

# Practice-Based Validation of a School Readiness Module to Support Parents of Children Aged 3: An Application Study within the DDR Paradigm

Zhu Keiia, Seah Siok Peh\*, Zhou Lei

Faculty of Human Development, Universiti Pendidikan Sultan Idris, Tanjong Malim 35900,  
Perak, Malaysia

Corresponding Author Email: [sap\\_seah@fpm.upsi.edu.my](mailto:sap_seah@fpm.upsi.edu.my)

DOI Link: <http://dx.doi.org/10.6007/IJARPED/v15-i2/27859>

**Published Online:** 29 April 2026

## Abstract

To examine the practical effectiveness of a previously developed school readiness module for parents of children aged 3, this study investigated the application effects of the module within the Design and Development Research (DDR) paradigm. An eight-week application was conducted with 10 groups of parents and corresponding teachers from three kindergartens in Zhejiang Province, covering different family types. Using qualitative methods, data were collected through semi-structured parent interviews, children's naturalistic adaptation observations, parental practice logs, and teacher feedback records. The findings indicate that the module effectively improved parents' school readiness cognition and practical guidance abilities while alleviating guidance-related anxiety. Positive effects were also observed in children's kindergarten adaptation, particularly in emotional adjustment, self-care ability, and social competence. In addition, the module enhanced home-kindergarten communication and supported initial integration of community resources. Overall, the module demonstrated good adaptability across family types, though further optimization is needed for intergenerational coordination and rural resource utilization.

**Keywords:** School Readiness Module, Application Effect, DDR Paradigm, Children's Kindergarten Adaptation, Home-Kindergarten-Community Collaboration

## Introduction and Problem Statement

### *Research Background*

Parental support plays a critical role in children's transition to kindergarten, particularly during the early entry stage at age three. In response to fragmented parental guidance, limited contextual adaptability, and weak coordination across family, kindergarten, and community systems, a school readiness module to support parents of children aged 3 was previously developed within the Design and Development Research (DDR) paradigm (Zhu, 2024). Grounded in Ecological Systems Theory and Parental Involvement Theory, the module integrates four components—parenting cognition, transition-related practices, home-kindergarten interaction, and community resource utilization—and includes structured activities adapted to different family contexts.

However, the educational value of such modules cannot be fully established through theoretical grounding and expert validation alone. Existing research indicates that many parent guidance tools demonstrate promising design quality but yield inconsistent or limited effects when implemented in real-world settings, largely due to contextual constraints, variability in parental engagement, and insufficient adaptability to diverse family structures (Xie, 2018; Massy & Sembiente, 2023). In addition, empirical evidence remains limited regarding how such modules function across different family types and whether they effectively support multi-system collaboration in practice.

Against this backdrop, systematic examination of module application effects in authentic educational contexts is essential. Such investigation not only verifies practical effectiveness but also completes the “development–application–optimization” cycle central to the DDR paradigm, providing evidence for further refinement and scalable implementation.

### **Problem Statement**

Despite growing interest in parent-oriented school readiness interventions, several key uncertainties remain. First, there is limited empirical evidence on whether structured school readiness modules can effectively enhance parents’ guidance cognition and practices while reducing guidance-related anxiety in real-life contexts. Second, the extent to which parent-applied modules contribute to children’s emotional, self-care, and social adaptation during kindergarten transition—particularly across different developmental profiles—remains underexplored. Third, although multi-system collaboration is widely advocated, little is known about how structured guidance modules function within home–kindergarten–community frameworks and what contextual factors shape their adaptability across family types.

To address these gaps, the present study examines the application effects of a school readiness module for parents of children aged 3, with particular attention to parental outcomes, children’s adaptation, and multi-system collaboration in diverse family contexts.

### **Literature Review**

#### ***Core Theoretical Support***

##### *Iterative Logic of the Design and Development Research (DDR) Paradigm*

The Design and Development Research (DDR) paradigm emphasizes iterative and practice-oriented processes that integrate needs analysis, design and development, and implementation with continuous evaluation and refinement (McKenney & Reeves, 2021). While prior studies on school readiness modules have focused primarily on development phases, limited empirical work has examined application effects within authentic educational contexts. In response, the present study completes the DDR cycle by evaluating the module through real-world implementation, addressing concerns regarding the development–practice disconnect identified in recent DDR-related research (Massy & Sembiente, 2023).

##### *Practical Application Logic of Ecological Systems Theory*

Ecological Systems Theory conceptualizes children’s development as shaped by interactions among family, educational institutions, and community environments (Bronfenbrenner & Morris, 2006; Neal & Neal, 2021). Although this framework has been widely cited in school readiness research, empirical applications often focus on single-system interventions, particularly at the family or kindergarten level (Guo, 2023). This study operationalizes a multi-

system perspective by examining whether a structured module can facilitate coordinated support across home, kindergarten, and community contexts.

#### *Effect Transformation Mechanism of Parental Involvement Theory*

Parental Involvement Theory proposes that effective parental engagement operates through a pathway linking role cognition, self-efficacy, and parenting behavior (Hoover-Dempsey & Jones, 1997). Parental roles exert a comprehensive influence on school readiness across cognitive and socio-emotional domains (Józsa & Oo, 2026). Existing studies have demonstrated associations between parental involvement and children's school adaptation outcomes but provide limited evidence on how structured interventions support this transformation process (Schulting et al., 2025). Consistent with prior empirical findings, higher parental involvement correlates with improved school readiness indicators (Ridha et al., 2024). By embedding this mechanism within a practical guidance module, the present study empirically examines the process through which parental involvement translates into effective school readiness practices.

