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Development and validation of a social skills assessment tool for Vietnamese preschool children aged 5–6

Nguyen Thieu Da Huong, Tran Thanh Nam, Dinh Thi Kim Thoa

VNU University of Education, Vietnam National University, Hanoi, Vietnam

dahu21for.children@gmail.com

Abstract. The development and validation of social skills (SS) assessment tools are pivotal for evidence-based early childhood education, particularly for children aged 5–6—a critical transition period from preschool to primary school. However, Vietnam currently lacks systematically developed and standardized SS assessment batteries that align with children's developmental characteristics and the domestic socio-cultural-educational context. This study aims to develop the SSIS scale by Gresham & Elliott (2008) and validate a social skills assessment toolkit for 5–6-year-old children in Vietnam – KNXH5T based on Classical Test Theory. The research was conducted using a quantitative design on a sample of 335 children aged 5–6 at 10 preschools in Hanoi. Analytical results identified the SS structure as comprising five component skills: communication, cooperation and participation, self-control and responsibility, and empathy. The KNXH5T toolkit consists of rating scales with rubrics for teachers and parents, along with direct situational testing tasks for children. Psychometric analyses using R-Studio software, including EFA, CFA, and Spearman correlations, showed that the toolkit has a clear factor structure, high reliability, and satisfactory measurement validity. Evaluation results indicated that children's SS reached a "Good" level, with differences observed based on region and gender, while birth month did not significantly influence the results. This research contributes a scientifically grounded assessment tool with high practical application value for Vietnamese early childhood education.

Keywords. Social skills; 5–6-year-old preschoolers; tool development; scale validation; Vietnamese early childhood education

1. Introduction

Social skills are considered a core component of comprehensive child development, reflecting the capacity to interact effectively with others, regulate behavior in accordance with social norms, and participate actively in learning contexts and daily life (Gresham & Elliott, 2008; Denham et al., 2012). International research shows that social skills are closely linked to emotional development, adaptive behavior, early academic results, and long-term social integration (Jones, Greenberg, & Crowley, 2015). For 5–6-year-old children, this is a key transition period from preschool to primary education, requiring foundational competencies such as effective communication, peer cooperation, behavior control, personal responsibility, and empathy in social relationships (Denham et al., 2014). A deficit in these skills can increase

the risk of difficulties in learning and behavioral adjustment in subsequent developmental stages (Walker et al., 2014).

In the context of evidence-based education, social skills assessment aims not only to describe a child's developmental level but also to serve the monitoring of progress, adjustment of educational activities, and design of appropriate early interventions (Lane et al., 2007). Standardized measurement tools help educational decisions to be made based on reliable data instead of subjective perceptions. According to educational measurement standards, a valid assessment tool needs to be built on a clear theoretical framework and rigorously tested for reliability as well as various types of measurement validity (AERA, APA, & NCME, 2014). For 5–6-year-old children, combining multiple sources of assessment information is considered an appropriate approach to comprehensively reflect a child's social competence (Merrell, 2002).

In Vietnam, the assessment of social skills for 5–6-year-old children currently relies primarily on international tools such as SSIS, SDQ, PKBS, or DECA. However, these tools have not been fully standardized on a sample of Vietnamese children, lack structural validation using modern analytical methods, and do not ensure the cultural suitability of behavioral indicators (Pham & Frydenberg, 2020). These limitations reduce the accuracy and application value of assessment results in educational practice. Research overviews show that there is currently no social skills assessment toolkit specifically developed for 5–6-year-old children in Vietnam based on a clear theoretical framework and standardized according to a scientific measurement process. This gap poses an urgent requirement for building an assessment tool that ensures both a theoretical basis and suitability for the Vietnamese early childhood education context. From the above reality, this study aims to develop and validate a social skills assessment toolkit for 5–6-year-old children in Vietnam, with the goals of: identifying the structure of social skills; constructing a corresponding assessment tool; and validating the reliability and measurement validity of the tool. On that basis, the research focuses on answering questions about the social skill structure and the psychometric validation of this KNXH5T toolkit.

