Curriculum and Teaching Methodology (2025)
Clausius Scientific Press, Canada

DOI: 10.23977/curtm.2025.080424
ISSN 2616-2261 Vol. 8 Num. 4

A Study on the Consistency between Preschool Teacher Qualification Written Test Questions and the Syllabus—Taking the "Preschool Education Knowledge and Ability" Questions from 2019-2024 as an Example

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Keywords: Preschool Teacher Qualification Written Examination, Examination Outline, Consistency, A Qualitative and Quantitative Combined Analysis, Review and Preparation Strategies

Abstract: The degree of consistency between the written test questions of the Preschool Teacher Qualification Examination and the examination outline not only reflects the scientific nature of the exam question-setting and the practicality of the outline, but also affects candidates' review and preparation strategies. Strengthening research on the written test questions of the Preschool Teacher Qualification Examination is of great significance for improving the quality of exam question-setting and promoting the construction and selection of high-quality early childhood education teachers. This study takes 11 sets of test questions of the "Knowledge and Ability of Care and Education" in the Preschool Teacher Qualification Examination from 2019 to 2024 as the research objects. It employs a qualitative and quantitative combined analysis method to calculate and analyze the consistency between the 11 sets of questions and the outline from aspects such as the "knowledge dimension," "cognitive process dimension," and "consistency coefficient." The results show that there is no statistically significant consistency between the test questions and the outline over the past six years. Based on this, the study puts forward relevant suggestions and opinions, with the expectation of providing data support and theoretical basis for subsequent research on the Preschool Teacher Qualification Examination and guidance for exam preparation.

1. Introduction

As the essential certificate for entry into the profession of early childhood education, the Preschool Teacher Qualification Certificate has become a popular focus in the series of professional qualification certificates in recent years. The examination outline, as the authoritative guide for the Preschool Teacher Qualification Examination, not only specifies the content scope of the exam but also influences candidates' review and preparation strategies and actual pass rates.

Delving into the degree of consistency between the examination outline and the test questions of the "Knowledge and Ability of Care and Education" in the Preschool Teacher Qualification written examination is of great significance. It helps vocational colleges accurately position their talent cultivation directions, enables professional teachers to carefully select teaching content and optimize teaching methods, and also plays an important role in improving the review and preparation efficiency of students in relevant majors and promoting their high-quality employment and development.

2. Research Design

2.1. Conceptual Definition

Consistency refers to the degree of correspondence or agreement between two or more elements[1]. In this study, the consistency analysis is focused on judging the degree of correspondence between the test questions of the "Knowledge and Ability of Care and Education" in the Preschool Teacher Qualification written examination and the examination outline from 2019 to 2024.

2.2. Research Subjects and Methods

This study takes the 11 sets of test questions of the "Knowledge and Ability of Care and Education" from 2019 to 2024 as the research objects. The SEC Consistency Analysis Method is employed to measure the degree of consistency between the 11 sets of questions and the examination outline, and statistical analysis is conducted using SPSS software.

The SEC Consistency Analysis Method is a two-dimensional analytical model constructed by American scholars Andrew Pat and John Smithson, based on the adaptation and integration of the Webb Analysis Model[2]. The specific operational procedures are as follows:(1)Categorize the "Knowledge Dimension (vertical axis)" and "Cognitive Process Dimension (horizontal axis)" of the research objects and establish a two-dimensional matrix framework for both.(2)Code the examination outline and test questions and place them into the matrix accordingly.(3)Standardize the content of the two-dimensional matrix to ensure comparability of the data.(4)Calculate the P-value using the Porter Consistency Coefficient formula $P=1-\frac{\sum_{i=1}^{n}|X_i-Y_i|}{2}$ to determine the degree of consistency between the examination outline and the test questions[3]. (The range is $0\leq P\leq 1$, with a higher P-value indicating a higher degree of consistency.)

3. Research Process

3.1. Establishment of the Two-Dimensional Matrix

By consulting the examination outline and standards for the Preschool Teacher Qualification Examination issued by the National Education Examinations Authority, it is known that the "Knowledge and Ability of Care and Education" covers seven modules. It also involves five levels of ability requirements, namely understanding, comprehension, familiarity, mastery, and application. These contents correspond respectively to the "Knowledge Dimension" (vertical axis) and the "Cognitive Process Dimension" (horizontal axis) of the SEC two - dimensional matrix. According to this, a 7×5 two - dimensional matrix is established.