#### **Review of Relevant Studies**

##### *Research on the Application Effect of School Readiness Guidance Tools*

Research indicates that structured parent guidance tools can reduce children's separation anxiety and enhance parental self-efficacy (Rajaram, 2023; Schulting et al., 2025). However, existing evaluations frequently emphasize single outcome domains and overlook differential effects across family types, particularly intergenerational and rural families (Guo, 2023; Zhu, 2024). Moreover, limited adaptability and operability have constrained the sustainability of some parent guidance tools, particularly when implementation contexts and family conditions are insufficiently considered (Massy & Sembiente, 2023).

##### *Research on Influencing Factors and Intervention of Children's School Adaptation*

Children's adaptation to kindergarten is influenced by parenting practices, home–kindergarten interaction, and individual developmental characteristics (Rimm-Kaufman & Pianta, 2000). While kindergarten-led interventions dominate the literature, empirical studies examining family-initiated guidance remain scarce. This study addresses this gap by evaluating a parent-applied module and examining its effects across diverse family contexts.

##### *Practical Research on Home-Kindergarten-Community Collaboration in School Readiness*

Although home–kindergarten–community collaboration is recognized as essential for school readiness, empirical research on operational mechanisms remains limited (Britto, 2012; Chang & Abidin, 2024). Collaborative home–kindergarten–community engagement has been empirically linked to improvements in socio-emotional competence (Sun, Feng, & Xiao, 2025). Existing studies largely emphasize communication between families and kindergartens, with minimal attention to structured community resource integration (Guo, 2023). This study contributes empirical evidence on the feasibility of promoting multi-system collaboration through a standardized guidance module.

#### **Research Design and Implementation**

Guided by the practice-oriented and iterative logic of the Design and Development Research (DDR) paradigm, this study adopted a qualitative research design to examine the application effects of a previously developed school readiness module in authentic educational contexts.

The research design integrated the research paradigm, participants, research tools, implementation procedures, and data analysis methods to ensure methodological rigor and ecological validity.

#### *Research Paradigm and Methods*

Consistent with the DDR paradigm, this study focused on the implementation and evaluation stage of module development and employed qualitative methods to capture the dynamic and contextualized effects of module application. Qualitative approaches were selected to examine changes in parental cognition and practices, children's adaptation behaviors, and home-kindergarten collaboration processes, which are difficult to fully reflect through quantitative indicators alone.

Data were collected using multiple qualitative methods, including semi-structured interviews with parents and teachers, naturalistic observations of children's kindergarten adaptation, textual analysis of parental practice logs, and case analysis of typical family types (intergenerational, dual-income, and rural families). This multi-method design facilitated an in-depth understanding of module applicability and implementation challenges across diverse family contexts.

#### *Research Objects*

Participants were selected through purposeful sampling from three kindergartens in Zhejiang Province to ensure contextual diversity. The sample included 10 groups of parents of 3-year-old children, 6 corresponding class teachers with more than five years of preschool teaching experience, and 10 children aged 36–42 months entering kindergarten for the first time without prior systematic school readiness guidance.

Ethical approval was obtained from the Ethics Committee of Universiti Pendidikan Sultan Idris, Malaysia. All participants provided informed consent, and ethical principles including voluntary participation, confidentiality, and privacy protection were strictly observed.

#### *Research Tools*

Three primary research tools were employed: (1) semi-structured interview protocols for parents, conducted before and after module application to examine changes in cognition, practices, and perceived challenges; (2) parental guidance practice logs documenting weekly module implementation and children's responses; and (3) teacher feedback records documenting children's adaptation performance and home-kindergarten communication. All tools were reviewed by two preschool education experts to ensure content appropriateness.

#### *Research Implementation Process*

The study was conducted over a ten-week period and comprised three stages. During the preparation stage (Weeks 1–2), participant recruitment, informed consent, parent training on module use, and baseline interviews and observations were completed. During the module application stage (Weeks 3–10), parents independently implemented the module activities at home, while teachers conducted continuous observations and provided periodic feedback. In the final stage (Week 10), post-application interviews and observations were conducted, and all qualitative data were collected and organized for analysis.

*Data Processing Methods*

Qualitative data were analyzed using grounded theory coding procedures, including open, axial, and selective coding. To enhance credibility, researcher triangulation was employed, with two researchers independently coding the data and achieving over 85% agreement. Member checking was conducted by sharing preliminary interpretations with selected parents and teachers to confirm accuracy.