2. Literature Review

2.1. Concepts and structure of social skills in children

Social skills are understood as a set of formed and learned behaviors that allow individuals to interact effectively and appropriately with social norms in different contexts (Gresham & Elliott, 2008). In developmental and educational psychology, social skills are not viewed as a single capacity but as a multidimensional construct, including many closely linked skill groups such as communication, cooperation, self-regulation, social responsibility, and socio-emotional competence (Rose-Krasnor, 1997). Contemporary theoretical approaches emphasize the integration between social behavior, emotional regulation, and social cognition in the process of a child's social skill development (Denham et al., 2012). At the 5–6 age range, social skills show distinct differentiation and are closely tied to adaptation requirements in structured learning environments; therefore, identifying the skill structure needs to be based on specific behavioral manifestations of this stage (Denham et al., 2014)

2.2. Social skill structural models and measurement implications

Many social skill structural models have been proposed, of which the model by Gresham and Elliott (2008) with skill groups such as communication, cooperation, self-control, responsibility, and empathy is considered to have high application value in education. Studies by Merrell (2002) and Walker et al. (2014) also indicate that these skill groups play an important predictive role in a child's school adaptation. From a measurement perspective, a social skill model needs to both fully reflect core behavioral areas and be capable of validation by factor analysis methods to ensure structural validity (AERA, APA, & NCME, 2014).

2.3. Social skills assessment tools for children

In the world, many social skills assessment tools have been developed such as SSIS, SDQ, PKBS, or DECA, mainly based on behavior rating scales from teachers and parents. However, recent trends emphasize the combination of indirect assessment with direct assessment tasks for children through social situations to enhance content validity and tool applicability (Denham et al., 2014).

2.4. Limitations when applying international tools to the Vietnamese context

Direct application of international tools in Vietnam still faces many limitations due to lack of standardization, cultural differences, and educational context. Many studies have only reached the level of translation, without fully validating factor structure and measurement validity (Pham & Frydenberg, 2020). Additionally, some behavioral indicators do not fully reflect cultural values such as collective spirit or social responsibility.

2.5. Research gaps and orientation of the current study

The above overview shows that there is still a lack of social skills assessment tools specifically for 5–6-year-old children in the Vietnamese context, built on a clear theoretical basis and validated by modern measurement methods. The current study aims to fill this gap through the development and validation of a social skills assessment toolkit suitable for the Vietnamese early childhood education context.

3. Methodology

3.1. Research Design

The study was designed according to a mixed-method research orientation with quantitative research as the primary component, aimed at developing and standardizing a social skills (SS) assessment toolkit for 5–6-year-old children in the Vietnamese early childhood education context.

3.2. Research Sample

The research sample consisted of 335 children aged 5–6 attending 10 preschools in Hanoi city, selected according to a controlled convenience sampling method. Data were collected

simultaneously from teachers, parents, and situational multiple-choice tasks for children to ensure multi-source assessment.

3.3. Development and standardization process of the KNXH5T toolkit

The process of developing and standardizing the toolkit was performed according to Classical Test Theory (CTT), combined with modern psychometric tests. This study used R-Studio software for data analysis and testing psychometric characteristics.

The overall quantitative data analysis procedure is summarized in Table 1 below:

Table 1. Quantitative Data Analysis Procedure for KNXH5T

Process Cluster	Step	Analytical Content	Techniques / Indices Used	Purpose
1. Theoretical Foundation – Instrument Development	1	Define the conceptual framework and theoretical structure of social skills (SS) in children aged 5–6	Literature review; analysis of SS models, particularly SSIS (2008)	Establish the theoretical foundation and identify the SS components to be measured
	2	Develop the system of behavioral indicators	Content analysis; alignment between theory and practice; expert consultation	Ensure that the indicators comprehensively reflect and are developmentally appropriate for children
	3	Design measurement items	Item construction principles based on CTT; age-appropriate language adaptation	Develop clear, observable, and user-friendly items suitable for early childhood settings
	4	Collect empirical data	Surveys of teachers and parents; situational tasks administered to children	Generate a sufficiently large dataset for psychometric analyses
2. Psychometric Analysis	5	Assess internal consistency reliability	Cronbach’s alpha; corrected item–total correlations	Examine internal consistency and each item’s contribution to the scale

