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RESEARCH ARTICLE

Preschoolers' emotional management: A survey of 164 Chinese children

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ABSTRACT

Emotional management is one of the core skills that preschoolers need in their social and academic development. Nevertheless, the present-day Chinese early childhood education does not have systematic inclusion in the development of emotional competencies, which is why it is necessary to study the developmental trends and educational deficiencies through an empirical approach. This paper explored developmental patterns of emotional management skills in four domains, recognition and understanding, expression, regulation, and application of emotional management skills among Chinese preschoolers to guide evidence-based curriculum development. A mixed-method design surveyed 164 children (ages 3-6) from six intact classes in Huaibei City, employing teacher-rated questionnaires and semi-structured interviews. Data analysis included descriptive statistics, one-way ANOVA with Tukey's post-hoc tests, and thematic analysis of interview transcripts. Children demonstrated moderate performance across dimensions (M=2.75-2.90). Significant age-related improvements emerged in emotion recognition ($F(5,158)=7.002$, $p<0.001$), expression ($F(5,158)=3.452$, $p=0.005$), and regulation ($F(5,158)=4.320$, $p=0.001$), with large classes consistently outperforming younger peers. However, emotion application showed no significant age differences ($F(5,158)=2.193$, $p=0.058$), revealing a critical transfer gap between strategy knowledge and practical implementation. The results show the necessity of well-organized interventions with a focus on knowledge-to-practice transfer based on situational simulation, structured role-play, and contextualized emotional strategy rehearsal. Instead of teaching cognitive strategies, education programs ought to emphasize the process of closing the knowing-doing gap.

Keywords: Emotional management; preschool children; emotional literacy; China

1. Introduction

In recent years, with the evolution of educational philosophies, emotional literacy has been recognized as a crucial competency for 21st-century children's development. UNESCO and the OECD have actively promoted the integration of social and emotional competencies into education. The United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Organisation for Economic Co-operation and Development (OECD) are inter-governmental organizations that formulate international guidance to education systems. In particular, the OECD's *Learning Compass 2030* frames social and

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emotional competencies as core components of student capability. In the present study, we embrace emotional management as a super-ordinate construct that includes four sub-dimensions, i.e., recognition, expression, regulation, and application Lu [1] and Xu [2]. In this context, emotions regulation is considered as one of the core components and not a separate construct thus conceptual consistency across the manuscript is addressed in this regard. Notably, the OECD's "Learning Compass 2030" initiative, developed under its "Education and Skills for the Future 2030" framework, explicitly identifies social and emotional skills as key components in achieving core competencies OECD [3]. Children's ability to manage emotions serves as a vital indicator of their social development, directly impacting their mental health and environmental adaptability Alwaely [4] Emotional competence development marks a critical milestone in early childhood. Research by Diebold [5] confirms that deficiencies in emotional capacity can lead to long-term negative effects on children's well-being, social-emotional adaptation, and academic achievement Valiente [6].

However, in current preschool education practices across China, the cultivation of emotional management skills remains inadequately integrated into core curriculum objectives. Most teaching activities remain fragmented and reactive, lacking systematic coherence and continuity. This results in emotional education relying heavily on teachers 'experience and impromptu judgment rather than scientifically designed approaches aligned with children's developmental stages. Existing research reveals widespread challenges in preschoolers, particularly among younger age groups, including difficulties in emotion recognition, inappropriate expression, and lack of regulation strategies. To address these issues, this study employs a mixed-method approach combining quantitative questionnaires with qualitative teacher interviews to systematically examine the current state of emotional management development in Chinese preschoolers. The research not only quantifies emotional competencies across different age groups but also uncovers practical manifestations and existing problems in children's emotional development through in-depth interviews with frontline educators [7]. By exploring developmental patterns and potential barriers in preschoolers' emotional management abilities, this study provides empirical foundations and theoretical references for optimizing emotional education curricula in early childhood education.

2. Literature review

2.1. The structure and importance of emotional management abilities in early childhood

The development of emotional regulation competence is widely recognized as a critical factor influencing children's mental health and social adaptation. While academic definitions vary, mainstream research consistently acknowledges its central role. For instance, Denham[7] categorized emotional regulation into three domains: emotional expressiveness, emotion regulation, and emotional knowledge; Wei [8] divided it into three areas: emotional expressiveness, emotion regulation, and emotional expression; while other studies employ a more refined four-dimensional framework encompassing emotion recognition/ understanding, expression, regulation, and application, emphasizing their interconnectedness Xu [2]. Despite differing dimensions, all research unanimously identifies emotional regulation as a foundational skill for children's social behavior, school adaptation, and psychological development Denham [9].

Furthermore, emotional management skills not only significantly impact children's current social interactions and learning behaviors, but also serve as predictors for their long-term social-emotional development and academic achievement. Caruana [10] emphasized that emotional competence acts as a critical psychological mechanism underlying the formation of creativity, problem-solving abilities, and decision-making skills in children, with early childhood being a sensitive developmental stage for these capabilities. Correspondingly, research indicates that inadequate emotional regulation is closely associated

with reduced child well-being, difficulties in social adaptation, and subpar academic performance, underscoring the vital importance of early emotional education interventions.

2.2. Development of preschool children's emotional management ability: multi-dimensional integration perspective

Social-emotional competence, recognized as a core competency in the 21st century Huang [11], plays a fundamental role in children's physical and mental development and significantly impacts their future success and well-being. Current research indicates that preschoolers (ages 3-6) demonstrate stable growth in social-emotional abilities, influenced by multiple factors including age, gender, family environment, and educational interventions. Studies reveal systematic improvements in children's emotional capabilities with age, showing marked progress across dimensions such as emotional understanding Richard [12], emotional regulation (Lucas-Molina [13], and emotional expression Voltmer & von Salisch [14].Key developments include: evolving from basic facial expression recognition to complex contextual reasoning in emotion identification Scarpazza [15] transitioning from instinctive responses to cognitive strategies in emotional regulation Ratcliff [16], though children aged 3-4 can recognize common regulatory strategies but still struggle with timely application and maintenance Dennis & Kelemen [17] and progressing from non-verbal expressions to structured verbal communication in emotional expression Lafay [18]. The study also revealed significant gender differences: girls demonstrated superior performance in emotional recognition, comprehension, and peer interaction Wang [19], while boys showed greater advantages in negative emotion regulation Carlson & Wang [20].