3.2. Outline Coding

In accordance with the five levels of ability requirements in the examination outline and in combination with Bloom's Taxonomy of Educational Objectives (2001 edition), the behavioral verbs of each specific examination content under the seven modules of the knowledge dimension are classified and marked as follows: Understanding—A, Comprehending—B, Familiarizing—C, Mastering—D, and Applying—E. The coding results are shown in Table 1.

Table 1: Outline Coding of "Knowledge and Ability of Care and Education"

Knowledge Dimension	The specific examination content corresponds to the cognitive process dimension
preschool children's development	1.Comprehend (B) the meaning, process, and influencing factors of infant and toddler development, etc. 2.Understand (A) the basic viewpoints of the main schools of child development theory and their representative figures, and be able to apply (E) the relevant knowledge to analyze and discuss practical issues of child development. 3.Understand (A) the age characteristics and developmental trends of infants' and toddlers' physical and mental development, and be able to apply (E) the relevant knowledge to analyze the appropriateness of education. 4.Master (D) the basic laws and features of young children's physical and motor development, and be able to apply (E) them in educational activities. 5.Master (D) the basic laws and features of young children's cognitive development, and be able to apply (E) them in educational activities. 6.Master (D) the basic laws and features of young children's emotional and affective development, and be able to apply (E) them in educational activities. 7.Master (D) the basic laws and features of young children's personality and social development, and be able to apply (E) them in educational activities. 8.Comprehend (B) the individual differences in children's development, understand (A) the reasons for the formation of individual differences, and be able to apply (E) the relevant knowledge to analyze issues in education. 9.Master (D) basic research methods such as observation, conversation, work analysis, and experiments, and be able to apply (E) these methods to gain a preliminary understanding (A) of the developmental status and educational needs of young children. 10.Understand (A) the common problems or obstacles in young children's physical and psychological development, such as developmental delays, obesity, autistic tendencies, etc.

principles of preschool education	1.Comprehend (B) the nature, purpose, and function of education, and understand (B) the relationship between education and politics, economy, and human development, and be able to apply (E) educational principles to analyze real-world issues in education. 2.Understand (B) the nature and significance of early childhood education, and comprehend (B) the objectives and tasks of early childhood education in China. 3.Be familiar with (A) a brief history of early childhood education in China and abroad and the educational thoughts of renowned educators, and be able to analyze (E) current issues in early childhood education in conjunction with these ideas. 4.Comprehend (B) the basic principles of preschool education, understand (B) the fundamental characteristics of kindergarten education, and be able to analyze (E) issues in educational practice. 5.Understand (B) the rationale for using play as the fundamental activity in kindergartens. 6.Comprehend (B) the importance of creating a kindergarten environment. 7.Understand (B) the purpose and significance of classroom management in kindergartens. 8.Master (D) the basic viewpoints and requirements of the "Preschool Education Guidance Outline (Trial)" regarding the goals, content, implementation, and evaluation of kindergarten educational activities. 9.Be aware of (A) the reform dynamics and development trends of early childhood education in China.
life guidance	1.Familiar (C) with the main segments of a kindergarten day, and comprehend (B) the educational significance of daily life. 2.Understand (A) the requirements for routine education in children's lives and methods for fostering (E) good living and hygiene habits in children. 3.Be aware of (A) the basic knowledge regarding children's health care routines, disease prevention, and nutrition. 4.Be informed about (A) common safety issues in kindergartens and their handling methods, and be knowledgeable about (A) emergency response methods for sudden events such as fires and earthquakes.
environmental creation	1.Familiar (C) with the principles and basic methods of creating a kindergarten environment. 2.Understand (A) the functions of common activity areas, and be able to apply (E) relevant knowledge to analyze the setup of activity areas and propose improvement suggestions (E). 3.Be aware of (A) the impact of the psychological environment on children's development, and comprehend (B) the significant role of teachers' attitudes and behaviors in the formation of children's psychological environments. 4.Comprehend (B) the importance of coordinating various educational forces, such as family and community, and understand (A) the basic methods of communication and interaction with parents.
Game Activity Guidance	1.Familiar (C) with the types of children's games, as well as the characteristics and main functions of various games. 2.Understand (A) the characteristics of games for children at different age stages, and be able to provide (E) appropriate materials to support children's games, and give necessary guidance (E) as needed.