	6	Analyze the latent structure of the scale	Exploratory Factor Analysis (EFA)	Determine the number of factors and their alignment with the theoretical model
	7	Validate the measurement model	Confirmatory Factor Analysis (CFA); χ^2/df , CFI, TLI, RMSEA	Evaluate the overall fit of the KNXH5T measurement model
	8	Evaluate extended validity and reliability	Content validity, structural validity, discriminant validity; inter-rater reliability; Spearman convergent correlations	Confirm that the scale measures accurately, comprehensively, and consistently over time
3. Standardization and Application	9	Standardize the scale structure	Synthesis of EFA and CFA results; analysis using R-Studio	Establish the final structural model of the KNXH5T scale
	10	Finalize and implement the instrument	Refinement of rating scales and situational tasks	Ensure scientific rigor, feasibility, and applicability in early childhood education practice

4. Results

4.1. Framework model of social skills for 5–6-year-old children

Based on the overview of international theories and models of children's social skills, the research team selectively inherited the social skill framework of the Social Skills Improvement System – SSIS (Gresham & Elliott, 2008). SSIS 2008 originally proposed seven social skill groups: communication, cooperation, self-assertion, participation, responsibility, empathy, and self-control. However, empirical and cross-cultural studies show that the seven-factor structure of SSIS has a certain flexibility depending on age and context. Research by Cheung, Siu, and Brown (2017) when validating the Chinese version of SSIS-RS emphasized the need to adjust the model to suit developmental and cultural characteristics.

Additionally, Panayiotou (2020) pointed out that for preschool children, some indicators in SSIS need to be shortened or adjusted. Specifically, recent research by Frye et al. (2025) shows that the seven-factor structure of SSIS 2008 can be shortened to six factors. Based

on these theoretical and empirical evidences, the thesis proposed shortening and restructuring the SSIS 2008 framework into the KNXH5T model comprising five core components: communication; cooperation; self-assertion & responsibility; empathy; and self-control, with a system of 22 behavioral indicators suitable for the development of 5–6-year-old children in the Vietnamese early childhood education context. From this framework, the behavioral indicator system was built on the principle of being observable and specifically describable in familiar daily contexts.

4.2. Instructions for using the social skills assessment toolkit for 5–6-year-old children

4.2.1. Purpose and scope of use

The toolkit was built to measure the development level of core social competencies in two main contexts: preschool and home. The tool aims to collect multi-dimensional data from three sources: preschool teachers, parents, and the children themselves. Assessment results help identify strength points and limitations of each child, providing a scientific basis for building individual education plans.

4.2.2. Structure of the social skills assessment toolkit

The toolkit consists of two supplementary components: (i) SS rating scale with Rubrics for preschool teachers and parents; and (ii) Situational multiple-choice task battery for children. Both components are designed to be compatible in structure, reflecting the five core social skill groups according to the KNXH5T framework.

4.2.3. Implementation process in preschools

The assessment is performed according to a multi-source, multi-method approach. The process consists of three stages: (1) preparation; (2) data collection; and (3) synthesis, standardization, and storage of data.

4.2.4. Processing, interpreting, and feedback of assessment results

Results are processed separately for each tool and then integrated to determine the child's general SS level according to four levels: low, average, good, and high. Scores by skill group allow for identifying areas needing support. Assessment results are used for educational support purposes, not for ranking or comparing children.

4.3. Validation results of the social skills assessment toolkit for 5–6-year-olds in Vietnam

Content validity was established through a cultural adaptation process and expert consultation. The expert council of 07 members assessed the suitability, clarity, and representativeness of each indicator. Results showed the Content Validity Index (CVI) of the entire scale reached 0.92, confirming high suitability. The KNXH5T scale was then deployed

on an official sample of 335 children. Data were cleaned and met requirements for psychometric analysis.