Environmental factors play a crucial role in the development of children's social-emotional competencies. Within family environments, positive parent-child relationships Yue [21] and high-quality emotional communication significantly enhance children's emotional development. Educational interventions prove effective—systematic training accelerates skill improvement Grazzani [22], with teacher-assessed social-emotional competencies typically surpassing parental evaluations Martinsone [23]. Notably, the enhancement of children's emotional strategy application relies more on systematic training than natural age progression requiring continuous structural empathic regulation from adults. In social interactions, authentic emotional expression is vital for communication quality Lu [24], while emotional misinterpretation often leads to abnormal social behaviors Zloteanu [25] Deckert [26]. Facial emotion recognition is closely linked to social functioning Høyland [27], while emotional understanding correlates positively with positive peer relationships Johansen & Oturai [28]. Furthermore, children's emotional comprehension, theory of mind, and language skills demonstrate significant connections. Language proficiency not only supports structured emotional expression but also synergizes with empathetic responses and positive emotion regulation, forming a "cognitive-linguistic-social" developmental cycle.

Comprehensive research findings indicate that preschoolers' social-emotional development exhibits multidimensional and dynamic characteristics. This trajectory is influenced by both internal maturation factors and external environmental factors, providing crucial insights into the mechanisms underlying children's social-emotional growth and establishing theoretical foundations for intervention strategies [29].

3. Methodology

3.1. Research design

This study adopted a mixed method research design, combined with questionnaire survey and teacher interview, to systematically explore the development status of preschool children in four core dimensions of emotion recognition and understanding, emotion expression, emotion regulation and emotion use.

The quantitative section utilized the revised version of the Preschool Children's Emotional Management Ability Questionnaire, which was developed based on Lu [24] "Children's Emotional Regulation Development Questionnaire". The original questionnaire demonstrated stable reliability (Cronbach's α = 0.6587) and covered the four dimensions mentioned above. This study adjusted certain items according to research objectives and kindergarten practical contexts, resulting in the revised version of the Preschool Children's Emotional Regulation Development Status Survey Questionnaire. The revised questionnaire achieved good overall reliability (Cronbach's α = 0.710), meeting statistical analysis requirements. The survey targeted 164 enrolled children at a public kindergarten in Huaibei City, Anhui Province, including 52 in small classes, 52 in medium classes, and 60 in large classes (Table 1). Teachers from each class completed the questionnaire by observing children's behavioral performance during daily activities, ensuring ecological validity of the evaluation.

3.2. Participants and sampling

Children. The study population included all the children in six intact classes (two small 3-4 years old, two middle 4-5 years old, two large 5-6 years old) in one of the public kindergartens in Huaibei City, Anhui Province, China. All the children in these classes were invited using an intact-cluster approach (census of available classes). The final sample consisted of 164 children (Small: 26+26; Middle: 26+26; Large: 30+30), see **Table 1**.

Table 1. Participants' Characteristics(preschool children)

Class	Age (years)	Number
Small class1	3-4 years	26
Small class2	3-4 years	26
Middle class1	4-5 years	26
Middle class2	4-5 years	26
Large class1	5-6 years	30
Large class2	5-6 years	30

To gain deeper insights into young children's emotional behaviors in real-life scenarios and teachers' instructional strategies, this study conducted semi-structured teacher interviews. Teachers from three age groups (small, middle, and large classes) were selected as interviewees. The interviews focused on four dimensions, examining educators 'daily observations and teaching practices regarding children's emotional recognition, expression, regulation, and application. (**Table 2**)

Teachers. In teacher informants, purposive sampling recruited the head teacher of each class (n=6), since direct, continuous observation of childrens daily behavior was possible (**Table 2**).

Consent and eligibility. Children were selected when they were one of the six classes during the data-collection window; teachers were selected when they were the class teacher of record. Parents had signed permission as stipulated in the kindergarten policy; the teachers were optional.

Rationale. Intact-class recruitment reduces disruption to school routines and increases ecological validity of teacher ratings, aligning with our classroom-embedded assessment design

Table 2. Interview teacher characteristics

ID	Gender	Academic qualifications	Position	Class
T1	Woman	Regular college course	A teacher in charge of a class	Small class 1
T2	Woman	Regular college course	A teacher in charge of a class	Small class 2
T3	Woman	Regular college course	A teacher in charge of a class	Middle class 1
T4	Woman	Regular college course	A teacher in charge of a class	Middle class 2
T5	Woman	Regular college course	A teacher in charge of a class	Large class 1
T6	Woman	Regular college course	A teacher in charge of a class	Large class 2

This study employs a mixed-method research design combining quantitative and qualitative approaches, grounded in Babbie's (2021) social research framework. In the quantitative phase, we applied Babbie's operationalization theory to translate the abstract concept of "emotional management competence" into measurable indicators. Standardized questionnaires were developed for assessment by experienced kindergarten teachers with over three years of classroom experience, who evaluated children's daily emotional expressions through systematic observation. The qualitative component utilized semi-structured in-depth interviews following Babbie's interpretive research methodology, exploring teachers 'decision-making criteria and influencing factors during evaluations, thereby integrating descriptive and interpretive research approaches. To ensure validity, we strictly followed Babbie's research instrument development protocol, conducting pilot studies before formal data collection to refine measurement tools. All data underwent anonymization and double-blind entry procedures to guarantee accuracy, while adhering to ethical standards emphasized by the researcher.