Organization and Implementation of Educational Activities	1.Be able to select (E) educational content based on educational objectives and children's interests, needs, and age characteristics, determine activity goals (E), and design educational activity plans (E). 2.Master (D) the basic knowledge and corresponding educational methods in areas such as children's health, language, society, science, and arts. 3.Comprehend (B) the significance and methods of integrating education across various domains, and be able to design (E) and carry out (E) educational activities in an integrated manner. 4.Be able to choose appropriate interactive methods (E) based on the needs of children during activities, and motivate children's participation in activities (E). 5.Be able to provide guidance (E) based on the individual differences of children during activities.
Educational Evaluation	1.Understand (A) the purposes and methods of kindergarten education evaluation, and be able to evaluate (E) and reflect (E) on childcare education work. 2.Be able to utilize (E) evaluation tools to discover (E) issues that arise in educational activities, and propose improvement suggestions (E).

The quantity of abilities at each level was counted in Table 1 and then standardized by dividing the data in each cell of the 7×5 matrix by 70 to obtain the coding ratio of the examination outline. The results are detailed in Table 2and Table 3.

Table 2: Statistics of the Number of Outline Codes for "Knowledge and Ability of Care and Education"

Knowledge Dimension	Cognitive Process Dimension					
	Understanding (A)	Comprehension (B)	Familiarity (C)	Mastery (D)	Application (E)	Total
preschool children's development	5	2	0	5	8	20
principles of preschool education	2	9	0	1	3	15
life guidance	4	1	1	0	1	7
environmental creation	3	2	1	0	2	8
Game Activity Guidance	1	0	1	0	2	4
Organization and Implementation of Educational Activities	0	1	0	1	8	10
Educational Evaluation	1	0	0	0	5	6
Total	16	15	3	7	29	70

Table 3: Ratio of Standardized Curriculum Outline Codes for "Knowledge and Ability in Care and Education"

Knowledge Dimension	Cognitive Process Dimension					
	understanding(A)	Comprehension (B)	familiarity(C)	Mastery (D)	Application (E)	Total
preschool children's development	0.07	0.03	0.00	0.07	0.11	0.29
principles of preschool education	0.03	0.13	0.00	0.01	0.04	0.21

life guidance	0.06	0.01	0.01	0.00	0.01	0.10
environmental creation	0.04	0.03	0.01	0.00	0.03	0.11
Game Activity Guidance	0.01	0.00	0.01	0.00	0.03	0.06
Organization and Implementation of Educational Activities	0.00	0.01	0.00	0.01	0.11	0.14
Educational Evaluation	0.01	0.00	0.00	0.00	0.07	0.09
Total	0.23	0.21	0.04	0.10	0.41	1.00

3.3. Test Question Codes

Based on Table 1, the 11 sets of test questions for "Knowledge and Ability in Care and Education" from 2019 to 2024 were categorized by module and specific examination content. The results are detailed in Table 4.

Table 4: Examination Modules and Content of the Test Questions for "Knowledge and Ability in Care and Education" from 2019 to 2024

Q.	Q. Type	19I		19II		20II		21I		21II		22I		22II		23I		23II		24I		24II	
		Mod.	Cont.	Mod.	Cont.	Mod.	Cont.	Mod.	Cont.	Mod.	Cont.	Mod.	Cont.	Mod.	Cont.	Mod.	Cont.	Mod.	Cont.	Mod.	Cont.	Mod.	Cont.
1	S.Q.	2	2	1	5	5	1	3	3	1	2	3	3	2	4	1	9	3	3	1	5	1	2
2	S.Q.	1	5	2	8	2	8	5	1	1	5	2	1	2	2	3	4	2	8	1	3	1	7
3	S.Q.	1	5	1	5	1	5	1	9	3	4	4	1	2	4	1	4	1	8	2	8	1	5
4	S.Q.	6	1	1	6	1	5	6	1	1	5	1	5	2	8	1	6	2	3	1	7	2	3
5	S.Q.	1	5	1	7	2	3	1	5	1	7	1	6	3	1	3	3	7	1	3	3	1	5
6	S.Q.	1	4	1	9	1	7	2	3	2	8	5	1	1	9	1	10	1	4	2	8	1	7
7	S.Q.	1	3	2	1	1	7	3	3	2	4	2	3	1	5	1	2	1	6	1	7	2	8
8	S.Q.	2	8	7	1	1	7	1	7	4	4	1	1	1	1	1	5	5	2	7	1	5	1
9	S.Q.	2	8	3	3	1	2	1	2	1	6	1	4	1	7	1	8	1	2	2	8	2	7
10	S.Q.	1	2	1	2	3	3	1	2	2	4	1	2	1	6	2	3	1	2	2	3	6	2
11	S.A.Q.	2	4, 8	2	1	4	4	1	7	6	2	5	1	1	5	1	5	3	3	3	3	1	7
12	S.A.Q.	1	5	1	5	1	7	6, 3	2, 3	1	4	3, 1	3, 4	5	1	2	4, 8	1	7	1	5	3	2
13	E.Q.	2, 5	2, 1	3	1	2	7	2	5	4	4	3	1	2	3, 4	2	8	2	4	6	3	Beyond the syllabus	
14	M.A.Q.	1	2, 5	1	3, 8	1	5, 8	5	1	1, 2	7, 4	1	5	1	7	1	7	5	2	1	2	1, 4	7, 3, 4
15	M.A.Q.	5	1, 2	5	1	5	1, 2	4	4	1	4	6	2	4	1	1	7	2	8	2	4	5	1
16	A.D.Q.	6	1, 3	6	1	6	1, 3	6	1	6	1	6	1	6	1	6	1	6	1, 3	6	1	6	1, 3

