducted a basic statistical description of the key variable in the study, that is, the 'accounting pre-test scores' of the two classes. The results show that the skewness value of this variable is 0.300 and its standard error is 0.165. By calculating the Z-score of the skewness value, the researcher obtained  $Z\text{-score} = 1.81$ . At the same time, the kurtosis value is -0.423, its standard error is 0.308, and the corresponding Z-score is -1.37. According to the statistical analysis of the study, the skewness and kurtosis values are close to zero, 0.300 and -0.423 respectively, while the corresponding Z-scores are 1.81 and -1.37 respectively. These results indicate that the distribution shape of the 'Accounting pre-test scores' data for both classes is close to a normal distribution, as the skewness and kurtosis values are both approximately equal to zero, and the Z-scores are both within  $\pm 1.96$ .

This finding provides important information for the study, that is, the 'accounting pretest scores' may conform to the assumption of normal distribution. Accept the null hypothesis and reject the alternative hypothesis. This will provide a basis for applying statistical methods in subsequent data analysis to more accurately infer and interpret

the results.

### Group Statistics

	Number	N	Mean	Std. Deviation	Std. Error Mean
Grade 1		124	48.27	9.941	.893
Grade 2		124	47.62	9.963	.895

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Grades	Equal variances assumed	.045	.833	.517	246	.606	.653	1.264	-1.836	9.387
	Equal variances not assumed			.517	245.99	.606	.653	1.264	-1.836	9.388

As can be seen from Figure 1, (1) Levene's test for equality of variances, also called F test, or homogeneity of variances test. Under the condition of equal variation,  $F=0.045$ ,  $Sig.=0.833$  (significance), greater than 0.05, it can be considered that the variances of familiarity of the two sets of data are equal.

For the t-test on whether the means are equal,  $t=0.517$ , the degrees of freedom are 246, and the two-tailed significance probability  $Sig. (two-tailed)=0.606 > 0.05$ . Therefore, the null hypothesis should be accepted, that is, there is no significant difference in

familiarity between the two sets of data. The mean difference is 0.653, the standard error of the mean difference is 1.264, and the 95% confidence interval of the mean difference is (-1.836, 3.143)

### Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
change	124	100.0%	0	0.0%	124	100.0%

### Descriptives

		Statistic	Std. Error
change	Mean	37.1210	1.43719
	95% Confidence Interval for Mean	Lower Bound	34.2761
		Upper Bound	39.9658
	5% Trimmed Mean	37.3835	
	Median	41.0000	
	Variance	256.123	
	Std. Deviation	16.00386	
	Minimum	4.00	
	Maximum	64.00	
	Range	60.00	
	Interquartile Range	25.00	
	Skewness	-.317	.217
	Kurtosis	-.952	.431

### Tests of Normality

Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	df	Sig.

change	.104	124	.002	.953	124	.000
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a. Lilliefors Significance Correction

Figure 8 is a statistical description of the newly generated variable "Change", which lists the "mean", "median", "variance", "standard deviation", "minimum" and "maximum" of the observed variables wait. It can be seen that the mean difference between the two methods is 37.121 and the median is 41.

Figure 9 shows the results of two normality tests, the Kolmogorov-Smirnov, K-S test and the Shapiro-Wilk normality, S-W test. The K-S test is suitable for large sample data, and this study should check the results of the K-S test. According to the results of the Kolmogorov-Smirnov normality test, the researcher found that the statistical value of the pre-test score data was 0.104, the degrees of freedom were 124, and the corresponding p value was 0.002. This means that the pretest score data do not statistically meet the assumption of a normal distribution. The distribution overlap between the scatter points and the diagonal line on the Q-Q diagram in Figure 10 is low, and it can also be considered that the data does not obey the normal distribution. These results provide key information for the researcher's subsequent statistical analysis and will help the researcher choose appropriate methods to compare changes in pre- and post-test scores. Therefore, the paired sample Wilcoxon signed rank test should be used in this case.