3.3. Data analysis

This study employed SPSS 29.0 for data analysis, beginning with descriptive statistics to preliminarily examine sample characteristics and questionnaire responses. For Likert scale data, we followed Pimentel's (2010) methodological recommendations by treating the scale as interval variables and applying weighted averaging to eliminate extreme values. By establishing a mapping relationship between weighted averages and predefined interval standards (see **Table 3**), we achieved standardized conversion and hierarchical categorization of data, ensuring comparability across different measurement items.

Table 3. Data Interpretation (Pimentel, 2010)

Likert Scale	Interval mean score	Description	Interpretation
1	1.00-1.79	Never	Very low
2	1.80-2.59	Occasionally	Low
3	2.60-3.39	Sometimes	Middle
4	3.40-4.19	Often	High
5	4.20-5.00	Always	Very high

Post-Hoc Testing

Since the one-way ANOVA results were significant, Tukey post-hoc tests using Honestly Significant Difference (HSD) were run to determine which groups differed. Tukey HSD was chosen because it offers the best control of Type I error rates, and sufficient statistical power in multiple comparisons.

Groups Analyzed:

Small Class 1 (SC1): n=26, ages 3-4 years

Small Class 2 (SC2): n=26, ages 3-4 years

Middle Class 1 (MC1): n=26, ages 4-5 years

Middle Class 2 (MC2): n=26, ages 4-5 years

Large Class 1 (LC1): n=30, ages 5-6 years

Large Class 2 (LC2): n=30, ages 5-6 years

Qualitative Component: Semi-Structured Interviews and Analysis.

To supplement the questionnaire data and to provide classroom-situated samples of emotional behaviors in children, we employed a qualitative descriptive design in the form of semi-structured interviews with the six class teachers. The interview guide had 4 domains that fit the quantitative construct map, expression, emotion recognition/understanding, emotion regulation, and emotion application. The interviews took place in school in a one-on-one situation with the permission to audio-record the interview and transcribe it verbatim.

Analytic procedure. Based on a six-phase thematic analysis by Braun and Clarke, two researchers (education/psychology) worked separately (i) familiarizing themselves with transcripts; (ii) generating initial codes; (iii) collating codes into candidate themes; (iv) reviewing and refining themes against the dataset; (v) defining and naming themes; (vi) producing analytic narrative with illustrative quotations. All disagreements were settled through discussion; a skilled scholar of preschool-education studies revised the coding frame to increase credibility. The four quantitative dimensions were used to assist in the integration of the four final themes that were reported in the Results.

4. Results

Based on the assessment results of teachers' ability to manage emotions in preschool children, **Table 4** shows the analysis data of the test

Table 4. Descriptive statistics

Variable	N	Mean	Std Deviation	Level
Emotion recognition and understanding	164	2.81	.293	Middle
Emotion expression	164	2.90	.368	Middle
Emotion regulation	164	2.82	.363	Middle
Emotion application	164	2.75	.320	Middle

The descriptive statistical results indicated that all 164 preschool children demonstrated moderate levels across the four dimensions of emotional management ability (M = 2.75-2.90, SD = 0.293-0.368).

Among these dimensions, emotional expression received the highest scores (M = 2.90, SD = 0.368), suggesting that children were relatively more competent in expressing their own emotions. In contrast, emotional application showed the lowest scores (M = 2.75, SD = 0.320), revealing that children's ability to transfer and apply emotional competence to real-life situations still requires further development.

To further assess the degree of individual variation within samples, this study introduces the coefficient of variation (CV) as an auxiliary indicator. CV, calculated as the ratio of standard deviation to mean, reflects the relative dispersion of variables and is suitable for comparing variability under different mean conditions. The formula is:

$$CV = \frac{SD}{M} \tag{1}$$

Where SD represents standard deviation and M denotes mean. A smaller CV value indicates reduced relative fluctuations, more concentrated data, and minimized inter-individual differences.

In social science research, researchers usually divide the CV value into three intervals: CV <0.15 indicates small differences and relatively concentrated data within the group; 0.15 ≤ CV ≤ 0.30 indicates moderate differences; and CV> 0.30 indicates a dispersed data distribution with large individual differences (Abu-Bader, 2021).

According to the above formula and combined with the mean and standard deviation of the four emotion management dimensions in this study, the CV of each dimension is calculated as shown in the following table5:

Table 5. CV numeric value

Variable	N	Mean	Std Deviation	CV
Emotion recognition and understanding	164	2.81	.293	0.104
Emotion expression	164	2.90	.368	0.127
Emotion regulation	164	2.82	.363	0.129
Emotion application	164	2.75	.320	0.116

The analysis found that the four dimensions of CV were all less than 0.15, indicating that children's ability to recognize, express, regulate and apply emotions was relatively concentrated in four aspects, with little individual difference and relatively consistent overall characteristics of the group.

One-way ANOVA

To further explore developmental differences in emotional management competencies across age groups, this study employed class grouping as a variable. A one-way ANOVA was conducted on four dimensions-emotional recognition and understanding, emotional expression, emotional regulation, and emotional application-for three preschool classes: small (52 children), middle (52 children), and large (60 children). The analysis aimed to identify statistically significant differences in emotional management abilities among different age groups, thereby revealing potential age-related trends in emotional development during the preschool stage. These findings will provide evidence-based support for designing phased emotional education programs and developing targeted intervention strategies.

Table 6. One-way ANOVA

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Emotion recognition and understanding	Between Groups	2.544	5	.509	7.002	<.001
	Within Groups	11.479	158	.073		
	Total	14.023	163			
Emotion expression	Between Groups	2.170	5	.434	3.452	.005
	Within Groups	19.864	158	.126		
	Total	22.034	163			
Emotion regulation	Between Groups	2.587	5	.517	4.320	.001
	Within Groups	18.926	158	.120		
	Total	21.514	163			

ANOVA						
		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Emotion application	Between Groups	9.783	5	1.957	2.193	.058
	Within Groups	140.967	158	.892		
	Total	150.750	163			

Table 6. (*Continued*)

The one-way ANOVA results revealed significant age group differences in three dimensions: emotion recognition and understanding ($F(5,158)=7.002$, $p<0.001$), emotional expression ($F(5,158)=3.452$, $p=0.005$) and emotion regulation ($F(5,158)=4.320$, $p=0.001$). These findings indicate that as children grow older, they demonstrate progressive development in mastering emotion identification, expression methods, and regulatory strategies. In contrast, the emotional application dimension ($F(5,158)=2.193$, $p=0.058$) showed no statistically significant group differences, suggesting challenges in transferring learned emotional knowledge to practical life situations. This result highlights deficiencies in current emotional education regarding the integration of "knowledge" and "practice". It is recommended to enhance situational simulations and practical activities in teaching to promote holistic development of children's emotional competencies.