Note: The first half of the year exam is abbreviated as "I," and the second half of the year exam is abbreviated as "II" Short Answer Questions is abbreviated as “SAQ”. Essay Questions is abbreviated as “EQ”. Material Analysis Questions is abbreviated as “MAQ”. Activity Design Questions is abbreviated as “ADQ”.

The coding results of Table 4 were counted and filled into a 7×5 two-dimensional matrix. Each

data point in the 7×5 matrix was then divided by the total sum of the matrix to standardize the data. The results are detailed in Table 5.

Table 5: Ratio of Test Question Codes for "Knowledge and Ability in Care and Education" (Standardized) from 2019 to 2024

Knowledge Dimension	Cognitive Process Dimension											
	(A)		(B)		(C)		(D)		(E)		Total	
	19I	19II	19I	19II	19I	19II	19I	19II	19I	19II	19I	19II
PCD	0.07	0.11	0.00	0.03	0.00	0.00	0.14	0.16	0.21	0.24	0.43	0.54
PPE	0.00	0.00	0.14	0.11	0.00	0.00	0.07	0.03	0.02	0.05	0.24	0.19
LG	0.00	0.03	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.08
EC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GAG	0.02	0.00	0.00	0.00	0.05	0.03	0.00	0.00	0.05	0.00	0.12	0.03
OIEA	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.19	0.08	0.21	0.08
EE	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.08
Total	0.10	0.16	0.17	0.16	0.05	0.05	0.21	0.19	0.48	0.43	1.00	1.00
Knowledge Dimension	Cognitive Process Dimension											
	(A)		(B)		(C)		(D)		(E)		Total	
	2020(II)											
PCD	0.05		0.03		0.00		0.19		0.24		0.51	
PPE	0.03		0.03		0.00		0.03		0.03		0.11	
LG	0.03		0.00		0.00		0.00		0.00		0.03	
EC	0.03		0.03		0.00		0.00		0.00		0.05	
GAG	0.03		0.00		0.05		0.00		0.05		0.14	
OIEA	0.00		0.03		0.00		0.00		0.14		0.16	
EE	0.00		0.00		0.00		0.00		0.00		0.00	
Total	0.16		0.11		0.05		0.22		0.46		1.00	
Knowledge Dimension	Cognitive Process Dimension											
	(A)		(B)		(C)		(D)		(E)		Total	
	21I	21II	21I	21II	21I	21II	21I	21II	21I	21II	21I	21II
PCD	0.10	0.03	0.00	0.00	0.00	0.00	0.13	0.19	0.20	0.22	0.43	0.44
PPE	0.03	0.00	0.03	0.17	0.00	0.00	0.00	0.03	0.03	0.08	0.10	0.28
LG	0.10	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.06
EC	0.03	0.06	0.03	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.11
GAG	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.07	0.00
OIEA	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.20	0.08	0.23	0.11
EE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.27	0.14	0.07	0.22	0.07	0.00	0.17	0.25	0.43	0.39	1.00	1.00
Knowledge Dimension	Cognitive Process Dimension											
	(A)		(B)		(C)		(D)		(E)		Total	
	22I	22II	22I	22II	22I	22II	22I	22II	22I	22II	22I	22II
PCD	0.03	0.03	0.03	0.03	0.00	0.00	0.17	0.17	0.21	0.17	0.45	0.40
PPE	0.03	0.03	0.07	0.23	0.00	0.00	0.00	0.03	0.07	0.11	0.17	0.40
LG	0.07	0.00	0.03	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.14	0.06
EC	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.03	0.03
GAG	0.00	0.00	0.00	0.00	0.07	0.03	0.00	0.00	0.00	0.00	0.07	0.03
OIEA	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.10	0.09	0.14	0.09
EE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Total	0.14	0.06	0.14	0.29	0.14	0.09	0.21	0.20	0.38	0.37	1.00	1.00
Knowledge Dimension	Cognitive Process Dimension											
	(A)		(B)		(C)		(D)		(E)		Total	
	23I	23II	23I	23II	23I	23II	23I	23II	23I	23II	23I	23II
PCD	0.12	0.08	0.03	0.03	0.00	0.00	0.21	0.08	0.26	0.16	0.62	0.35
PPE	0.03	0.03	0.06	0.05	0.00	0.00	0.06	0.05	0.06	0.05	0.21	0.19
LG	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.05
EC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GAG	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.16
OIEA	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.09	0.14	0.09	0.16
EE	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.08
Total	0.24	0.24	0.09	0.11	0.00	0.00	0.26	0.14	0.41	0.51	1.00	1.00
Knowledge Dimension	Cognitive Process Dimension											
	(A)		(B)		(C)		(D)		(E)		Total	
	24I	24II	24I	24II	24I	24II	24I	24II	24I	24II	24I	24II
PCD	0.06	0.03	0.00	0.00	0.00	0.00	0.13	0.18	0.19	0.21	0.39	0.42
PPE	0.03	0.03	0.06	0.03	0.00	0.00	0.10	0.03	0.06	0.03	0.26	0.12
LG	0.06	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.06
EC	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
GAG	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.06
OIEA	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.03	0.16	0.15	0.19	0.21
EE	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.10	0.00
Total	0.19	0.15	0.10	0.12	0.00	0.06	0.23	0.24	0.48	0.42	1.00	1.00