Figure 4.1. Research Implementation Flow Chart

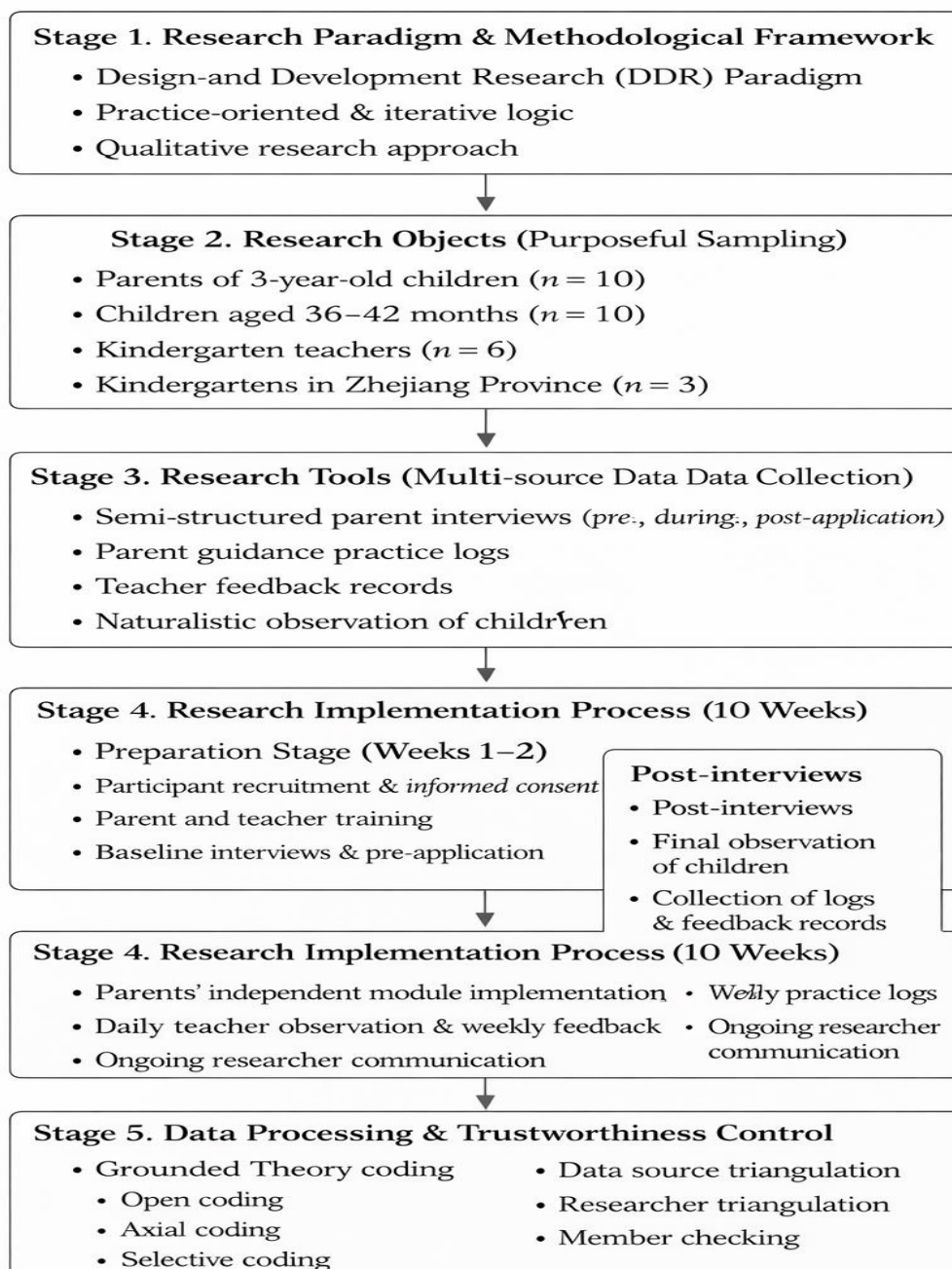


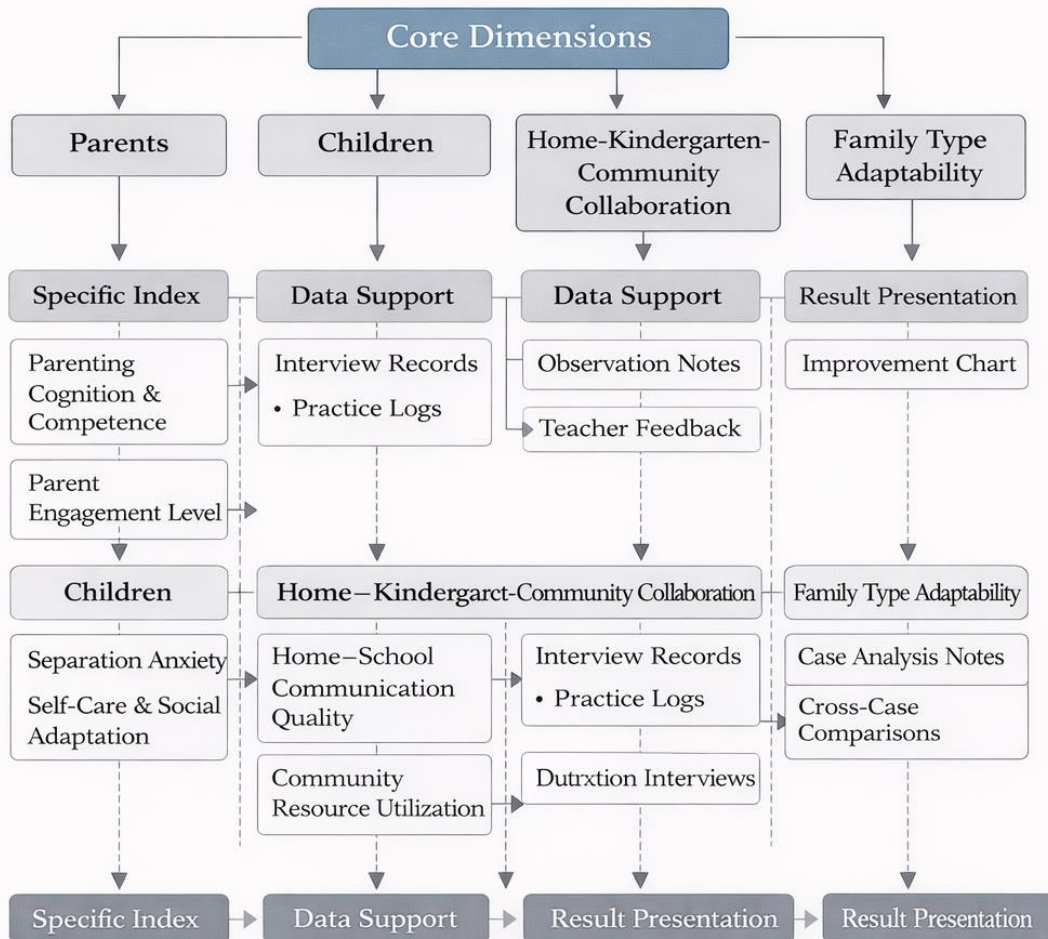
Figure 4.1 Research Implementation Flow Chart