Tukey's HSD Test ($\alpha = 0.05$)

Post-hoc results showed in table 7, that children in large classes significantly outperformed both small and middle classes, while middle-class children scored higher than small-class peers. No significant differences were observed within the same age groups. This indicates a clear developmental progression in emotion recognition with age.

Table 7. Post-Hoc results for emotion recognition and understanding

Group Comparison	**Mean Difference**	**Std. Error**	**Sig.**	**95% Confidence Interval**
Age Group Comparisons				
LC1 vs SC1	0.485*	0.067	<.001	[0.312, 0.658]
LC1 vs SC2	0.462*	0.067	<.001	[0.289, 0.635]
LC2 vs SC1	0.471*	0.067	<.001	[0.298, 0.644]
LC2 vs SC2	0.448*	0.067	<.001	[0.275, 0.621]
MC1 vs SC1	0.289*	0.070	.001	[0.106, 0.472]
MC1 vs SC2	0.266*	0.070	.003	[0.083, 0.449]
MC2 vs SC1	0.275*	0.070	.002	[0.092, 0.458]
MC2 vs SC2	0.252*	0.070	.006	[0.069, 0.435]
LC1 vs MC1	0.196*	0.067	.031	[0.023, 0.369]
LC1 vs MC2	0.210*	0.067	.018	[0.037, 0.383]
LC2 vs MC1	0.182*	0.067	.048	[0.009, 0.355]
LC2 vs MC2	0.196*	0.067	.031	[0.023, 0.369]
Within Age Group Comparisons				
SC2 vs SC1	0.023	0.070	.999	[-0.160, 0.206]
MC2 vs MC1	-0.014	0.070	1.000	[-0.197, 0.169]
LC2 vs LC1	-0.014	0.067	.998	[-0.187, 0.159]

**Significant at $p < .05$*

Summary: Large classes significantly outperformed both small and middle classes. Middle classes significantly outperformed small classes. No significant differences were found within age groups.

Tukey's HSD Test (α = 0.05)

Large-class children performed as (**Table 8**) significantly better than small-class children in emotional expression. Middle-class children showed slightly higher means than small classes, but the differences were not statistically significant. No significant contrasts were found between large and middle classes, suggesting that major gains occur mainly between early and later preschool years.

Table 8. Post-Hoc results for emotion expression

Group Comparison	Mean Difference	Std. Error	Sig.	95% Confidence Interval
Age Group Comparisons				
LC1 vs SC1	0.324*	0.088	.004	[0.095, 0.553]
LC1 vs SC2	0.318*	0.088	.005	[0.089, 0.547]
LC2 vs SC1	0.311*	0.088	.006	[0.082, 0.540]
LC2 vs SC2	0.305*	0.088	.008	[0.076, 0.534]
MC1 vs SC1	0.187*	0.092	.264	[-0.056, 0.430]
MC1 vs SC2	0.181	0.092	.302	[-0.062, 0.424]
MC2 vs SC1	0.194*	0.092	.233	[-0.049, 0.437]
MC2 vs SC2	0.188*	0.092	.271	[-0.055, 0.431]
LC1 vs MC1	0.137	0.088	.512	[-0.092, 0.366]
LC1 vs MC2	0.130	0.088	.578	[-0.099, 0.359]
LC2 vs MC1	0.124	0.088	.632	[-0.105, 0.353]
LC2 vs MC2	0.117	0.088	.703	[-0.112, 0.346]
Within Age Group Comparisons				
SC2 vs SC1	0.006	0.092	1.000	[-0.237, 0.249]
MC2 vs MC1	0.007	0.092	1.000	[-0.236, 0.250]
LC2 vs LC1	-0.013	0.088	.999	[-0.242, 0.216]

**Significant at p < .05*

Summary: Large classes significantly outperformed small classes. Differences between middle and small classes approached significance. No significant differences between large and middle classes or within age groups.

Tukey's HSD Test (α = 0.05)

Children in large classes demonstrated significantly stronger emotion regulation compared with small-class peers. Middle-class children showed emerging but non-significant improvements relative to small classes, while no differences were found between large and middle classes as shown in **Table 9**. This suggests that regulation skills consolidate most strongly by the senior preschool stage.

Table 9. Post-Hoc results for emotion regulation

Group Comparison	Mean Difference	Std. Error	Sig.	95% Confidence Interval
Age Group Comparisons				
LC1 vs SC1	0.356*	0.086	.001	[0.132, 0.580]

Group Comparison	Mean Difference	Std. Error	Sig.	95% Confidence Interval
LC1 vs SC2	0.342*	0.086	.002	[0.118, 0.566]
LC2 vs SC1	0.348*	0.086	.001	[0.124, 0.572]
LC2 vs SC2	0.334*	0.086	.002	[0.110, 0.558]
MC1 vs SC1	0.215*	0.090	.129	[-0.023, 0.453]
MC1 vs SC2	0.201*	0.090	.175	[-0.037, 0.439]
MC2 vs SC1	0.223*	0.090	.103	[-0.015, 0.461]
MC2 vs SC2	0.209*	0.090	.146	[-0.029, 0.447]
LC1 vs MC1	0.141	0.086	.466	[-0.083, 0.365]
LC1 vs MC2	0.133	0.086	.529	[-0.091, 0.357]
LC2 vs MC1	0.133	0.086	.529	[-0.091, 0.357]
LC2 vs MC2	0.125	0.086	.602	[-0.099, 0.349]
Within Age Group Comparisons				
SC2 vs SC1	0.014	0.090	.999	[-0.224, 0.252]
MC2 vs MC1	0.008	0.090	1.000	[-0.230, 0.246]
LC2 vs LC1	-0.008	0.086	1.000	[-0.232, 0.216]

Table 9. (*Continued*)

**Significant at p < .05*

Summary: Large classes significantly outperformed small classes. Differences between middle and small classes were marginally significant. No significant differences between large and middle classes or within age groups.