Note: Preschool children's development is abbreviated as "PCD" and the principles of preschool education is abbreviated as "PPE" .Environmental creation is abbreviated as “EC” and the Game Activity Guidance is abbreviated as "GAG" .Organization and Implementation of Educational Activities is abbreviated as “OIEA” and the Educational Evaluation is abbreviated as “EE”.

3.4. Reliability and Validity Testing

To verify the reliability of the consistency analysis between the test questions and the syllabus of "Knowledge and Ability in Care and Education" from 2019 to 2024 using the SEC Consistency Analysis Method, this study employed SPSS software to calculate the Cronbach’s Alpha coefficient (typically, $\alpha \geq 0.7$ is considered acceptable, and $\alpha \geq 0.9$ indicates excellent reliability [4]. The results are detailed in Table 6.

Table 6: Alpha Coefficients of the Test Questions for "Knowledge and Ability in Care and Education" from 2019 to 2024

Year	19I	19II	20II	21I	21II	22I	22II	23I	23II	24I	24II
α	0.990	0.972	0.894	0.964	0.995	0.922	0.967	0.987	0.915	0.912	0.924

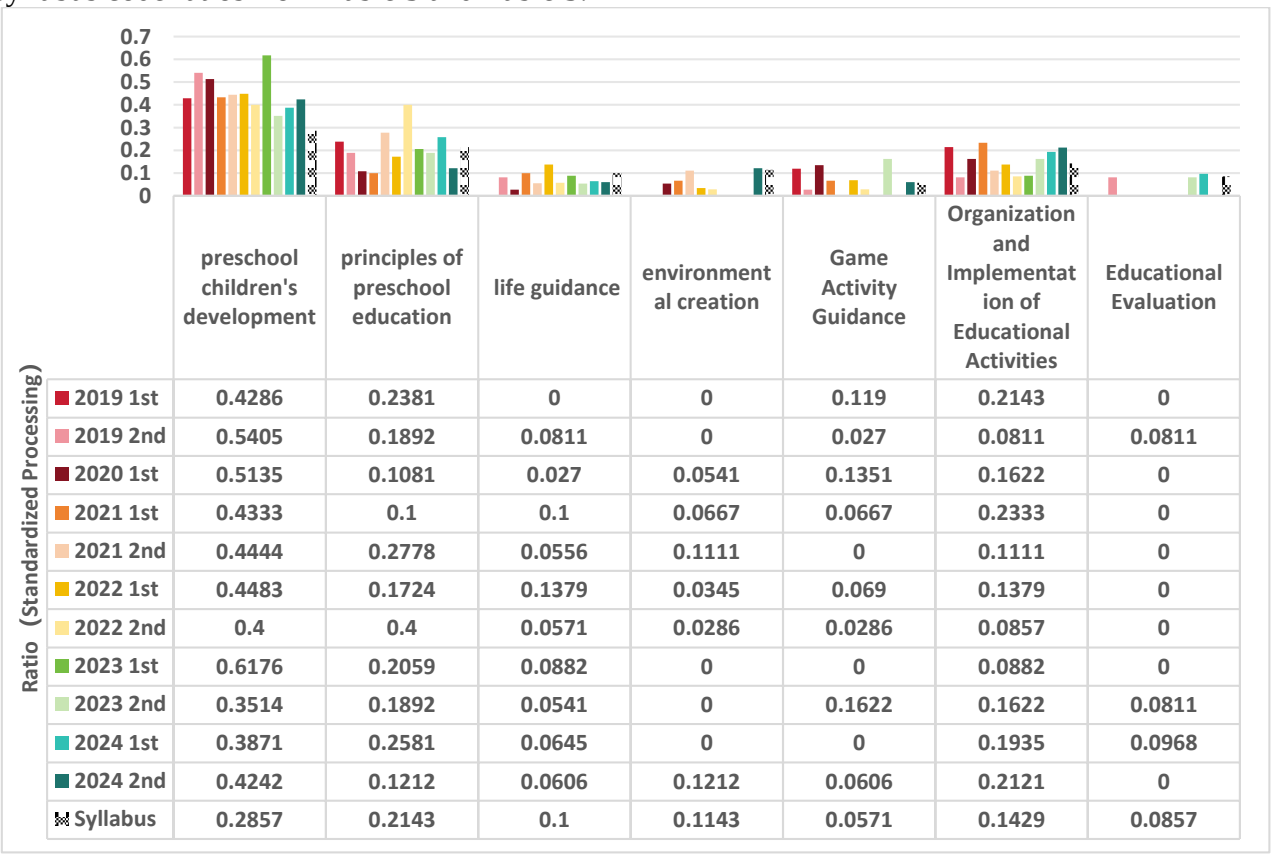
As shown in Table 6, the alpha coefficients of the 11 sets of test questions over the past six years are all greater than 0.7, indicating that the SEC consistency analysis method is relatively reliable.