*Analysis of Module Application Effects*

Following the principle of triangulation across multiple dimensions and data sources, this section presents a systematic analysis of the application effects of the school readiness module. Drawing on semi-structured interviews, naturalistic observations, parental practice logs, and teacher feedback records, the effects are examined across four core dimensions: parents, children, home-kindergarten-community collaboration, and family-type adaptability. The analysis follows a structured logic of “core dimension – specific indicators – data evidence – visual presentation,” ensuring the credibility and completeness of the findings.

**Module Application Effect**

Systematic cross-validation idea of “multi-dimension + multi-source data”, which part systematically analyzes the module application effect from four core-dimensions: parents, children, home-kindergarten-Community collaboration, and family type adaptability, combined with multi-source-qualitative data as well as.



Triangulation Verification (Multi-Dimension + Multi-Source)

## Effects on Parents

### *Improvement in Parents' Cognition of School Readiness*

Post-application data indicate a substantial improvement in parents' understanding of school readiness. Specifically, the proportion of parents who could accurately identify key developmental characteristics of 3-year-old children during the kindergarten transition stage—including emotional regulation, social interaction, and behavioral adaptation—increased from 12.5% before application to 90.6% after application. In addition, 87.5% of parents reported a clear understanding of their role as “guides” and “collaborators” in the school readiness process, compared with 34.4% prior to module use.

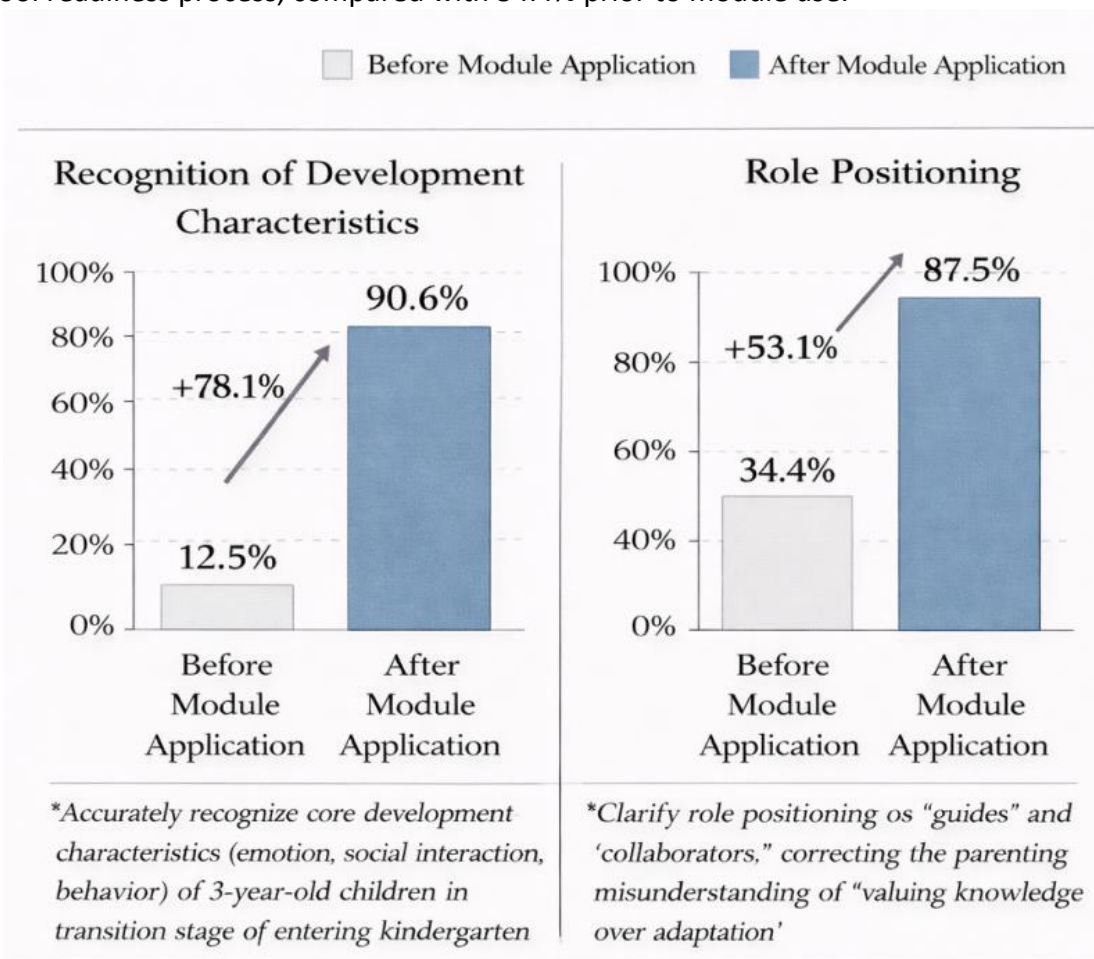


Figure 5.1 Comparison of Changes in Parents' Cognition of School Readiness Parenting

Figure 5.1 illustrates these changes in parental cognition across the two dimensions. The data demonstrate an increase of 78.1 percentage points in accurate developmental recognition and 53.1 percentage points in correct role positioning. Interview data further suggest a shift in parental focus from academic preparation to adaptation-oriented support. As one parent noted, “I used to worry about whether my child could keep up academically, but after using the module, I realized that emotional adjustment and daily routines are far more important at this stage.”