**Descriptive Statistics**

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
Pre-test	124	48.27	9.941	30	69	40.25	48.00	52.75
post-test	124	85.40	9.372	70	99	75.25	86.50	94.00

As can be seen in Figure 1, the mean of the pre-test scores is 48.27, the standard deviation is 9.941, the minimum score is 30, and the maximum score is 69. The median (50th percentile) is 48.00, the 25th percentile is 40.25, and the 75th percentile

is 52.75. The mean of the post-test scores is 85.40, the standard deviation is 9.372, the minimum score is 70, and the maximum score is 99. The median final grade (50th percentile) was 86.50, the 25th percentile was 75.25, and the 75th percentile was 94.00. Overall, the mean and dispersion of pretest scores and final scores reflect changes in student performance in this course. The mean of the pretest scores was lower, while the mean of the final scores was significantly higher, indicating significant improvement in the students' progress in the course.

### Ranks

		N	Mean Rank	Sum of Ranks
post-test - Pre-test	Negative Ranks	0 <sup>a</sup>	.00	.00
	Positive Ranks	124 <sup>b</sup>	62.50	7750.00
	Ties	0 <sup>c</sup>		
	Total	124		

a. post-test < Pre-test

b. post-test > Pre-test

c. post-test = Pre-test

As can be seen from Figure 2, in Negative Ranks, no student's final score is lower than the pre-test score, so the sum of negative ranks is 0. Among the Positive Ranks, there were 124 students whose final scores were higher than their pretest scores, with the mean rank being 62.50 and the total being 7750.00. This shows that most students perform better in their final grades.

There are no ranks in which Ties occur, that is, the final score is equal to the pretest score. Overall, the rank data provided ranking information between final grades and pretest scores, clearly showing improvement in students' performance, with most students' final grades being higher than their pretest scores. This supports previous observations of improved performance.

### Test Statistics<sup>a</sup>

	post-test - Pre-test
Z	-9.664 <sup>b</sup>
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Figure 16 is the result of the paired sample Wilcoxon signed rank test. The statistic calculated based on negative rank is  $Z = -9.664$ ,  $P = 0.000 < 0.05$ . It shows that the difference between the median difference of the two sets of data and 0 is statistically significant, that is, the median of the students' course pre-test and course post-test is different. The results of the Wilcoxon signed-rank test showed that there was a significant difference between the final scores and the pretest scores. This further supports the aforementioned observation that students' performance improved over the course of the course, and the low p-value at the significance level strengthens this conclusion.

**Hypothesis Test Summary**

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of grades is the same across categories of Class.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.