4. Analysis of Research Results

To more intuitively understand the proportion distribution of the examination points between the test questions and the syllabus of "Knowledge and Ability in Care and Education" from 2019 to 2024, the following analysis compares and examines the data from two aspects: "Knowledge Dimension" and "Cognitive Process Dimension."

4.1. Knowledge Dimension

Figure 1 was created based on the annual total ratios of the "Knowledge Dimension" and the syllabus code ratios from Table 3 and Table 5.



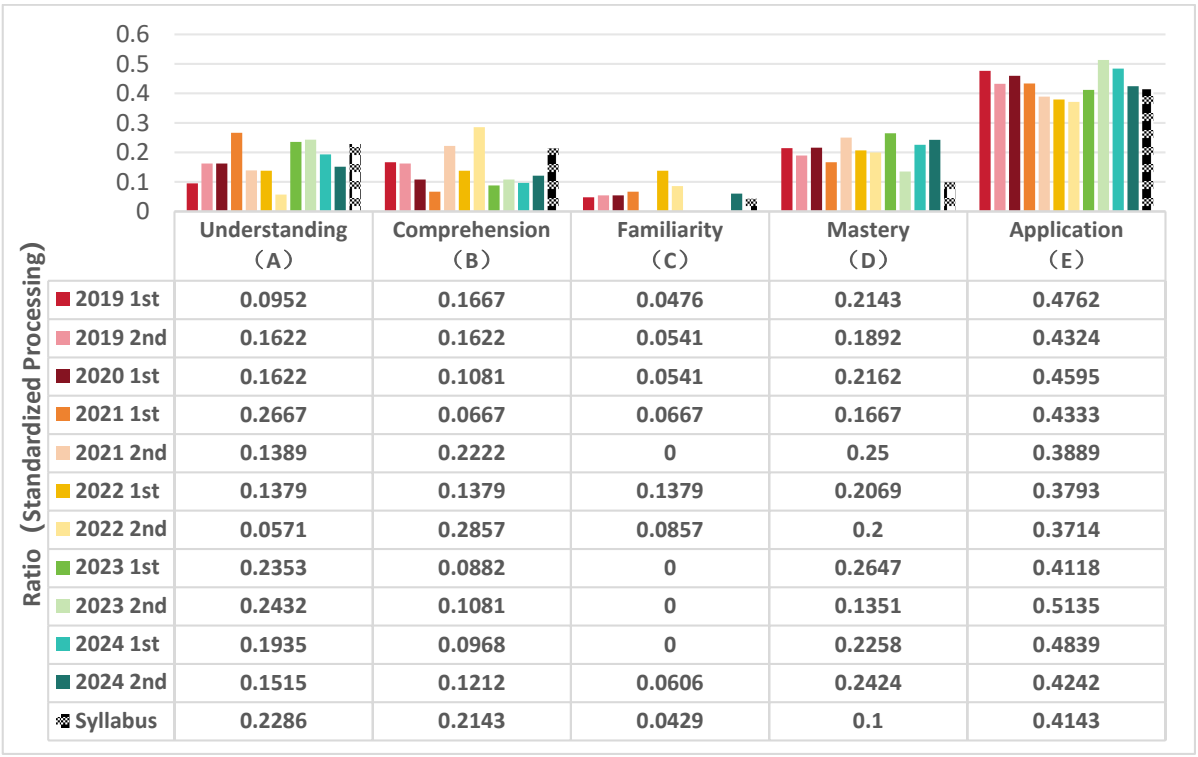
	preschool children's development	principles of preschool education	life guidance	environmental creation	Game Activity Guidance	Organization and Implementation of Educational Activities	Educational Evaluation
2019 1st	0.4286	0.2381	0	0	0.119	0.2143	0
2019 2nd	0.5405	0.1892	0.0811	0	0.027	0.0811	0.0811
2020 1st	0.5135	0.1081	0.027	0.0541	0.1351	0.1622	0
2021 1st	0.4333	0.1	0.1	0.0667	0.0667	0.2333	0
2021 2nd	0.4444	0.2778	0.0556	0.1111	0	0.1111	0
2022 1st	0.4483	0.1724	0.1379	0.0345	0.069	0.1379	0
2022 2nd	0.4	0.4	0.0571	0.0286	0.0286	0.0857	0
2023 1st	0.6176	0.2059	0.0882	0	0	0.0882	0
2023 2nd	0.3514	0.1892	0.0541	0	0.1622	0.1622	0.0811
2024 1st	0.3871	0.2581	0.0645	0	0	0.1935	0.0968
2024 2nd	0.4242	0.1212	0.0606	0.1212	0.0606	0.2121	0
Syllabus	0.2857	0.2143	0.1	0.1143	0.0571	0.1429	0.0857