Table 2: Assessment of model fit (n = 335)

No	Index	Symbol	Reference Value	Value for Teacher Model	Value for Parent Model	Conclusion
1	Chi-square significance (Cmin)	p-value	p-value > 0.05	0.001	0.001	Measurement model fits actual data
2	Adjusted Chi-square	χ^2/df	$\chi^2/df < 5$	2.93	2.57	
3	Tucker–Lewis Index	TLI	TLI > 0.8	0.881	0.911	
4	Comparative Fit Index	CFI	CFI > 0.8	0.894	0.900	
5	RMSEA	RMSEA	RMSEA < 0.08	0.076	0.0685	

According to Classical Test Theory, reliability is a prerequisite for stability. In this study, Cronbach’s alpha for teachers reached $\alpha = 0.882$ and for parents reached $\alpha = 0.879$, both exceeding recommendations. The fact that all indicators had an alpha-if-item-deleted coefficient greater than 0.80 confirms no items caused noise.

Exploratory Factor Analysis (EFA) continued to provide strong evidence for structural validity. KMO indices were good (Teacher = 0.840; Parent = 0.847). Extracting five factors with Eigenvalues > 1 explained over 62% of the variance. The factor matrix after Varimax rotation showed items clearly converged into corresponding factors.

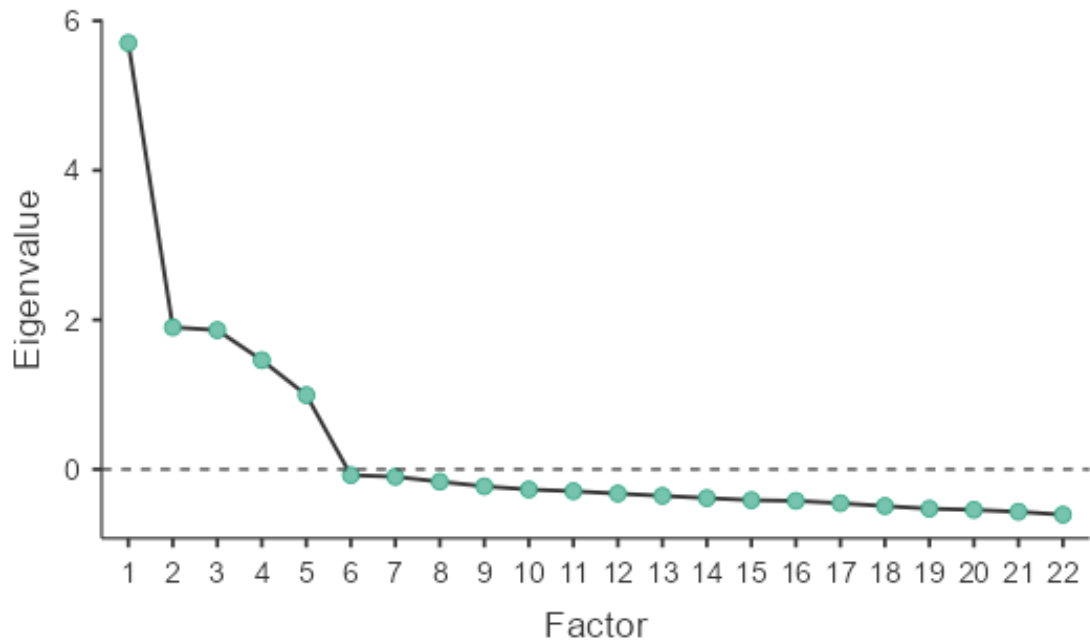


Figure 1: Results of the Extraction of Five Factors with Eigenvalues

Observing the path diagram showed indicators clearly converged into corresponding component factors. This confirmed the convergence of observed variables and reinforced construct validity. For the parent group, Confirmatory Factor Analysis (CFA) continued to reinforce the tool's measurement value. Similarity in structure and reliability between the two groups showed the toolkit has cross-context stability. Inter-rater reliability showed high similarity, confirming objectivity.