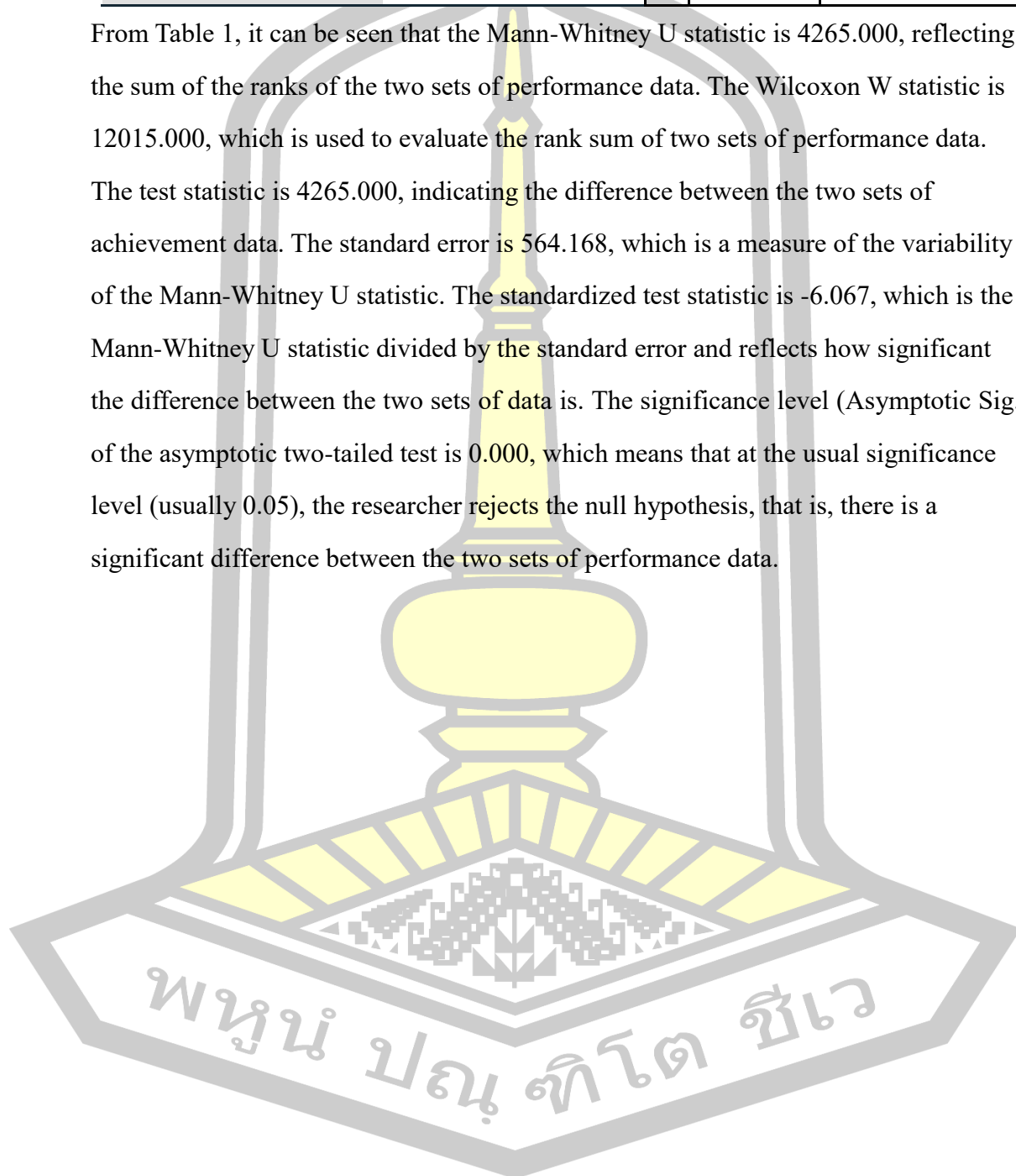
Asymptotic significances are displayed. The significance level is .050.