Figure 1: Ratios of Test Questions and Syllabus in the "Knowledge Dimension" for "Knowledge and Ability in Care and Education" from 2019 to 2024

As can be seen from Figure 1, among the seven major modules of the "knowledge dimension," the syllabus emphasizes the following order: Module 1 Preschool Children's Development > Module 2 Principles of Preschool Education > Module 6 Organization and Implementation of Educational Activities > Module 4 Environmental Creation > Module 3 Life Guidance > Module 7 Educational Evaluation > Module 5 Game Activity Guidance. In the past six years, with 11 exams conducted, Module 1 has been examined in all instances, exceeding the requirements set by the syllabus. Modules 1, 2, and 6 have been frequently tested, with all 11 exams including them. In contrast, Module 7 has the lowest examination frequency, with zero examinations in eight out of the five years. Overall, there is a deviation between the distribution of the "knowledge dimension" in the seven major modules of the "Preschool Education Knowledge and Ability" exam questions for preschool teacher qualification written exams over the past six years and the setup of the syllabus.

4.2. Cognitive Process Dimension

Figure 2 was created based on the annual total ratios of the "Cognitive Process Dimension" and the syllabus code ratios from Table 3 and Table 5.



	Understanding (A)	Comprehension (B)	Familiarity (C)	Mastery (D)	Application (E)
2019 1st	0.0952	0.1667	0.0476	0.2143	0.4762
2019 2nd	0.1622	0.1622	0.0541	0.1892	0.4324
2020 1st	0.1622	0.1081	0.0541	0.2162	0.4595
2021 1st	0.2667	0.0667	0.0667	0.1667	0.4333
2021 2nd	0.1389	0.2222	0	0.25	0.3889
2022 1st	0.1379	0.1379	0.1379	0.2069	0.3793
2022 2nd	0.0571	0.2857	0.0857	0.2	0.3714
2023 1st	0.2353	0.0882	0	0.2647	0.4118
2023 2nd	0.2432	0.1081	0	0.1351	0.5135
2024 1st	0.1935	0.0968	0	0.2258	0.4839
2024 2nd	0.1515	0.1212	0.0606	0.2424	0.4242
Syllabus	0.2286	0.2143	0.0429	0.1	0.4143

Figure 2: Ratios of Test Questions and Syllabus in the "Cognitive Process Dimension" for "Knowledge and Ability in Care and Education" from 2019 to 2024

As shown in Figure 2, among the five levels of cognitive abilities in the Cognitive Process Dimension, the syllabus prioritizes them in the following order: Application > Knowledge > Comprehension > Mastery > Familiarity. In the 11 exams over the past six years, the examination proportion has consistently exceeded the syllabus requirements for the "Mastery" level, which is less emphasized by the syllabus. For the "Application" level, which is the most emphasized by the syllabus, seven out of the 11 exams exceeded the syllabus requirements. For the "Familiarity" level, which is the least emphasized by the syllabus, seven out of the 11 exams exceeded the syllabus requirements, while it was not assessed at all in four exams.