Post-Hoc Results for Emotion Application

Note: No post-hoc analysis conducted as ANOVA was non-significant (F(5,158)=2.193, p=0.058)

Analysis of teacher interview results

This study employed thematic analysis (Thematic Analysis) based on the six-stage framework proposed by Braun and Clarke (2006). We systematically organized and coded interview transcripts from six teachers (two per class in small, middle, and large classes) to identify four core themes related to emotional management in preschoolers. These themes were then integrated with quantitative data for comprehensive analysis. To ensure reliability, researchers conducted multiple rounds of code review and invited preschool education experts to verify the categorization results, thereby guaranteeing both representativeness and validity of the themes.

Theme 1: The ability to recognize emotions becomes clearer with age

Educators consistently observe significant age-related differences in children's emotional recognition abilities. Younger preschoolers (small classes) rely on intuition or imitation with limited accuracy, while middle-aged children begin to interpret facial expressions and tone to convey emotions. Older preschoolers (large classes) demonstrate initial emotional understanding by contextualizing situations.

Teacher A from small classes: "Some kids say' he's smiling' when he's actually frowning – this shows their facial expression reading isn't yet precise."

Teacher B from middle classes: "They start saying 'she's angry because she's upset' – demonstrating contextual judgment."

Teacher C from large classes: "They can explain 'he's angry because his toy was taken '– showing causal reasoning."

The findings align with quantitative data, revealing significant differences in emotional recognition and comprehension across age groups ($F(5,158)=7.002$, $p<0.001$), indicating progressive improvement in children's emotional awareness as they grow older.

Theme 2: The development of emotional expression ability and the association with language support, from non-language to language

Teacher feedback indicates that young children's emotional expression gradually transitions from non-verbal behaviors (e.g., crying or silence) to verbal communication as they grow older. In small classes, children express emotions through physical actions or crying; in middle classes, they begin using simple words; and in large classes, they can articulate their emotions and causes more clearly.

Teacher D from the small class: "They don't talk much and cry or sit still when upset." • Teacher E from the middle class: "Now they say 'I'm unhappy 'and' I don't want it,' but sometimes can't explain why."

Teacher F from the large class: "Can now say' I feel sad because I wasn't chosen,' linking emotions with specific reasons."

This trend aligns with quantitative analysis, showing significant differences in emotional expression dimensions across age groups ($F(5,158)=3.452$, $p=0.005$), indicating that language development promotes emotional expression skills.

Theme 3: Emotional regulation strategies are gradually formed but limited in practical application

While young children learn emotional regulation strategies during activities, their actual application in daily life remains limited. Preschoolers in the small class rarely demonstrate self-regulation behaviors, while those in the middle class can mimic teachers 'actions. Older preschoolers understand regulation methods but struggle to apply them consistently. • Teacher A (small class): "They don't know how to calm down. When angry, they just cry or hit others."

Teacher D (middle class): "We teach them deep breathing, but it only works when we demonstrate it together."

Teacher E (large class): "Sometimes they say 'I'll go drink water to cool off,' but not every time."

This phenomenon aligns with significant age-group differences in emotional regulation dimensions ($F(5,158)=4.320$, $p=0.001$), reflecting that although children have developed basic regulatory awareness, their self-execution capabilities remain unstable.

Theme 4: Emotional strategies are difficult to transfer to real life situations

Teachers observed that while preschoolers can master emotional regulation techniques in classroom activities, they struggle to apply these skills in daily life scenarios, particularly showing instinctive reactions during conflicts or setbacks. •

Teacher B from the small class: "They learned to 'clap and count' in class to calm down, but still lose their temper when they can't get toys."

Teacher C from the middle class: "Knows to' tell the teacher,' but sometimes resorts to hitting first."

Teacher F from the large class: "Can recite emotional regulation methods, but often forgets to use them when angry."

This study explains why no significant group differences were found in emotion application dimensions ($F(5,158)=2.193$, $p=0.058$). The findings indicate that although children understand the techniques, their ability to transfer and apply them remains limited, suggesting that cognitive behavioral transformation still requires intentional guidance from teachers.

In conclusion, interview analysis and quantitative data complement each other, reveal the development trajectory and practical challenges of children's emotional management ability in different age stages, and provide a multi-dimensional perspective for the practical design of emotional education.

5. Data findings

This study investigates the current development of emotional management skills among preschool children using a sample of 164 participants from a kindergarten in Huaibei City, Anhui Province, China. Through a combination of quantitative questionnaires and teacher interviews, the research examines four dimensions: emotion recognition and understanding, emotion expression, emotion regulation, and emotion application. The analysis compares the characteristics of emotional management across different age groups (small, middle, and large classes) to identify developmental patterns. These findings aim to provide data-driven insights for optimizing emotional management curricula in early childhood education.

The ability to recognize and understand emotions increases with age

Quantitative data reveals significant age-related differences in children's scores on the "Emotion Recognition and Understanding" dimension. The average score of ($M=2.81$，$SD= 0.293$, $CV=0.104$) indicates relatively low dispersion, suggesting a more homogeneous overall performance. One-way ANOVA results demonstrate statistically significant differences across age groups ($F(5,158)=7.002$, $p<0.001$), indicating that children's ability to recognize and understand others' emotions progressively improves with age. Teacher interviews corroborate this trend: younger preschoolers primarily rely on intuitive facial expression recognition, middle-aged children can interpret emotions through tone cues, while older preschoolers exhibit contextual analysis skills, demonstrating a developmental progression from "surface perception" to "contextual understanding".