### *Enhancement of Parents' Practical Guidance Capacity*

In addition to cognitive changes, parents' practical guidance capacity improved markedly following module application. Analysis of practice logs and interview data showed that 84.4%

of parents were able to proficiently apply at least three core guidance strategies—namely separation anxiety relief, self-care training, and social guidance—after application, compared with only 6.25% before application.

Parents' guidance-related anxiety was also significantly alleviated. Prior to application, 87.5% of parents reported varying degrees of anxiety regarding school readiness guidance, whereas after application, 75% indicated that they no longer experienced such anxiety. Figure 5.2 presents a comparison of changes in parents' practical guidance ability and anxiety levels before and after module application.

Moreover, 78.1% of parents demonstrated the ability to select and adjust guidance strategies according to their family context. For example, dual-income parents tended to implement short-duration activities lasting 10–15 minutes, while rural parents more frequently utilized local environments and daily routines as guidance resources.

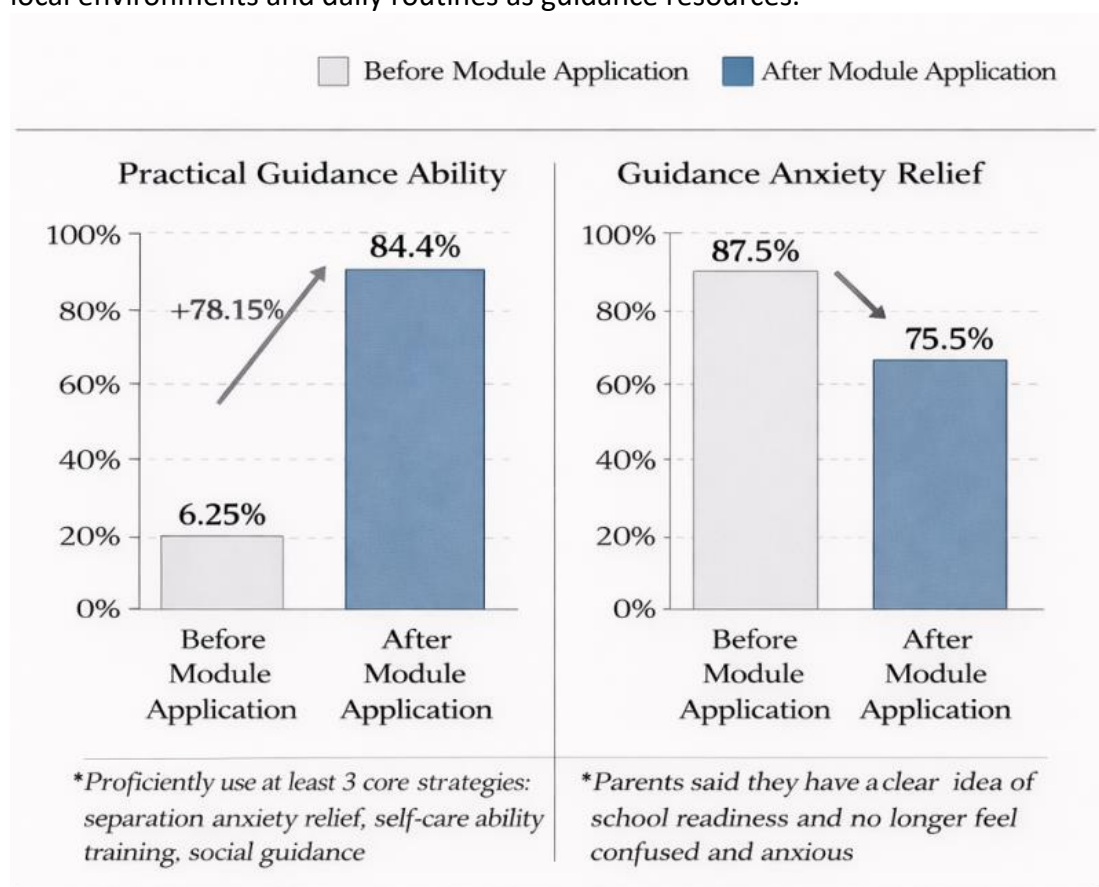


Figure 5.2 Comparison of Parents' Practical Guidance Ability and Anxiety Relief

Further analysis revealed notable differences in parents' responses to the module across family types. Parents from dual-income families tended to show rapid improvement in strategy selection and application efficiency, particularly favoring short-duration and high-frequency activities. However, their practice logs indicated greater fluctuation in weekly implementation consistency, reflecting challenges in sustaining guidance routines over time. In contrast, intergenerational parenting families demonstrated a slower initial adjustment period, especially in aligning guidance strategies between parents and grandparents. Once consensus was achieved, however, these families showed relatively stable and sustained

application patterns, with less variability in strategy use across weeks. Rural families exhibited strong engagement with practical and daily-life–embedded strategies, particularly those related to self-care training and emotional regulation, though they reported limited access to formal external support resources.

These findings suggest that while overall improvements were observed across all family types, differences existed in the pace, stability, and mode of module application, highlighting the importance of examining contextual variation in parents' guidance practices.

### Effects of Module Application on Children's School Adaptation

#### *Changes in Children's Emotional Adaptation*

Teachers' observation records revealed significant improvements in children's emotional adaptation following module application. The incidence of separation anxiety decreased from 81.25% before application to 34.38% after application. In addition, the average duration of separation anxiety was shortened from approximately two to three weeks to less than one week.