Overall, the distribution of the test questions for the Preschool Teacher Qualification Examination over the past six years has also shown discrepancies from the syllabus in the five levels of cognitive abilities.

4.3. Consistency Coefficient

By substituting the data from Table 3 and Table 5 into the Porter consistency calculation formula, the consistency coefficients between the syllabus and the 11 sets of written test questions over the past six years were obtained. The detailed results are shown in Table 7.

Table 7: Consistency Coefficients between the Test Questions and the Syllabus for "Knowledge and Ability in Care and Education" from 2019 to 2024

Year	19I	19II	20II	21I	21II	22I	22II	23I	23II	24I	24II
P-value	0.610	0.669	0.629	0.614	0.624	0.621	0.600	0.576	0.716	0.665	0.593
Reference P-value	0.851	0.830	0.830	0.788	0.824	0.782	0.820	0.815	0.830	0.797	0.803

Following the approach of American scholar Gavin W. Fulmer, the Unidrnd function in MATLAB was used to process the P-values professionally, obtaining the reference value for P at the 95% confidence level[2]. As shown in Table 7, the P-values from the 11 exams over the past six years are all lower than the reference P-value. Therefore, the two do not have a statistically significant consistency.

In summary, there is no consistency between the test questions and the syllabus examination points in the 11 written exams of "Knowledge and Ability in Care and Education" from 2019 to 2024. In terms of examination content, the proportion of examination points in each module in the 11 exams over the past six years is contrary to the emphasis degree of the seven modules set by the syllabus. Among the seven modules, Module 4, which is more emphasized by the syllabus, appeared six times in the 11 exams and only once reached and exceeded the syllabus requirements. However, Module 5, which is the least emphasized by the syllabus, appeared eight times, with six times having a much higher examination proportion than the syllabus requirements.

In terms of ability levels, the "Application" ability level, which is emphasized by the syllabus, is the focus of the 11 exams over the past six years, but there were four exams that did not meet the syllabus requirements. On the other hand, the "Mastery" ability level, which is less emphasized by the syllabus, was examined in all 11 exams over the past six years, and the examination proportion in each exam was much higher than the syllabus requirements.

5. Reflections and Suggestions

5.1. Relevant departments: Regularly revise and promptly adjust the syllabus

The written test questions for the Preschool Teacher Qualification Examination should be based on the syllabus. Only by ensuring the consistency between the test questions and the syllabus can the guiding role of the syllabus in the question-setting process be fully realized. Therefore, relevant education departments should regularly update and revise the syllabus, pay attention to feedback on inconsistencies, and make timely adjustments to ensure that the content of the test questions does not deviate from the syllabus. This will enhance the scientific nature, authority, and guiding role of the syllabus in the written test questions for the Preschool Teacher Qualification Examination.

5.2. Professional Teachers: Carefully Study the Syllabus and Delve into Past Exam Papers

To help students better understand the key points and difficulties of the Preschool Teacher Qualification Examination, and to improve their pass rate, professional course teachers should carefully study the detailed items of the syllabus, assess the key points of the syllabus assessment, and at the same time, continuously pay attention to and analyze the content of past exam papers for the Preschool Teacher Qualification Examination. By exploring the patterns and trends of question-setting, teachers can target their daily teaching activities to closely align the teaching content with the syllabus and the examination points of the real questions. While enhancing their own professional knowledge and quality, teachers can also provide students with more effective guidance and suggestions for scientific and rational preparation.

5.3. Students Preparing for Exams: Strengthen the Foundation and Apply Knowledge Flexibly

Given the flexibility and uncertainty of the Preschool Teacher Qualification Examination, students should develop a practical study schedule when preparing for the exam. While consolidating their foundational professional knowledge and building a comprehensive framework

for the subject, students should aim to cover all examination points and focus on breaking through key and difficult areas. At the same time, they should enhance their ability to analyze and apply knowledge comprehensively. Through a moderate amount of practice tests, students can identify their weaknesses, continuously summarize experience, optimize their problem-solving approaches and methods, and apply knowledge flexibly and broadly. This will help improve the efficiency of their review and their practical effectiveness in the exam.

Acknowledgements

This work was funded by Research Center for High Quality Development of Shanwei Fundamental Education General Research Project with grant number 2024XJXM019.

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