The relationship between the development of emotional expression ability and language support

In the "emotional expression" dimension, preschoolers demonstrated significant age-related differences with an average score of ($M=2.90$，$SD= 0.368$, $CV=0.127$), While their overall performance remained clustered, it showed slight elevation compared to other dimensions. Analysis of variance revealed significant age group differences ($F(5,158)=3.452$, $p=0.005$), indicating that older children demonstrate better verbal expression of emotions and their causes. Teacher feedback indicated that younger preschoolers primarily used non-verbal expressions like crying and body language, while middle-aged preschoolers began using emotional vocabulary to describe mood states. Older preschoolers could articulate emotions and their triggers more comprehensively, reflecting a strong correlation between emotional expression abilities and language development levels.

The ability to regulate emotions develops with age

In the "emotion regulation" dimension, the mean score was ($M=2.82$，$SD= 0.363$, $CV=0.129$) , indicating relatively concentrated data distribution. One-way ANOVA results revealed significant differences between age groups ($F(5,158)=4.320$, $p<0.001$). Older children demonstrated stronger initial

emotion regulation strategies and attempts to apply them, reflecting that younger children exhibit weaker emotional regulation abilities as they grow older. Teacher interviews indicated that younger preschoolers rely heavily on teacher guidance for emotion regulation and demonstrate fewer self-regulatory behaviors; middle-aged preschoolers can mimic teachers' simple regulation techniques; while older preschoolers begin to independently use regulation strategies like deep breathing and attention shifting, though these behaviors still require repeated practice and adult support to solidify.

There was no significant age difference in emotional use ability, and the development was slow, and there was no significant difference between groups

Regarding the "Emotion Management" dimension, while the overall average score was (M=2.75，SD= 0.320, CV=0.116) , there was no statistically significant age-related increase in scores. ANOVA analysis revealed no significant differences between age groups ($F(5,158)=2.193$, $p=0.058$). Teachers generally observed that although young children master regulation techniques during activities, their ability to apply these strategies in real-life situations remains limited. Particularly when facing conflicts or setbacks, children often struggle to effectively utilize learned coping mechanisms, exhibiting more instinctive behavioral responses. This finding suggests delayed development of emotion management transfer skills, necessitating enhanced strategy practice through life-related situational teaching in educational settings.

6. Discussion

The present research aimed at surveying 164 preschool children in small (n=52), middle (n=52), and large (n=60) classes in a kindergarten in Huaibei, and it focused on four dimensions of emotional management: recognition and understanding, expression, regulation, and application. The descriptive results showed an overall average performance in all of the dimensions ($M = 2.75$-2.90, $SD = 0.293$-0.368), with the highest mean in emotional expression ($M = 2.90$) and the lowest in emotional application ($M = 2.75$). These findings affirm that although preschoolers exhibit an increasing understanding of emotional strategies, they have little capacity to successfully apply them to everyday life circumstances.

One-way ANOVA also showed a significant difference between age groups in recognition ($F(5,158) = 7.002$, $p < 0.001$), expression ($F(5,158) = 3.452$, $p = 0.005$), and regulation ($F(5,158) = 4.320$, $p =0.001$). Such results are consistent with the previous literature (Scarpazza et al., 2025; Lucas-Molina et al., 2020), which found stable improvements in emotional knowledge and regulation with age. The trends were supported in teacher interviews in the current study, indicating that older children were better able to connect emotions with causes and to be able to practice simple regulation strategies on their own, albeit inconsistently

There were no significant differences among age groups on the application dimension ($F(5,158) = 2.193$, $p = 0.058$). The result is noteworthy even though it is not statistically significant at the conventional threshold since the p-value was close to the threshold. This implies that children are perhaps at the threshold of being able to transfer knowledge of emotions to practice but this was not always evident in the present sample. This near-significance suggests that given larger samples or more diverse samples, or more structured intervention, differences in emotion application across age groups may be more evident. This is consistent with the findings of Dennis & Kelemen [17], and Diebold [5], who pointed out that preschoolers tend to demonstrate strategy awareness but not with a consistent transfer to practice i.e. lack of knowledge-practice integration.

Surprisingly, the use of emotional strategies remained behind in spite of the great improvement made in recognition, expression and regulation. This deficiency indicates that preschoolers have the cognitive ability

to learn about strategies, but they do not manage to transfer them to unstructured settings outside the classroom. This problem was also evidenced in teacher interviews, as several educators noted that children would be able to recite regulation strategies such as deep breathing or telling the teacher, but would not be able to use them spontaneously during peer conflict situations in the real world. This gap between theory and practice of transfer is an important point of intervention in education.

Methodologically, there are some limitations of the study. The study sample was limited to one kindergarten in Huaibei, Anhui so the findings cannot be generalized to the wider Chinese preschool population. Local cultural forces and the institutional practices and teacher training could have influenced the emotional behaviors of children and the results might not be generalised to other provinces and rural or privately run institutions. In addition, the cross-sectional design only identifies differences at a single time point and is not a true developmental progression, which is why it is difficult to interpret as causal. The use of teacher reports and interviews as the main source of qualitative data also creates a possibility of biasness since the information provided by the teachers may not be a complete reflection of the independent behaviors of children out of the classroom environments.

Future studies must address such limitations by expanding the sample to multi-site or various regional and socioeconomic settings and by using longitudinal designs to measure intra-individual changes in emotional competencies. Adding parental reports and direct observations of behavior would also be a more balanced perspective and limit single-source bias. Notably, the almost significant result of emotional application indicates that specific interventions, e.g., role-play, situation simulations, parent-teacher coordinated training, may potentially promote more effective emotional strategies transfer in the context of structured activities to everyday life situations.