Survey results showed children's performance across 5 skill aspects was quite uniform, with mean scores from 2.45–2.61 for teachers and 2.38–2.58 for parents (4-level scale). Teachers rated Empathy highest, while parents rated Self-assertion & responsibility higher. Both agreed Communication was limited. Independent t-tests showed no significant difference between the two assessment groups ($p > .05$). Spearman correlation between rating scales and situational tests showed a significant positive correlation with $p < .01$. This finding provides empirical evidence for the concurrent validity of the KNXH5T toolkit.

4.4. Results of pilot social skills assessment on 5–6-year-old children in Hanoi city, Vietnam

First, score distribution showed children reaching Good and High levels dominated: 50.15% in communication, 58.21% in cooperation, 61.49% in self-assertion, 58.81% in empathy, and 61.49% in self-control. This supports the hypothesis that SS has a multi-component structure. Second, 53.13% of children reached Good and 6.87% High level, while 40.00% were Average and 0% Low. SS levels in Hanoi generally reached a Good level. However, deep analysis showed regional differences in the city. Third, gender analysis showed female children had higher rates of Good and High levels, especially in empathy, communication, and cooperation. This reinforces the hypothesis that gender is a relevant factor

in SS development. Finally, birth month analysis did not show a significant difference between children born early vs. late in the year.

5. Discussion of Findings

5.1. Structure of social skills in 5–6-year-old children from theoretical and empirical

Perspectives EFA and CFA results confirmed the social skill structure comprises five components: communication, cooperation and participation, self-control and responsibility, and empathy. This finding is consistent with multidimensional models proposed in international studies, where social skills are not viewed as a single capacity but an integration of behavioral, emotional, and social-cognitive groups. Confirming the five-component structure in Vietnam strengthens the generalizability of modern theories. Compared to SSIS or PKBS, the KNXH5T structure is streamlined but still covers core skills, showing cultural adaptation.

5.2. Reliability and measurement validity of the KNXH5T toolkit

Reliability tests showed high internal consistency. This confirms the measurement items stably and consistently reflect component social skills. CFA results with model fit indices reaching acceptable thresholds provide convincing evidence for construct validity. Significant correlation between teacher, parent assessments, and situational tasks shows concurrent validity. This is important because child behavior can manifest differently in home and school contexts. The Spearman correlation coefficient showed components reflect the same social skill structure. This reinforces concurrent validity and shows that combining indirect and direct assessment is appropriate.

5.3. Reality of social skills in 5–6-year-old children and related factors

Descriptive statistics showed the general SS level of children in Hanoi reached a Good level, though regional inequality exists. This reflects the influence of education conditions and social environment. Gender differences, with females having an advantage, match previous research trends. In contrast, the lack of birth month influence shows that development at this stage is more strongly affected by the educational environment than biological age.

5.4. Methodological significance in scale development and standardization

The process of developing and standardizing the KNXH5T toolkit according to CTT, combined with R-Studio analysis, enhances scientific rigor and transparency. Sequential steps from data cleaning to hypothesis testing ensure replicability. This approach creates a premise for expanding research according to more modern approaches in the future.

5.5. Scientific and practical contributions of the research

Scientifically, the research adds a standardized assessment tool specifically for 5–6-year-old children in Vietnam, filling a gap in educational measurement. Practically, the KNXH5T toolkit can be used to support educational decisions, helping teachers and parents monitor and support development based on evidence.

6. Conclusion and Implications

This research successfully built and validated a social skills assessment toolkit for 5–6-year-old children in the Vietnamese preschool context. Results confirmed the structure consists of five components: communication, cooperation, self-control, responsibility, and empathy. The tool shows high reliability and good validity. Scientifically, the research narrowed the gap in tools suitable for Vietnamese culture. Practically, the proposed toolkit can serve as a reliable measurement means for teachers, parents, and managers. Assessment results help orient the adjustment of educational activities and early intervention. Future research can expand the sample size and consider longitudinal assessment.

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