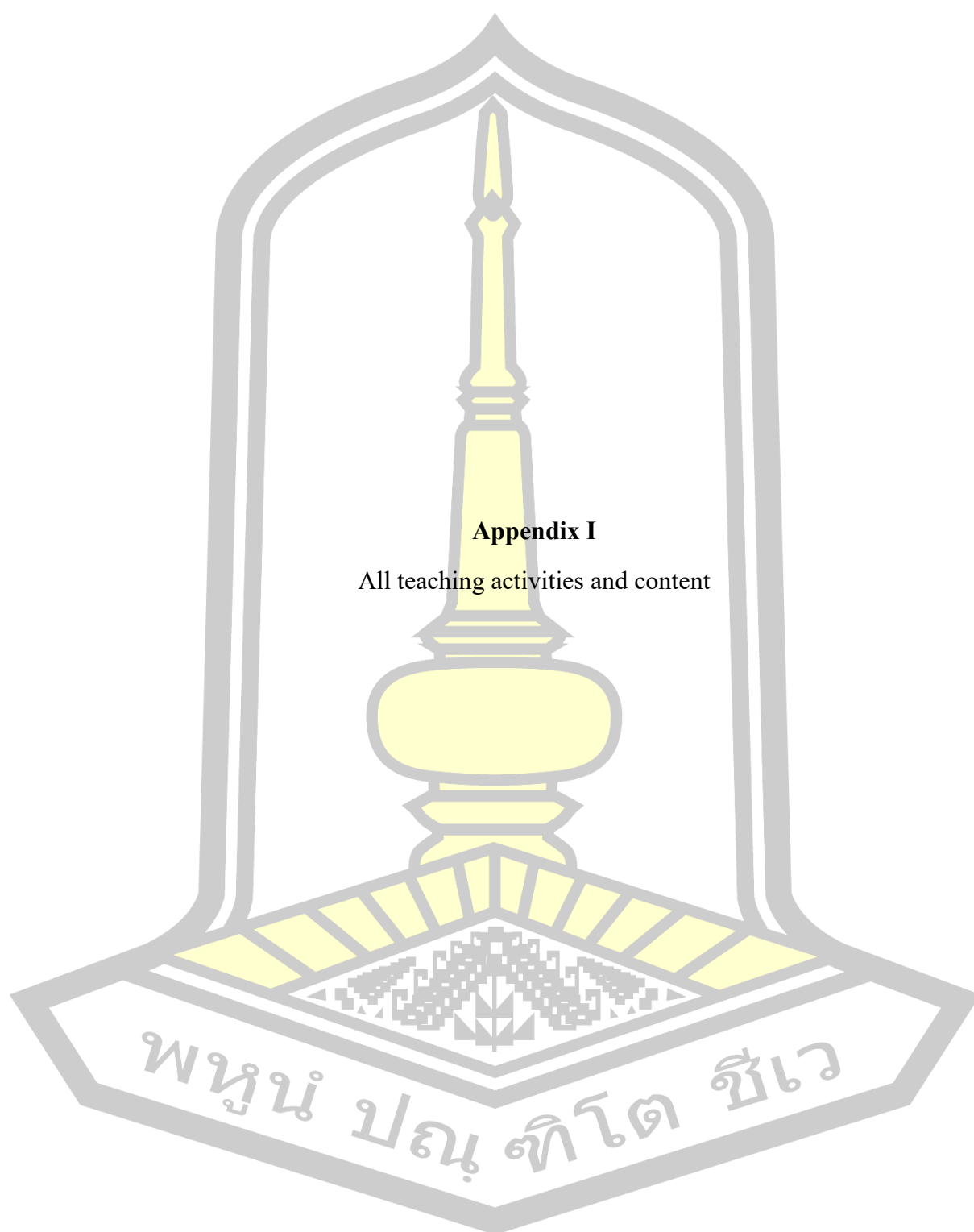
**Independent-Samples Mann-Whitney U Test Summary**

Total N	248		
Mann-Whitney U	4265.000		
Wilcoxon W	12015.000		
Test Statistic	4265.000		

Standard Error	564.168			
Standardized Test Statistic	-6.067			
Asymptotic Sig.(2-sided test)	.000			

From Table 1, it can be seen that the Mann-Whitney U statistic is 4265.000, reflecting the sum of the ranks of the two sets of performance data. The Wilcoxon W statistic is 12015.000, which is used to evaluate the rank sum of two sets of performance data. The test statistic is 4265.000, indicating the difference between the two sets of achievement data. The standard error is 564.168, which is a measure of the variability of the Mann-Whitney U statistic. The standardized test statistic is -6.067, which is the Mann-Whitney U statistic divided by the standard error and reflects how significant the difference between the two sets of data is. The significance level (Asymptotic Sig.) of the asymptotic two-tailed test is 0.000, which means that at the usual significance level (usually 0.05), the researcher rejects the null hypothesis, that is, there is a significant difference between the two sets of performance data.