The proportion of children who could actively say goodbye to their parents and quickly engage in kindergarten activities increased from 15.6% before application to 68.8% after application. These changes are illustrated in Figure 5.3. Teacher feedback further indicated that children whose parents consistently applied the module showed greater emotional stability during daily transitions.

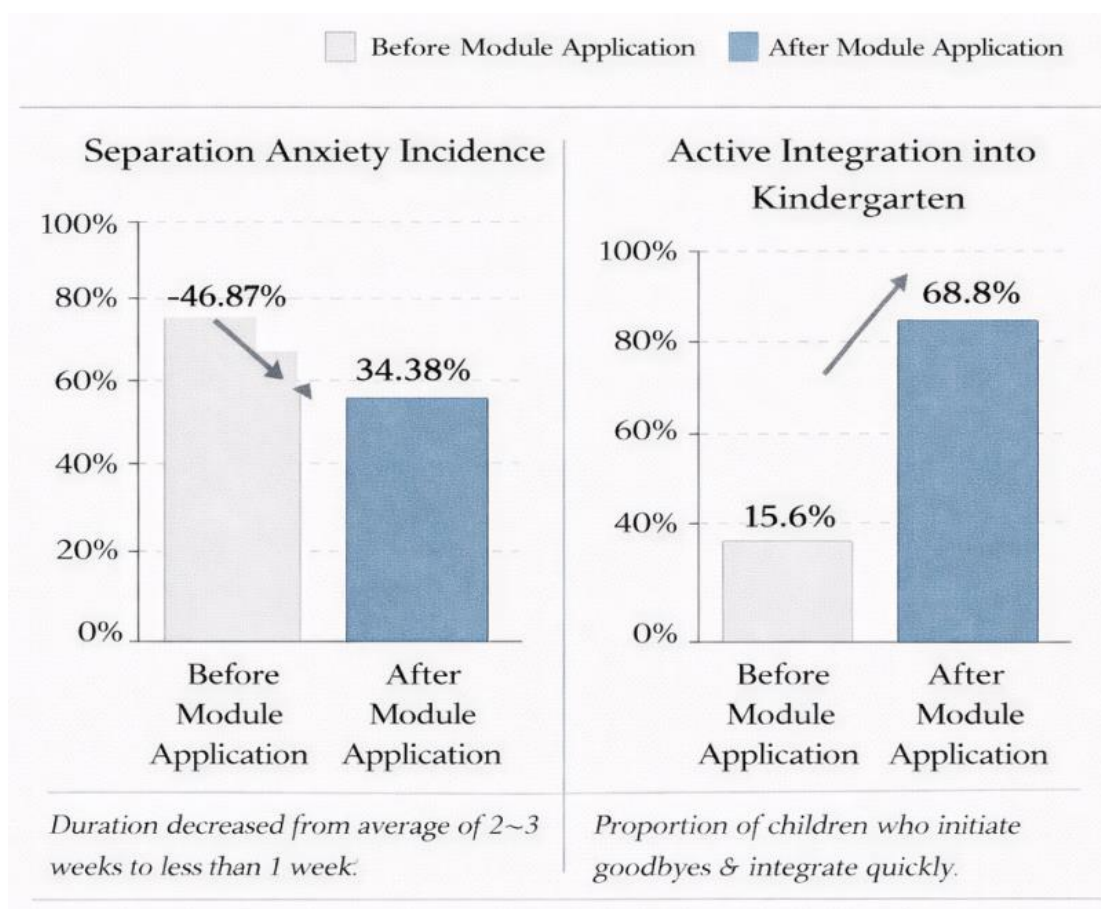


Figure 5.3 Comparison of Changes in Children's Emotional Adaptability

*Development of Self-Care and Social Abilities*

Significant improvements were also observed in children's self-care and social abilities. The proportion of children independently completing core self-care behaviors—such as eating, dressing, and toileting—increased from 28.1% before application to 71.9% after application. Similarly, the proportion of children who actively interacted with peers and participated in group activities increased from 21.9% to 65.6%.

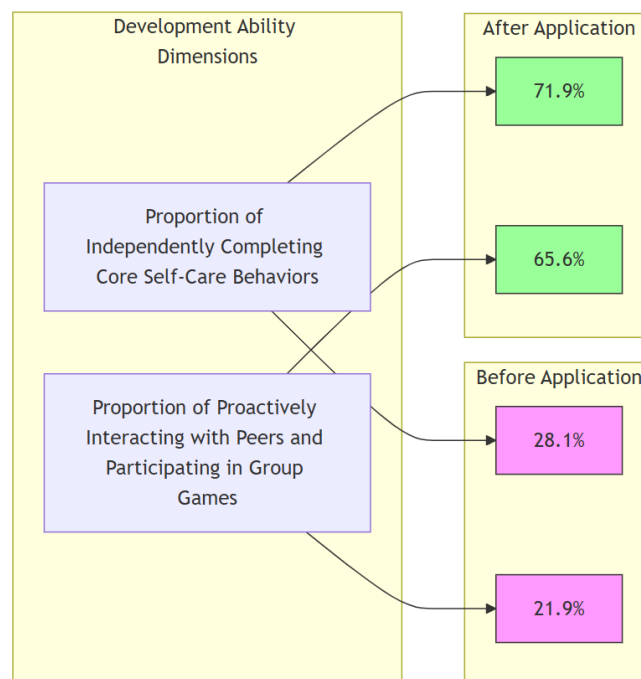


Figure 5.4 Comparison of Changes in Children's Self-Care and Social Abilities

Figure 5.4 presents a comparison of changes in children's self-care and social abilities before and after module application. Further analysis by family type revealed differential improvement patterns. Children from rural families demonstrated the greatest improvement in self-care ability (55.6%), followed by those from intergenerational parenting families (42.9%). These findings suggest that the module's localized and context-adaptive strategies were particularly beneficial for children from resource-constrained or non-nuclear family settings.