This research indicates that preschoolers exhibit stable development in emotion recognition, expression, regulation, but fall behind in emotional application, which indicates a disjunction between strategy knowledge and real-life application. the results indicate the potential and the shortfalls of the existing emotional education practice and the necessity of systematic, practice-oriented interventions and studies of larger size and more representative samples to extrapolate findings to a wider range of the Chinese preschool population.

This paper reviewed the emotional management skills of preschoolers in four dimensions; recognition and understanding, expression, regulation, and application using a quantitative measure as well as interviewing the teachers. The combination of results indicates the evident developmental advances, as well as the unresolved issues of transferring strategies to the real life.

6.1. Emotion recognition and understanding

Quantitative outcomes indicated that there were great differences in recognition between age groups ($F(5,158) = 7.002$, $p < 0.001$) with post-hoc analysis revealing that children in big classes performed significantly better than those in small and middle classes. This was reflected in teacher interviews: younger children tended to use superficial clues, such as making guesses based on facial expression, but older children were more likely to reason about emotion in terms of the situation at hand. This confirms previous research indicating that preschool children develop gradually both perceptual and causal aspect of emotion recognition (Scarpazza et al., 2025).

Emotion expression

In a similar vein, large age-related effects occurred in emotional expression ($F (5,158) = 3.452$, $p = 0.005$). Post-hoc comparisons revealed that large-class children performed significantly better than small-

class children with middle-class children being at a transitional point. Teachers stressed that the positive changes in the expressive ability were strongly connected to language development, and older children were capable of expressing feelings in words instead of crying or using gestures only. This is consistent with Voltmer and von Salisch [14], who emphasize vocabulary growth as a key force behind emotional articulation.

Emotion regulation

On the emotion regulation, there was a significant difference between large-class and small-class children ($F(5,158) = 4.320$, $p = 0.001$). Teachers also said older children were more aware of strategies used, e.g., to self-soothe, distract or ask an adult, but that this was not always consistently used without adult intervention. This indicates that as the regulation capacities mature, independent use is weak and needs to be supported. These findings are also reflected in [13], as they revealed that the regulation of preschoolers gets better over time yet heavily relies on external assistance.

Emotion application

Unlike the other dimensions, emotion application did not reach statistical significance ($F(5,158) = 2.193$, $p = 0.058$). This near-threshold finding suggests a slow emerging trend that may not yet be stable within the sample size. Teachers consistently observed that while children could articulate strategies (e.g., "take a deep breath," "tell the teacher"), they frequently failed to implement them spontaneously during conflicts. This "knowing but not doing" gap has been documented in other preschool contexts (points to the challenge of transferring classroom knowledge into authentic peer interactions.

The challenge of translating strategies into action will also have to be viewed in the context of cultural and educational situation in China. The history of the one-child policy has brought about settings in which children can have less experience of peer conflict and more dependence on adult mediation. Besides, the parental approach to socialization in China tends to focus on emotional restraint and obedience, which may restrict the possibility of children learning how to regulate themselves independently. The cross-cultural comparisons reveal that Chinese preschoolers are more dependent on the teacher-led regulation than Western peers, who are stimulated to learn how to be autonomous earlier Lucas-Molina [13]. In combination, these contextual factors can contribute to the understanding of the lack of emotional application in spite of gains in recognition, expression and regulation.

6.2. Limitations and future directions

The results of this study are to be viewed in terms of a number of limitations. The sample was limited to one public kindergarten in Huaibei, Anhui, and therefore generalizability to wider Chinese preschool populations is limited. Furthermore, the gathering of data was based on teacher ratings and interviews a lot, which increased the risk of single-source bias. Future research may be enhanced by direct observations and parent questionnaires. Lastly, the cross-sectional design only represents the differences in age-groups, but not longitudinal developmental patterns. A replication study across sites, diverse populations, and longitudinal tracking would enable researchers to determine whether near-significant effects of emotion application change over time into more robust developmental effects.

7. Conclusion

While accomplishing all its intended objectives, this study has successfully investigated the developmental trajectory of emotional competence among preschool children and identified key educational supports underlying this progression. By integrating quantitative ANOVA results with qualitative insights from teacher interviews, The study found that children's ability of emotion recognition and understanding,

expression and regulation increased significantly with age, while the ability of emotion application showed no significant age group differences, indicating that the development of this ability was still unstable and still depended on adult guidance and specific situational support.

The study further reveals that external factors-such as structured emotional talk, adult scaffolding, and contextually embedded support-play a critical role in shaping young children's emotional capabilities. Particularly, the shift from nonverbal to verbal emotional expression and the emergence of self-regulatory strategies underscore the importance of language-mediated emotional teaching in early childhood settings.

Despite the absence of significant age-group differences in emotional application, interview data suggest that children begin to exhibit strategy awareness when guided by adults, though their application tends to be situational and inconsistent. This suggests that emotion-related knowledge emerges before the autonomous transfer of that knowledge into action.

In conclusion, the findings advocate for a pedagogical framework that emphasizes not only the teaching of emotional knowledge but also the structured rehearsal of emotional strategies. Through emotionally rich language exposure, role-play simulations, and consistent co-regulation, educators can better support the transition from emotion recognition to competent emotional action. Future research should employ longitudinal and cross-contextual designs to further explore how emotional competence matures over time and how family–school partnerships may jointly promote this development.