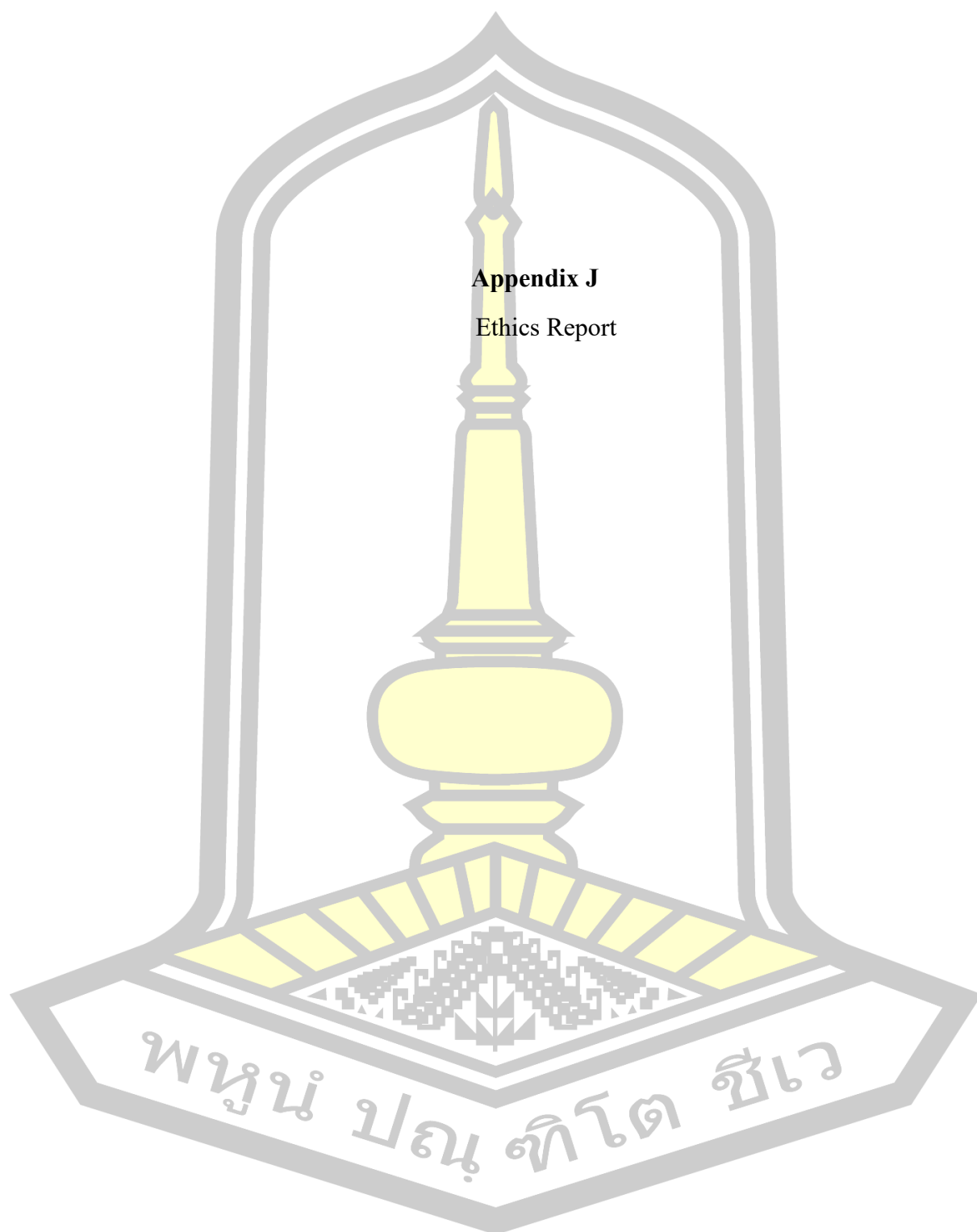




Accounting courses to improve the professional skills and digital literacy of accounting students. All lesson plans and course activities are at the link below.

[https://drive.google.com/drive/folders/1SPdSTVkJ4kmAtkKc7FfXv4xOdaVyybOy?usp=drive\\_link](https://drive.google.com/drive/folders/1SPdSTVkJ4kmAtkKc7FfXv4xOdaVyybOy?usp=drive_link)





**Appendix J**  
Ethics Report



MAHASARAKHAM UNIVERSITY ETHICS COMMITTEE FOR  
RESEARCH INVOLVING HUMAN SUBJECTS

Certificate of Approval

Approval number: 362-419/2023

**Title :** The development of Digital Accounting Course Curriculum to Enhance Accounting Professional Skills and Digital Literacy in Ningxia, China.

**Principal Investigator :** Ningxin MA

**Responsible Department :** Faculty of Education

**Research site :** Ningxia, China

**Review Method :** Expedited Review

**Date of Manufacture :** 25 September 2023

**expire :** 24 September 2024

This research application has been reviewed and approved by the Ethics Committee for Research Involving Human Subjects, Maharakham University, Thailand. Approval is dependent on local ethical approval having been received. Any subsequent changes to the consent form must be re-submitted to the Committee.