Teachers consistently reported that children whose parents applied the module adapted more quickly to kindergarten routines and showed smoother peer interactions.

**Effects on Home–Kindergarten–Community Collaboration***Optimization of Home–Kindergarten Communication*

Data from teacher interviews and feedback records indicate a qualitative shift in home–kindergarten communication patterns following module application. Communication moved from primarily informational exchanges to more collaborative interactions. The proportion of parents who proactively communicated their children's home practices and developmental needs to teachers increased from 25% before application to 78.1% after application.

In addition, 81.2% of teachers reported that the communication templates included in the module enabled parents to provide clearer and more targeted feedback, significantly improving communication efficiency and relevance.

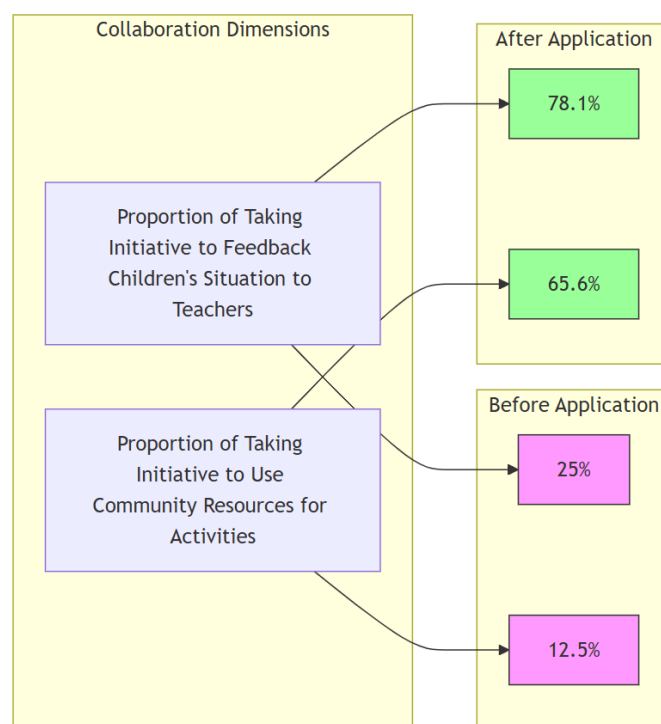


Figure 5.6 Comparison of Changes in Home-Kindergarten-Community Collaboration Indicators

#### Initial Integration of Community Resources

The module also promoted parents' utilization of community resources for school readiness activities. After application, 65.6% of parents actively identified and used community resources such as parks, libraries, and neighborhood spaces, compared with 12.5% prior to application. Figure 5.6 summarizes changes in key indicators of home-kindergarten-community collaboration.

Urban families tended to use formal public facilities, whereas rural families more frequently relied on neighborhood interactions and natural environments. These patterns indicate that the module supported flexible resource integration across different community contexts.

#### *Adaptability Across Different Family Types*

Overall, the module demonstrated good adaptability across different family types, though variations in implementation challenges were evident. Intergenerational parenting families benefited from the module but experienced difficulties related to strategy coordination between grandparents and parents. Dual-income families showed strong engagement with short-duration activities but reported challenges in maintaining long-term consistency. Rural families demonstrated high adaptability to localized strategies but faced limitations due to restricted access to formal community resources.

These findings highlight both the strengths of the module's adaptive design and areas requiring further refinement.

### **Discussion**

The positive application effects of the school readiness parent guidance module can be attributed to the strong alignment between its theoretical foundations and design features. Developed within the Design and Development Research (DDR) paradigm and informed by Ecological Systems Theory and Parental Involvement Theory, the module effectively translated parental role cognition into practical guidance behaviors while embedding home–kindergarten–community collaboration. This integrated approach addressed limitations noted in previous studies, particularly weak theoretical grounding and theory–practice disconnection in existing guidance tools (Xie, 2018; Massy & Sembiante, 2023). The inclusion of adaptive strategies for different family contexts further enhanced applicability, supporting evidence that personalized guidance strengthens parental involvement outcomes (Schulting et al., 2025). The pattern of differentiated parental influence aligns with recent meta-analytic evidence on parental roles in school readiness (Józsa & Oo, 2026).

Several limitations remain. Adaptation depth for intergenerational and rural families was constrained, reflecting sample limitations and structural gaps in community support systems (Guo, 2023; Britto, 2012). In addition, sustainability challenges among dual-income families highlight the influence of parental time constraints on long-term implementation.

Overall, this study extends the application of the DDR paradigm in preschool education by empirically validating a family-centered school readiness module in real contexts and contributes to improving theory-to-practice transformation in early childhood transition support.

### **Conclusion, Implications and Prospects**

This study examined the application effects of a school readiness module designed to support parents of children aged 3 through an eight-week qualitative implementation. The findings indicate that the module effectively enhanced parents' understanding of school readiness, improved their practical guidance skills, and reduced parenting-related anxiety. Positive effects were also observed in children's kindergarten adaptation, particularly in reducing separation anxiety and promoting self-care and social competence. In addition, the module contributed to improved home–kindergarten communication and facilitated initial integration of community resources, supporting a multi-system school readiness approach. Although overall adaptability across family types was positive, challenges remained in intergenerational coordination, time constraints among dual-income families, and resource limitations in rural contexts.