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Conflict of interest

The authors declare no conflict of interest

References

1. Lu Ling. (2011). Master of Practical Studies to promote the development of emotional regulation ability in children aged 4–5 years old (Master's thesis, Southwest University).
2. Xu Wenjie. (2023). Action Research on Picture Book Teaching to Promote the Development of Emotional Regulation Ability in Senior Kindergarten Children (Master's thesis, Hebei University).
3. OECD. (2019). OECD Learning Compass 2030: A Series of Concept Notes. Organisation for Economic Co-operation and Development. https://www.oecd.org/education/2030-project/
4. Alwaely, S. A., Yousif, N. B. A., & Mikhaylov, A. (2021). Emotional development in preschoolers and socialization. Early Child Development and Care, 191(16), 2484–2493.
5. Diebold, T., Jaggy, A.-K., & Perren, S. (2025). Socialisation of emotion regulation in preschool classrooms: How do peers matter? Infant and Child Development, 34(1), e2566. https://doi.org/10.1002/icd.2566
6. Valiente, C., Swanson, J., DeLay, D., Fraser, A. M., & Parker, J. H. (2020). Emotion-related socialization in the classroom: Considering the roles of teachers, peers, and the classroom context. Developmental Psychology, 56(3), 578–594. https://doi.org/10.1037/dev0000863
7. Denham, S. A., Bassett, H. H., & Zinsser, K. (2012). Early childhood teachers as socializers of young children's emotional competence. Early Childhood Education Journal, 40(3), 137–143.

8. Wei Yuqian. (2023). Action Research on Improving Children's Emotional Regulation Ability through Picture Book Teaching (Master's thesis, Jilin Foreign Studies University).
9. Denham, S. A. (2018). Implications of Carolyn Saarni's work for preschoolers' emotional competence. European Journal of Developmental Psychology, 15(6), 643–657. https://doi.org/10.1080/17405629.2018.1479250
10. Caruana, L. F. (2025, April). An Explanatory Framework for Modelling Student Emotions in Design and Technology Education. In 2025 IEEE Global Engineering Education Conference (EDUCON) (pp. 1–9). IEEE.
11. Huang, Z. J. (2020). Social and emotional competence: Key factors influencing success and happiness. Global Education, 49(06), 102–112.
12. Richard, S., Cavadini, T., Dalla-Libera, N., Angonin, S., Alaria, L., Lafay, A., Berger, C., & Gentaz, E. (2025). The development of specific emotion comprehension components in 1285 preschool children. Scientific Reports, 15, 8562. https://doi.org/10.1038/s41598-025-90613-z
13. Lucas-Molina, B., Quintanilla, L., Sarmento-Henrique, R., Martín Babarro, J., & Giménez-Dasí, M. (2020). The relationship between emotion regulation and emotion knowledge in preschoolers: A longitudinal study. International Journal of Environmental Research and Public Health, 17(16), 5726. https://doi.org/10.3390/ijerph17165726
14. Voltmer, K., & von Salisch, M. (2022). The feeling thinking talking intervention with teachers advances young children's emotion knowledge. Social Development, 31(3), 846–861.
15. Scarpazza, C., Gramegna, C., Costa, C., Pezzetta, R., Saetti, M. C., Preti, A. N.. & Bolognini, N. (2025). The Emotion Authenticity Recognition (EAR) test: Normative data... Neurological Sciences, 46(1), 133–145.
16. Ratcliff, K. A., Vazquez, L. C., Lunkenheimer, E. S., & Cole, P. M. (2021). Longitudinal changes in young children's strategy use for emotion regulation. Developmental Psychology, 57(9), 1471–1486. https://doi.org/10.1037/dev0001235
17. Dennis, T. A., & Kelemen, D. A. (2009). Preschool children's views on emotion regulation. International Journal of Behavioral Development, 33(3), 243–252. https://doi.org/10.1177/0165025408098024
18. Lafay, A., Berger, C., Alaria, L., Angonin, S., Dalla-Libera, N., Richard, S. & Gentaz, E. (2023). Impact of innovative emotion training in preschool and kindergarten. Children, 10(11), 1825.
19. Wang, Y. X., Cui, Q. Z., Liu, K., Liu, Q. L., Long, T., Qian, C. J., & Su, X. Y. (2021). Effects of parental consistency on children's social emotional development. Early Childhood Education, 11(33), 49–52+56.
20. Carlson, S. M., & Wang, T. S. (2007). Inhibitory control and emotion regulation in preschool children. Cognitive Development, 4, 489–510. https://doi.org/10.1016/j.cogdev.2007.08.002
21. Yue, A., Bai, Y., Shi, Y., Luo, R., Rozelle, S., Medina, A., & Sylvia, S. (2020). Parental migration and Early childhood development in rural China. Demography, 57(2), 403–422. https://doi.org/10.1007/s13524-019-00849-4
22. Grazzani, I. (2024). Promoting theory of mind and emotion understanding in preschool settings: An exploratory training study. Frontiers in Psychology, 15, 1439824.
23. Martinsone, B., Supe, I., Stokenberga, I., Damberga, I., Cefai, C., Camilleri, L., & Grazzani, I. (2022). Social emotional competence, learning outcomes, emotional and behavioral difficulties of preschool children: Parent and teacher evaluations. Frontiers in Psychology, 760782. https://doi.org/10.3389/FPSYG.2021.760782
24. Lu W., Ngai, C. S. B., & Yang, L. (2020). The importance of genuineness in public engagement—An exploratory study. International Journal of Environmental Research and Public Health, 17, 7078.
25. Zloteanu, M., & Krumhuber, E. G. (2021). Expression authenticity: The role of genuine and deliberate displays in emotion perception. Frontiers in Psychology, 11, 611248. https://doi.org/10.3389/fpsyg.2020.611248
26. Deckert, M., Schmoeger, M., Auff, E., & Willinger, U. (2020). Subjective emotional arousal: An explorative study. Psychological Research, 84, 1857–1876. https://doi.org/10.1007/s00426-019-01197-z
27. Høyland, A. L., Nærland, T., Engstrøm, M., Lydersen, S., & Andreassen, O. A. (2017). The relation between face-emotion recognition and social function. PLoS One, 12(10), e0186124.
28. Johansen, L., Óturai, G., Jaggy, A.-K., & Perren, S. (2024). Longitudinal associations between preschool children's theory of mind, emotion understanding, and positive peer relationships. International Journal of Behavioral Development, 48(3), 200–211.
29. Grazzani, I., Ornaghi, V., Conte, E., Pepe, A., & Caprin, C. (2018). The relation between emotion understanding and theory of mind in children aged 3 to 8: The key role of language. Frontiers in Psychology, 9, 724.