*Ratree S.*

.....  
(Asst. Prof. Ratree Sawangjit)

Chairman

Approval is granted subject to the following conditions: (see back of this Certificate)

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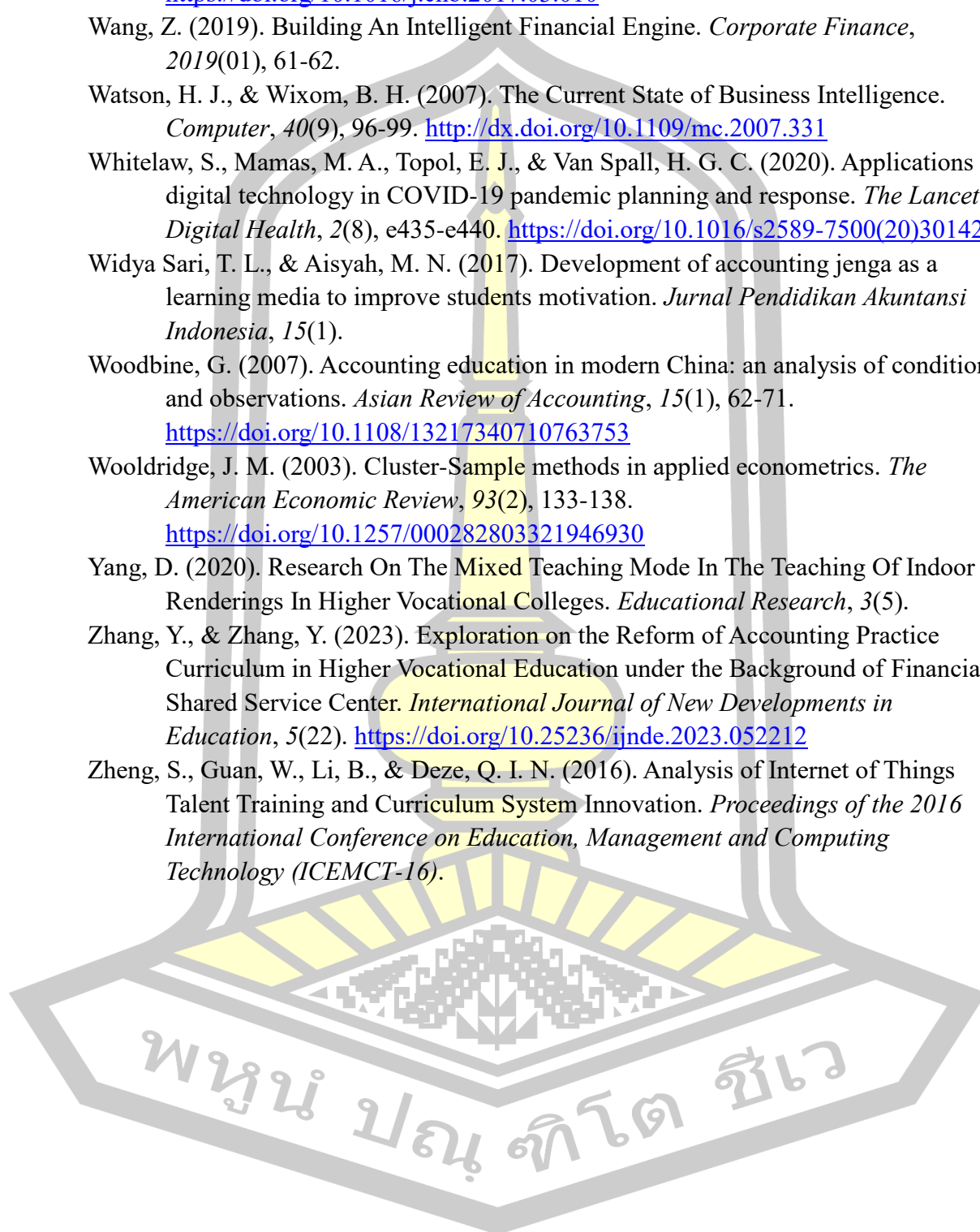
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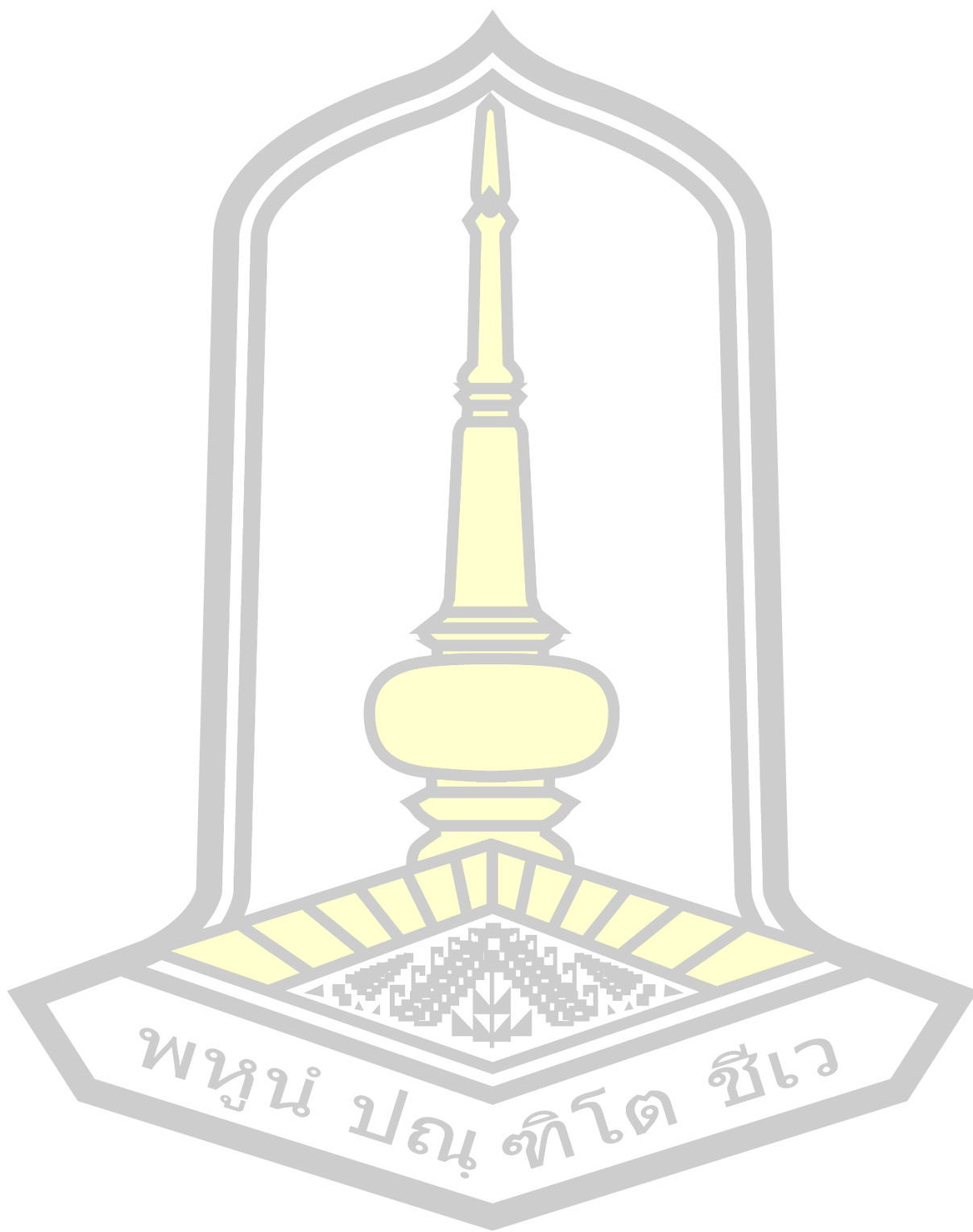
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