The study provides practical implications for family-centered school readiness support. The module offers a structured yet flexible tool for parents and can serve as a standardized resource for kindergartens to strengthen home–kindergarten collaboration. More broadly, its design logic may inform the development of coordinated school readiness support frameworks across families, educational institutions, and communities.

Several limitations should be noted. The sample was regionally limited, the implementation period focused on short-term effects, and some family types were underrepresented. Future research should expand sample diversity, conduct longitudinal follow-up, and further refine the module, including exploring digital delivery formats to enhance accessibility and scalability.

## References

- Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology* (6th ed., Vol. 1, pp. 793–828). John Wiley & Sons.
- Britto, P. R. (2012). *School readiness: Nurturing care for early childhood development*. United Nations Children's Fund (UNICEF).
- Chang, L., & Abidin, M. J. Z. (2024). Instructional design of classroom instructional skills based on practice-oriented paradigm. *Technium Social Sciences Journal*, 55\*, 167–178. <https://doi.org/10.47577/tssj.v55i.6654>
- Guo, Y. (2023). Research on parental guidance strategies for children's kindergarten transition. *Journal of Preschool Education*, (4)\*, 35–40. (in Chinese)
- Hoover-Dempsey, K. V., & Jones, K. P. (1997). How do I help my child succeed in school? The influence of parents' perceptions of involvement on their involvement behaviors. *Elementary School Journal*, 98\*(1), 27–42. <https://doi.org/10.1086/461877>
- Massy, Z., & Sembiente, G. (2023). Parent education programs for school readiness: A systematic review. *Early Childhood Education Journal*, 51\*(3), 456–468. <https://doi.org/10.1007/s10643-022-01368-9>
- Ministry of Education of the People's Republic of China. (2021). *The 14th Five-Year Plan for the development and improvement of preschool education*. Educational Science Press. (in Chinese)
- Kementerian Pendidikan Malaysia, Bahagian Pembangunan Kurikulum. (2025). *Dokumen kurikulum prasekolah: Kurikulum Prasekolah 2026*. Kementerian Pendidikan Malaysia. (ISBN 978-967-420-784-7).
- Ministry of Education Press, Kuala Lumpur. Rajaram, S. (2023). Effectiveness of a structured parent guidance module on reducing preschoolers' separation anxiety. *Journal of Child and Family Studies*, 32\*(2), 678–692. <https://doi.org/10.1007/s10826-022-02218-5>
- Richey, R. C., & Klein, J. D. (2007). *Design and development research: Methods, strategies, and issues*.
- Lawrence Erlbaum Associates. Rimm-Kaufman, S. E., & Pianta, R. C. (2000). An ecological perspective on the transition to kindergarten: A theoretical framework to guide empirical research. *Journal of Applied Developmental Psychology*, 21\*(4), 491–511. [https://doi.org/10.1016/S0193-3973\(00\)00065-0](https://doi.org/10.1016/S0193-3973(00)00065-0)
- Schulting, A., Malone, P. S., & Dodge, K. A. (2025). Parental involvement in kindergarten transition activities and children's early school adjustment. *Early Childhood Research Quarterly*, 48\*, 101–112. <https://doi.org/10.1016/j.ecresq>
- Xu, H. (2022). Research on independent literacy teaching strategies in elementary school language under the perspective of deep learning. *Reading (ZD)*, (12)\*, 15–18. (in Chinese)
- Xie, L. (2018). A study on the current situation and optimization strategies of parental guidance for preschool children's school readiness. *Journal of Preschool Education Research*, (2)\*, 23–28. (in Chinese)

- Zhu, K. (2025). Development of the school readiness module for parents with children aged 3 in Zhejiang Province (Unpublished doctoral dissertation). Universiti Pendidikan Sultan Idris, Tanjung Malim, Perak, Malaysia.
- Józsa, K., & Oo, T. Z. (2026). Systematic review and meta-analysis of parental roles in early childhood school readiness. *Journal of New Approaches in Educational Research*, 15, Article 6. <https://doi.org/10.1007/s44322-026-00055-2>
- Ridha, A. A., Jalal, N. M., & Halima, A. (2024). The influence of parental involvement on early childhood education students' school readiness in Makassar. *International Journal of Research and Innovation in Social Science*, 3678–3690. <https://dx.doi.org/10.47772/IJRISS.2024.803265S>
- Sun, M., Feng, Z., & Xiao, L. (2025). The relationship between home–kindergarten–community collaboration and socioemotional competence among Chinese preschoolers. *Frontiers in Psychology*, 16, 1647323. <https://doi.org/10.3389/fpsyg.2025.1647323>
- A systematic review: Parental perspective on school readiness during the pre- and post-transition periods. (2025). *International Journal of Educational Research Open*, 9, 100486. <https://doi.org/10.1016/j.ijedro.2025.100486>
- Kong, K., Tan, S. T., Shafee, A., & Cheah, A. (2024). Links between duration of early childhood education participation and school readiness domains: A study with Malaysian public preschool children. *Early Childhood Education Journal*, 53, 2477–2488. <https://link.springer.com/article/10.1007/s10643-024-01757-y>
- McKenney, S., & Reeves, T. C. (2021). Educational design research: Portraying, conducting, and enhancing productive scholarship. Routledge. <https://doi.org/10.4324/9781315613635>
- Neal, J. W., & Neal, Z. P. (2021). Nested or networked? Future directions for ecological systems theory. *Social Development*, 30(1), 1–13. <https://doi.org/10.1111/sode.12460>
- Massy, C., & Sembiente, S. F. (2023). Design-based implementation research in education: Addressing sustainability and contextual adaptation. *Educational Researcher*, 52(4), 240–250. <https://doi.org/10.3102/0013189X231162345>